

AN IMPROVED GALACTOSE OXIDASE ENZYME PANEL FOR OXIDATION OF SECONDARY ALCOHOLS

CROSS-REFERENCE TO RELATED APPLICATIONS

- 5 [0001] This application claims the benefit of priority of Singapore provisional application No. 10202250709V, filed 11 August 2022, the contents of it being hereby incorporated by reference in its entirety for all purposes.

TECHNICAL FIELD

- 10 [0002] The present disclosure generally relates to a modified galactose oxidase capable of oxidizing a wide range of secondary alcohols to ketones.

BACKGROUND

- 15 [0003] Alcohol oxidation is an important transformation in chemical synthesis due to the convenience of hydroxyl and carbonyl functionalities as synthetic intermediates. Present chemical alcohol oxidation methodologies typically involve elevated temperatures, stoichiometric oxidants, and toxic by-products.

- [0004] In contrast, biocatalytic alcohol oxidation by enzymes such as galactose oxidase possess advantages such as high selectivity, mild reaction conditions, benign by-products, and sustainable operation in water instead of organic solvents. However, one inherent drawback of excellent biocatalytic selectivity is their limited substrate scope.

- 20 [0005] Galactose oxidase is a radical-copper enzyme. Since its discovery, various research groups have worked on expanding its substrate scope. The most well studied variant of galactose oxidase for oxidation of secondary alcohols is the M3-5 variant, which comprises eight mutations (S33P, M93V, G218E, W313F, R353M, Q429T, V517A, N558D) with respect to wild-type galactose oxidase from *Fusarium sp.* M3-5 encompasses a relatively wide
25 substrate scope, including selected benzylic secondary alcohols. However, no enzyme variants so far have been able to accept bulky secondary alcohols.

- [0006] There is therefore a need to develop modified galactose oxidase enzymes that can oxidize a wide range of secondary alcohols to ketones, to create a panel of biocatalysts for an important transformation in chemical synthesis.

SUMMARY

[0007] In one aspect, the present disclosure refers to a modified galactose oxidase comprising a polypeptide sequence having at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to SEQ ID NO: 6, wherein SEQ ID NO: 6 is a polypeptide sequence of galactose oxidase variant M3-5, wherein the galactose oxidase variant M3-5 comprises mutations of S33P, M93V, G218E, W313F, R353M, Q429T, V517A, and N558D relative to the wildtype galactose oxidase from *Fusarium graminearum* (SEQ ID NO: 4), and wherein the polypeptide sequence of the modified galactose oxidase further comprises at least one mutation at one or more positions selected from the group consisting of 24, 26, 28, 45, 49, 65, 69, 104, 114, 117, 153, 157, 172, 173, 175, 193, 194, 195, 197, 198, 202, 214, 217, 218, 220, 224, 226, 239, 240, 250, 259, 265, 268, 269, 284, 294, 313, 314, 325, 341, 346, 348, 352, 353, 356, 389, 401, 429, 447, 485, 487, 537, 538, 546, 559, 576, 599, and 662, wherein the position of the mutation is numbered with reference to SEQ ID NO: 6.

[0008] In one aspect, the present disclosure refers to a polynucleotide sequence encoding the modified galactose oxidase disclosed herein.

[0009] In one aspect, the present disclosure refers to an expression vector comprising the polynucleotide sequence disclosed herein.

[0010] In one aspect, the present disclosure refers to a host cell comprising the polynucleotide sequence disclosed herein or the expression vector disclosed herein.

[0011] In one aspect, the present disclosure refers to a method of producing a modified galactose oxidase, comprising culturing the host cell disclosed herein under suitable culture conditions such that the modified galactose oxidase is produced.

[0012] In one aspect, the present disclosure refers to a method of producing a ketone from a secondary alcohol, comprising contacting the secondary alcohol with the modified galactose oxidase disclosed herein under suitable conditions for an oxidation reaction.

[0013] In one aspect, the present disclosure refers to a kit for use in the method disclosed herein, wherein the kit comprises the modified galactose oxidase disclosed herein.

BRIEF DESCRIPTION OF DRAWINGS

[0014] The invention will be better understood with reference to the detailed description when considered in conjunction with the non-limiting examples and the accompanying drawings, in which:

[0015] **Fig. 1** shows an expanded substrate scope of the identified galactose oxidase variants. Up to 64 substrates were tested in the panel.

[0016] **Fig. 2** highlights the performance of top performing galactose oxidase variant against five (5) selected examples of bulky benzylic secondary alcohol substrates with reference to the M3-5 variant as benchmark.

[0017] **Fig. 3** shows the mutation details on five (5) selected galactose oxidase variants (incorporating three or more synergistic mutations on top of the M3-5 variant) and their high performance liquid chromatography (HPLC) yields of ortho-substituted bulky benzylic secondary alcohol substrates compared to mutant GOh1052 as the benchmark.

[0018] **Fig. 4** shows the enzyme profile of 13 top performing galactose oxidase variants in terms of activity (high performance liquid chromatography yield from secondary alcohol substrate 152, 1-phenyl-1-butanol), residual activity (described in **Fig. 6**), protein expression, and ratio of soluble to insoluble protein compared to GOh1052 variant (F217A, N268W from M3-5) as the benchmark.

[0019] **Fig. 5** shows the measured colorimetric activities of 12 selected galactose oxidase variants as well as M3-5 benchmark against the 64 secondary alcohol substrate panel described in **Fig. 1**. Mutations are given in the top row, variant identifier numbers are given in the second row, and substrate identifier numbers are given in the first column. Colour coded heatmap comparisons have been done horizontally per substrate.

[0020] **Fig. 6** shows the procedure for measuring residual activity of a galactose oxidase variant.

DEFINITION OF TERMS

[0021] The following words and terms used herein shall have the meaning indicated:

[0022] As used in this application, the singular form “a,” “an,” and “the” include plural references unless the context clearly dictates otherwise. For example, the term “a primer” includes a plurality of primers, including mixtures and combinations thereof.

[0023] As used herein, the terms “increase” and “decrease” refer to the relative alteration of a chosen trait or characteristic in a subset of a population in comparison to the same trait or characteristic as present in the whole population. An increase thus indicates a change on a positive scale, whereas a decrease indicates a change on a negative scale. The term “change”, as used herein, also refers to the difference between a chosen trait or characteristic of an isolated

population subset in comparison to the same trait or characteristic in the population as a whole. However, this term is without valuation of the difference seen.

[0024] As used herein, the term “about” in the context of concentration of a substance, size of a substance, length of time, or other stated values means +/- 5% of the stated value, or +/- 4% of the stated value, or +/- 3% of the stated value, or +/- 2% of the stated value, or +/- 1% of the stated value, or +/- 0.5% of the stated value.

[0025] Throughout this disclosure, certain embodiments may be disclosed in a range format. It should be understood that the description in range format is merely for convenience and brevity and should not be construed as an inflexible limitation on the scope of the disclosed ranges. Accordingly, the description of a range should be considered to have specifically disclosed all the possible sub-ranges as well as individual numerical values within that range. For example, description of a range such as from 1 to 6 should be considered to have specifically disclosed sub-ranges such as from 1 to 3, from 1 to 4, from 1 to 5, from 2 to 4, from 2 to 6, from 3 to 6 etc., as well as individual numbers within that range, for example, 1, 2, 3, 4, 5, and 6. This applies regardless of the breadth of the range.

[0026] The disclosure illustratively described herein may suitably be practiced in the absence of any element or elements, limitation or limitations, not specifically disclosed herein. Thus, for example, the terms "comprising", "including", "containing", etc. shall be read expansively and without limitation. Additionally, the terms and expressions employed herein have been used as terms of description and not of limitation, and there is no intention in the use of such terms and expressions of excluding any equivalents of the features shown and described or portions thereof, but it is recognized that various modifications are possible within the scope of the disclosure claimed. Thus, it should be understood that although the present disclosure has been specifically disclosed by preferred embodiments and optional features, modification and variation of the disclosures embodied therein herein disclosed may be resorted to by those skilled in the art, and that such modifications and variations are considered to be within the scope of this disclosure.

[0027] The disclosure has been described broadly and generically herein. Each of the narrower species and subgeneric groupings falling within the generic disclosure also form part of the disclosure. This includes the generic description of the disclosure with a proviso or negative limitation removing any subject matter from the genus, regardless of whether or not the excised material is specifically recited herein.

[0028] Other embodiments are within the following claims and non-limiting examples. In addition, where features or aspects of the disclosure are described in terms of Markush groups, those skilled in the art will recognize that the disclosure is also thereby described in terms of any individual member or subgroup of members of the Markush group.

- 5 [0029] As used herein, the terms "modified galactose oxidase", "galactose oxidase mutant" and "galactose oxidase variant" are used interchangeably, when referring to altered forms of a galactose oxidase resulting from genetic changes or modifications.

- [0030] The secondary alcohol may include, but is not limited, a bulky secondary alcohol or an unactivated secondary alcohol. In one example, the bulky secondary alcohol comprises one or
- 10 more bulky substituents. In one example, an unactivated secondary alcohol is an aliphatic secondary alcohol without a benzene ring in the alpha position adjacent to the alcohol group. The term "bulky" when used in relation to the secondary alcohol refers to an alcohol that is sterically bulky (or large or complex). In one example, the sterically bulky alcohol is an alkyl alcohol (carbon-based, C-OH). Examples of sterically bulky alcohols are 1-phenyl-1-butanol,
- 15 diphenylmethanol, alpha-tetralol, and the like (such as those disclosed herein), as well as derivatives thereof. Similarly, the term "bulky" when used in relation to "substituents" refers to a substituent that is sterically bulky (or large or complex). In one example, the bulky secondary alcohol is an alcohol comprising one or more bulky substituents. In one example, the bulky substituent is selected from the group consisting of cycloalkyl, aryl, heteroaryl, alkyl,
- 20 alkylene, alkynyl, haloalkyl, carboxyl, and carbonyl, wherein the cycloalkyl, aryl, heteroaryl, alkyl, alkylene, alkynyl, haloalkyl, carboxyl, and carbonyl is optionally substituted with one or more substituents selected from the group consisting of alkyl, halogen, alkyl halide, alkylene, alkynyl, alkoxy, cyano, oxo, nitro, amino, thiol, carboxyl, ester and hydroxyl. In one example, the secondary alcohol comprises the formula R^1R^2CHOH , wherein R^1 and R^2 are independently
- 25 selected from the group consisting of cycloalkyl, aryl, heteroaryl, alkyl, alkylene, alkynyl, haloalkyl, carboxyl, and carbonyl, wherein the cycloalkyl, aryl, heteroaryl, alkyl, alkylene, alkynyl, haloalkyl, carboxyl, and carbonyl is optionally substituted with one or more substituents selected from the group consisting of alkyl, halogen, alkyl halide, alkylene, alkynyl, alkoxy, cyano, oxo, nitro, amino, thiol, carboxyl, ester and hydroxyl.
- 30 [0031] The present disclosure includes within its scope all isomeric forms of the compounds disclosed herein, including all diastereomeric isomers, racemates and enantiomers. Thus,

formulae (I) and (II) should be understood to include, for example, *E*, *Z*, *cis*, *trans*, (R), (S), (L), (D), (+), and/or (-) forms of the compounds, as appropriate in each case.

[0032] The term “optionally substituted” as used herein means the group to which this term refers may be unsubstituted, or may be substituted with one or more groups independently selected from alkyl, alkenyl, alkynyl, thioalkyl, cycloalkyl, cycloalkenyl, heterocycloalkyl, halo, carboxyl, haloalkyl, haloalkynyl, hydroxyl, alkoxy, thioalkoxy, alkenyloxy, haloalkoxy, haloalkenyloxy, nitro, amino, nitroalkyl, nitroalkenyl, nitroalkynyl, nitroheterocyclyl, alkylamino, dialkylamino, alkenylamine, alkynylamino, acyl, alkenoyl, alkynoyl, acylamino, diacylamino, acyloxy, alkylsulfonyloxy, heterocycloxy, heterocycloamino, haloheterocycloalkyl, alkylsulfenyl, alkylcarbonyloxy, alkylthio, acylthio, phosphorus-containing groups such as phosphono and phosphinyl, aryl, heteroaryl, alkylaryl, alkylheteroaryl, cyano, cyanate, isocyanate, -C(O)NH(alkyl), and -C(O)N(alkyl)₂.

[0033] The term “cycloalkyl” as used herein refers to cyclic saturated aliphatic groups and includes within its meaning monovalent (“cycloalkyl”), and divalent (“cycloalkylene”), saturated, monocyclic, bicyclic, polycyclic or fused polycyclic hydrocarbon radicals having from 3 to 10 carbon atoms, e.g., 3, 4, 5, 6, 7, 8, 9, or 10 carbon atoms. Examples of cycloalkyl groups include but are not limited to cyclopropyl, 2-methylcyclopropyl, cyclobutyl, cyclopentyl, 2-methylcyclopentyl, 3-methylcyclopentyl, cyclohexyl, and the like. In one example, the term “fused polycyclic hydrocarbon radical” refers to a fused polycyclic hydrocarbon group, ring, or system, wherein the carbon atoms within the fused polycyclic hydrocarbon group, ring or system are covalently bonded.

[0034] The term “aromatic group”, or variants such as “aryl” or “arylene” as used herein refers to monovalent (“aryl”) and divalent (“arylene”) single, polynuclear, conjugated and fused residues of aromatic hydrocarbons having from 6 to 10 carbon atoms. Examples of such groups include phenyl, biphenyl, naphthyl, phenanthrenyl, and the like.

[0035] The term “heteroaromatic group” and variants such as “heteroaryl” or “heteroarylene” as used herein, includes within its meaning monovalent (“heteroaryl”) and divalent (“heteroarylene”), single, polynuclear, conjugated and fused aromatic radicals having 6 to 20 atoms wherein 1 to 6 atoms are heteroatoms selected from O, N, NH and S. Examples of such groups include pyridyl, 2,2'-bipyridyl, phenanthrolinyl, quinolinyl, thiophenyl, and the like. In one example, the term “fused aromatic radical” refers to a fused aromatic group, ring, or

system, wherein the atoms within the fused aromatic group, ring, or system are covalently bonded.

[0036] As used herein, the term "alkyl" includes within its meaning monovalent ("alkyl") and divalent ("alkylene") straight chain or branched chain saturated aliphatic groups having from 1 to 10 carbon atoms, e.g., 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 carbon atoms. For example, the term alkyl includes, but is not limited to, methyl, ethyl, 1-propyl, isopropyl, 1-butyl, 2-butyl, isobutyl, tert-butyl, amyl, 1,2-dimethylpropyl, 1,1-dimethylpropyl, pentyl, isopentyl, hexyl, 4-methylpentyl, 1-methylpentyl, 2-methylpentyl, 3-methylpentyl, 2,2-dimethylbutyl, 3,3-dimethylbutyl, 1,2-dimethylbutyl, 1,3-dimethylbutyl, 1,2,2-trimethylpropyl, 1,1,2-trimethylpropyl, 2-ethylpentyl, 3-ethylpentyl, heptyl, 1-methylhexyl, 2,2-dimethylpentyl, 3,3-dimethylpentyl, 4,4-dimethylpentyl, 1,2-dimethylpentyl, 1,3-dimethylpentyl, 1,4-dimethylpentyl, 1,2,3-trimethylbutyl, 1,1,2-trimethylbutyl, 1,1,3-trimethylbutyl, 5-methylheptyl, 1-methylheptyl, octyl, nonyl, decyl, and the like.

[0037] The term "alkenyl" includes within its meaning monovalent ("alkenyl") and divalent ("alkenylene") straight or branched chain unsaturated aliphatic hydrocarbon groups having from 2 to 10 carbon atoms, e.g., 2, 3, 4, 5, 6, 7, 8, 9, or 10 carbon atoms and having at least one double bond, of either *E*, *Z*, *cis* or *trans* stereochemistry where applicable, anywhere in the alkyl chain. Examples of alkenyl groups include but are not limited to ethenyl, vinyl, allyl, 1-methylvinyl, 1-propenyl, 2-propenyl, 2-methyl-1-propenyl, 2-methyl-1-propenyl, 1-butenyl, 2-butenyl, 3-butenyl, 1,3-butadienyl, 1-pentenyl, 2-pentenyl, 3-pentenyl, 4-pentenyl, 1,3-pentadienyl, 2,4-pentadienyl, 1,4-pentadienyl, 3-methyl-2-butenyl, 1-hexenyl, 2-hexenyl, 3-hexenyl, 1,3-hexadienyl, 1,4-hexadienyl, 2-methylpentenyl, 1-heptenyl, 2-heptenyl, 3-heptenyl, 1-octenyl, 1-nonenyl, 1-decenyl, and the like.

[0038] The term "alkynyl" as used herein includes within its meaning monovalent ("alkynyl") and divalent ("alkynylene") straight or branched chain unsaturated aliphatic hydrocarbon groups having from 2 to 10 carbon atoms and having at least one triple bond anywhere in the carbon chain. Examples of alkynyl groups include but are not limited to ethynyl, 1-propynyl, 1-butyne, 2-butyne, 1-methyl-2-butyne, 3-methyl-1-butyne, 1-pentyne, 1-hexyne, methylpentynyl, 1-heptyne, 2-heptyne, 1-octyne, 2-octyne, 1-nonyne, 1-decyne, and the like.

[0039] The term "haloalkyl" refers to a straight-or branched-chain alkenyl group having from 2-12 carbon atoms in the chain and where one or more hydrogens is substituted with a halogen.

Illustrative haloalkyl groups include trifluoromethyl, 2-bromopropyl, 3-chlorohexyl, 1-iodo-isobutyl, and the like.

[0040] The term "carboxyl" as used herein is intended to mean the radical-C (O) OH.

[0041] The term "carbonyl" as used herein refers to a functional group comprising a carbon atom with a double bond to an oxygen atom, which can be written as C(=O) or as C(O).

[0042] The term "halogen" or variants such as "halide" or "halo" as used herein refers to fluorine, chlorine, bromine and iodine.

[0043] The term "alkyl halide" as used herein includes within its meaning straight or branched chain alkyl groups having from 2-12 carbon atoms and in which one or more of its hydrogen atoms are substituted with the corresponding number of halogen atoms. An alkyl halide with C_n carbon atoms may have at least one up to $2n+1$ halogen atoms, and the halogen atoms may be the same or different. Examples of alkyl halide groups include but are not limited to CF_3 , C_2F_5 , CHF_2 , $CHCl_2$, $CHBr_2$, C_2Cl_5 and the like.

[0044] The term "alkoxy" as used herein refers to straight chain or branched alkyloxy groups. Examples include methoxy, ethoxy, n-propoxy, isopropoxy, tert-butoxy, and the like.

[0045] The term "cyano", used interchangeably with "nitrile", refers to a group comprising a carbon atom with a triple bond to a nitrogen atom, which can be written as $-C\equiv N$ or $-CN$.

[0046] The term "oxo" as used herein is intended to mean the radical $=O$.

[0047] The term "amino" as used herein refers to groups of the form $-NR_aR_b$ wherein R_a and R_b are individually selected from the group including but not limited to hydrogen, optionally substituted alkyl, optionally substituted alkenyl, optionally substituted alkynyl, and optionally substituted aryl groups.

[0048] The term "nitro" as used herein refers to a functional group comprising a nitrogen atom joined to two oxygen atoms, which can be written as $-O-N=O$ or $-NO_2$.

[0049] The term "thiol" as used herein refers to a group comprising the formula $-SH$.

[0050] The term "ester" as used herein refers to a group represented by the general formula R_cCOOR_d . R_c and/or R_d may include, but is not limited to alkyl, aryl, haloalkyl.

[0051] The term "hydroxyl" as used herein refers to the group $-OH$.

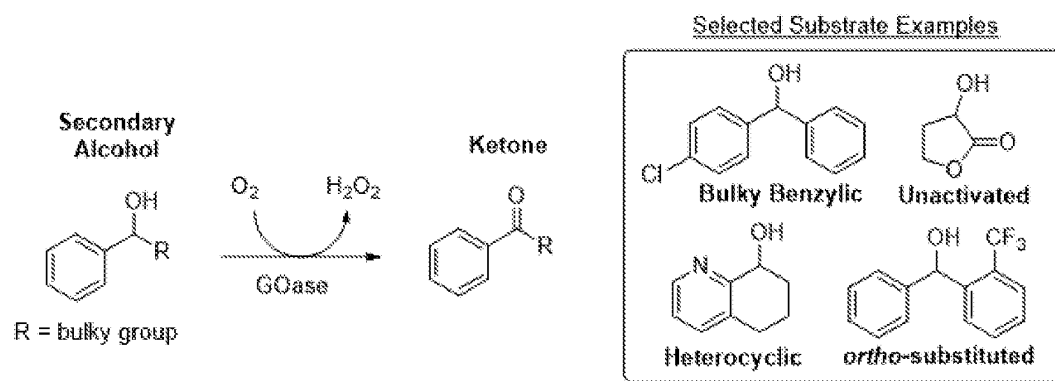
[0052] In the phrase "even numbered sequences", the term "even number" refers to any number that is a multiple of 2. In one example, even numbered sequences of SEQ ID NOS: 1-298 refer to SEQ ID NOS: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, and so on until SEQ ID NO: 298. In

another example, even numbered sequences of SEQ ID NOS: 77-298 refer to SEQ ID NOS: 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, and so on until SEQ ID NO: 298.

[0053] In the phrase "odd numbered sequences", the term "odd number" refers to any number that is not a multiple of 2. In one example, odd numbered sequences of SEQ ID NOS: 1-298 refer to SEQ ID NOS: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, and so on until SEQ ID NO: 297. In another example, odd numbered sequences of SEQ ID NOS: 77-298 refer to SEQ ID NOS: 77, 79, 81, 83, 85, 87, 89, 91, 93, 95, 97, 99, 101 and so on until SEQ ID NO: 297.

DETAILED DESCRIPTION

[0054] The present disclosure is directed to a panel of modified galactose oxidase enzymes based on copper-dependent galactose oxidase from *Fusarium graminearum*. The present disclosure discloses 118 unique mutations (either singly or in combination) from the backbone M3-5 variant that convey improved enhancement in activity and/or stability, and/or solubility, and/or protein expression, and/or selectivity compared to M3-5 variant. The present disclosure describes galactose oxidase variants with enhanced protein expression, solubility, thermal stability and enzymatic activity, and reduced enantioselectivity, compared to galactose oxidase variants known in the art, and methods of producing the same. Galactose oxidases catalyse the oxidation of secondary alcohol substrates to ketones in accordance with the chemical equation shown below:



[0055] The inventors therefore screened and identified galactose oxidase variants that are capable of accepting a wide range of bulky secondary alcohols (e.g., biphenyl, C₈ alkyl sidechain, ortho-substitution) with good tolerance of halogen (e.g., Cl, Br), alkene, alkyne, and nitro functional groups. The galactose oxidase variants disclosed herein are also capable of accepting unactivated secondary alcohols as substrates.

[0056] In one aspect, the present disclosure refers to a modified galactose oxidase comprising a polypeptide sequence having at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to SEQ ID NO: 6, wherein SEQ ID NO: 6 is a polypeptide sequence of galactose oxidase variant M3-5, wherein the galactose oxidase variant M3-5 comprises mutations of S33P, M93V, G218E, W313F, R353M, Q429T, V517A, and N558D relative to the wildtype galactose oxidase from *Fusarium graminearum* (SEQ ID NO: 4), and wherein the polypeptide sequence of the modified galactose oxidase further comprises at least one mutation at one or more positions selected from the group consisting of 24, 26, 28, 45, 49, 65, 69, 104, 114, 117, 153, 157, 172, 173, 175, 193, 194, 195, 197, 198, 202, 214, 217, 218, 220, 224, 226, 239, 240, 250, 259, 265, 268, 269, 284, 294, 313, 314, 325, 341, 346, 348, 352, 353, 356, 389, 401, 429, 447, 485, 487, 537, 538, 546, 559, 576, 599, and 662, wherein the position of the mutation is numbered with reference to SEQ ID NO: 6.

[0057] In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the mutation is selected from the group consisting of A24H, A24N, A26H, A26R, I28F, I28M, I28R, Q45D, Q45E, Q45N, E49K, F65P, N69D, N69E, N69F, N69H, N69L, N69M, N69T, N69W, N69Y, W104G, W104N, S114N, S114R, T117D, T153K, T153R, G157N, S172E, S173K, S173R, T175E, T175H, T175I, T175K, V193T, P194C, A195S, A195T, A195V, A197C, A197G, A198I, T202D, T202I, T202K, T202Q, N214R, N214S, F217A, F217C, F217D, F217E, F217G, F217H, F217I, F217K, F217L, F217M, F217N, F217P, F217Q, F217R, F217S, F217T, F217V, F217Y, E218F, E218K, E218P, E218Y, S220T, I224W, L226Q, L226V, D239E, D239P, D239Q, R240G, F250E, F250Y, N259T, T265S, N268W, D269N, I284S, I284Y, G294A, F313R, S314C, Y325F, N341W, A346L, K348S, Y352T, Y352W, M353F, N356K, N356R, N356W, K389I, A401D, T429W, T447A, I485A, I485K, I485R, F487R, L537G, C538K, C538R, F546M, S559P, S576D, Y599M, Q662D, and Q662P.

[0058] In one specific example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the mutation is selected from the group consisting of I28R, A24H, A195S, A195T, A195V, A198I, T202I, F217A, E218F, E218K, L226Q, D239E, N259T, N268W, S314C, Y352W, Y599M, and combinations thereof.

[0059] In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the mutation is selected from the group consisting of:

- M353F;

- S314C;
- L537G;
- F217V;
- F217P;
- 5 • F217Q;
- F217N;
- F217S;
- N268W;
- E218P;
- 10 • F217I;
- F217T;
- F217L;
- F217E;
- F217Y;
- 15 • F217A;
- F217C;
- F217D;
- F217G;
- F217H;
- 20 • F217K;
- F217M;
- F217R;
- a combination of F217P and E218P;
- a combination of F217P and L537G;
- 25 • a combination of F217P, E218P and L537G;
- a combination of F217V and E218P;
- a combination of F217V and L537G;
- a combination of F217V, E218P and L537G;
- a combination of E218P and L537G;
- 30 • a combination of F217A and N268W;
- a combination of F217A, N268W and M353F;

- a combination of F217A, N268W and S314C;
- a combination of F217G and N268W;
- a combination of F217G, N268W and M353F;
- a combination of F217A, N268W and A195S;
- 5 • a combination of F217A, N268W and V193T;
- a combination of F217A, N268W and N259T;
- a combination of F217A, N268W and Y325F;
- a combination of F217A, N268W and G294A;
- a combination of F217A, N268W and A195T;
- 10 • a combination of F217A, N268W and Y352T;
- a combination of F217A, N268W and N341W;
- a combination of F217A, N268W and A197C;
- a combination of F217A, N268W and R240G;
- a combination of F217A, N268W and A198I;
- 15 • a combination of F217A, N268W and K348S;
- a combination of F217A, N268W and T202D;
- a combination of F217A, N268W and T202Q;
- a combination of F217A, N268W and T202I;
- a combination of F217A, N268W and T202K;
- 20 • a combination of F217A, N268W and P194C;
- a combination of F217A, N268W and A346L;
- a combination of F217A, N268W and K389I;
- a combination of F217A, N268W and Y352W;
- a combination of F217A, N268W and C538K;
- 25 • a combination of F217A, N268W and C538R;
- a combination of F217A, N268W and F250E;
- a combination of F217A, N268W and F250Y;
- a combination of F217A, N268W and N356K;
- a combination of F217A, N268W and N356R;
- 30 • a combination of F217A, N268W and N356W;
- a combination of F217A, N268W and F487R;

- a combination of F217A, N268W and T429W;
- a combination of F217A, N268W and E218K;
- a combination of F217A, N268W and F313R;
- a combination of F217A, N268W and I284Y;
- 5 • a combination of F217A, N268W and A24H;
- a combination of F217A, N268W and I28R;
- a combination of F217A, N268W and I28M;
- a combination of F217A, N268W and S576D;
- a combination of F217A, N268W and I284S;
- 10 • a combination of F217A, N268W and F65P;
- a combination of F217A, N268W and T153R;
- a combination of F217A, N268W and A197G;
- a combination of F217A, N268W and T265S;
- a combination of F217A, N268W and S220T;
- 15 • a combination of F217A, N268W and N214S;
- a combination of F217A, N268W and I485A;
- a combination of F217A, N268W and N214R;
- a combination of F217A, N268W and D269N;
- a combination of F217A, N268W and I485R;
- 20 • a combination of F217A, N268W and I485K;
- a combination of F217A, N268W and D239E;
- a combination of F217A, N268W and T117D;
- a combination of F217A, N268W and S114R;
- a combination of F217A, N268W and S559P;
- 25 • a combination of F217A, N268W and S114N;
- a combination of F217A, N268W and Q662P;
- a combination of F217A, N268W and S173R;
- a combination of F217A, N268W and D239P;
- a combination of F217A, N268W and S172E;
- 30 • a combination of F217A, N268W and Q662D;
- a combination of F217A, N268W and S173K;

- a combination of F217A, N268W and A195V;
- a combination of F217A, N268W and E218F;
- a combination of F217A, N268W and L226Q;
- a combination of F217A, N268W and I224W;
- 5 • a combination of F217A, N268W and A26R;
- a combination of F217A, N268W and I28F;
- a combination of F217A, N268W and E218Y;
- a combination of F217A, N268W and L226V;
- a combination of F217A, N268W and D239Q;
- 10 • a combination of F217A, N268W and F546M;
- a combination of F217A, N268W and A24N;
- a combination of F217A, N268W and A26H;
- a combination of F217A, N268W and Y599M;
- a combination of F217A, N268W and G157N;
- 15 • a combination of F217A, N268W and Q45D;
- a combination of F217A, N268W and Q45E;
- a combination of F217A, N268W and Q45N;
- a combination of F217A, N268W and E49K;
- a combination of F217A, N268W and N69D;
- 20 • a combination of F217A, N268W and N69E;
- a combination of F217A, N268W and N69F;
- a combination of F217A, N268W and N69H;
- a combination of F217A, N268W and N69L;
- a combination of F217A, N268W and N69M;
- 25 • a combination of F217A, N268W and N69T;
- a combination of F217A, N268W and N69W;
- a combination of F217A, N268W and N69Y;
- a combination of F217A, N268W and W104G;
- a combination of F217A, N268W and W104N;
- 30 • a combination of F217A, N268W and T175E;
- a combination of F217A, N268W and T175H;

- a combination of F217A, N268W and T175I;
- a combination of F217A, N268W and T175K;
- a combination of F217A, N268W and A401D;
- a combination of F217A, N268W, A195T and Y352W;
- 5 • a combination of F217A, N268W, N341W and Y352T;
- a combination of F217A, N268W, A198I and N259T;
- a combination of F217A, N268W, A195S and N341W;
- a combination of F217A, N268W, T153K and A195S;
- a combination of F217A, N268W, I28R and K389I;
- 10 • a combination of F217A, N268W, T153R and A195T;
- a combination of F217A, N268W, I28R, T153R, A198I and N341W;
- a combination of F217A, N268W, A195T, N259T and N341W;
- a combination of F217A, N268W, I28R, A195T, N259T and K389I;
- a combination of F217A, N268W, I28R, N259T and N341W;
- 15 • a combination of F217A, N268W, I28R, A195S and K389I;
- a combination of F217A, N268W, A195T and N341W;
- a combination of F217A, N268W, I28R, A195T, N341W and K389I;
- a combination of F217A, N268W, I28R, A195T, N259T and T447A;
- a combination of F217A, N268W, I28R, A195S, N259T and N341W;
- 20 • a combination of F217A, N268W, I28R, A195T, N259T, N341W and K389I; and
- a combination of F217A, N268W, T153R and N341W.

[0060] In one example, there is provided a galactose oxidase variant GOh1006, which has a M353F mutation in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1008, which has a S314C mutation in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1013, which has a L537G mutation in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1015, which has a F217V mutation in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1016, which has a F217P mutation in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1017, which has a F217Q mutation in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase

variant GOh1018, which has a F217N mutation in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1020, which has a F217S mutation in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1021, which has a N268W mutation in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1025, which has a E218P mutation in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1030, which has a F217I mutation in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1031, which has a F217T mutation in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1032, which has a F217L mutation in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1034, which has a F217E mutation in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1035, which has a F217Y mutation in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1036, which has a F217A mutation in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1037, which has a F217C mutation in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1038, which has a F217D mutation in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1039, which has a F217G mutation in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1040, which has a F217H mutation in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1041, which has a F217K mutation in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1042, which has a F217M mutation in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1043, which has a F217R mutation in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1045, which has F217P and E218P mutations in addition to those in the M3-5 variant. In one example, a modified galactose oxidase having the F217P and E218P mutations corresponds to galactose oxidase variant GOh1045. In one example, there is provided a galactose oxidase variant GOh1046, which has F217P and L537G mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1047, which has F217P, E218P, and L537G mutations in addition to those in the

M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1048, which has F217V and E218P mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1049, which has F217V and L537G mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1050, which has F217V, E218P, and L537G mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1051, which has E218P and L537G mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1052, which has F217A and N268W mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1053, which has F217A, N268W, and M353F mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1054, which has F217A, N268W, and S314C mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1055, which has F217G and N268W mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh1056, which has F217G, N268W, and M353 mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2001, which has F217A, N268W, and A195S mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2002, which has F217A, N268W, and V193T mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2008, which has F217A, N268W, and N259T mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2010, which has F217A, N268W, and Y325F mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2011, which has F217A, N268W, and G294A mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2012, which has F217A, N268W, and A195T mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2013, which has F217A, N268W, and Y352T mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2014, which has F217A, N268W, and N341W mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2015, which has F217A, N268W, and A197C mutations in addition to those in the M3-5 variant. In

one example, there is provided a galactose oxidase variant GOh2016, which has F217A, N268W, and R240G mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2017, which has F217A, N268W, and A198I mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2018, which has F217A, N268W, and K348S mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2019, which has F217A, N268W, and T202D mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2020, which has F217A, N268W, and T202Q mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2021, which has F217A, N268W, and T202I mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2022, which has F217A, N268W, and T202K mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2023, which has F217A, N268W, and P194C mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2025, which has F217A, N268W, and A346L mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2026, which has F217A, N268W, and K389I mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2027, which has F217A, N268W, and Y352W mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2028, which has F217A, N268W, and C538K mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2029, which has F217A, N268W, and C538R mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2030, which has F217A, N268W, and F250E mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2031, which has F217A, N268W, and F250Y mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2032, which has F217A, N268W, and N356K mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2033, which has F217A, N268W, and N356R mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2034, which has F217A, N268W, and N356W mutations in addition to those in the M3-5 variant. In one example, there is

provided a galactose oxidase variant GOh2037, which has F217A, N268W, and F487R mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2038, which has F217A, N268W, and T429W mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant
5 GOh2039, which has F217A, N268W, and E218K mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2041, which has F217A, N268W, and F313R mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2043, which has F217A, N268W, and I284Y mutations in addition to those in the M3-5 variant. In one example, there is provided
10 a galactose oxidase variant GOh2044, which has F217A, N268W, and A24H mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2045, which has F217A, N268W, and I28R mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2046, which has F217A, N268W, and I28M mutations in addition to those in the M3-5 variant. In one
15 example, there is provided a galactose oxidase variant GOh2047, which has F217A, N268W, and S576D mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2048, which has F217A, N268W, and I284S mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2050, which has F217A, N268W, and F65P mutations in
20 addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2053, which has F217A, N268W, and T153R mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2055, which has F217A, N268W, and A197G mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2056, which has F217A, N268W,
25 and T265S mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2057, which has F217A, N268W, and S220T mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2058, which has F217A, N268W, and N214S mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2061, which
30 has F217A, N268W, and I485A mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2064, which has F217A, N268W, and N214R mutations in addition to those in the M3-5 variant. In one example, there is

provided a galactose oxidase variant GOh2066, which has F217A, N268W, and D269N mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2067, which has F217A, N268W, and I485R mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2068, which has F217A, N268W, and I485K mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2070, which has F217A, N268W, and D239E mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2071, which has F217A, N268W, and T117D mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2072, which has F217A, N268W, and S114R mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2073, which has F217A, N268W, and S559P mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2074, which has F217A, N268W, and S114N mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2075, which has F217A, N268W, and Q662P mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2076, which has F217A, N268W, and S173R mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2077, which has F217A, N268W, and D239P mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2078, which has F217A, N268W, and S172E mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2079, which has F217A, N268W, and Q662D mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2080, which has F217A, N268W, and S173K mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2081, which has F217A, N268W, and A195V mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2082, which has F217A, N268W, and E218F mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2083, which has F217A, N268W, and L226Q mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2084, which has F217A, N268W, and I224W mutations in addition to those in the

M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2085, which has F217A, N268W, and I28F mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2086, which has F217A, N268W, and I28F mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2087, which has F217A, N268W, and E218Y mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2088, which has F217A, N268W, and L226V mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2089, which has F217A, N268W, and D239Q mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2090, which has F217A, N268W, and F546M mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2091, which has F217A, N268W, and A24N mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2092, which has F217A, N268W, and A26H mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2093, which has F217A, N268W, and Y599M mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2094, which has F217A, N268W, and G157N mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2097, which has F217A, N268W, and Q45D mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2098, which has F217A, N268W, and Q45E mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2099, which has F217A, N268W, and Q45N mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2100, which has F217A, N268W, and E49K mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2101, which has F217A, N268W, and N69D mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2102, which has F217A, N268W, and N69E mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2103, which has F217A, N268W, and N69F mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2104, which has F217A, N268W, and N69H mutations in addition to those in the M3-5 variant. In one

example, there is provided a galactose oxidase variant GOh2105, which has F217A, N268W, and N69L mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2106, which has F217A, N268W, and N69M mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2107, which has F217A, N268W, and N69T mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2108, which has F217A, N268W, and N69W mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2109, which has F217A, N268W, and N69Y mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2110, which has F217A, N268W, and W104G mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2111, which has F217A, N268W, and W104N mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2114, which has F217A, N268W, and T175E mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2115, which has F217A, N268W, and T175H mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2116, which has F217A, N268W, and T175I mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2117, which has F217A, N268W, and T175K mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh2119, which has F217A, N268W, and A401D mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh3001, which has F217A, N268W, A195T, and Y352W mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh3002, which has F217A, N268W, N341W, and Y352T mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh3003, which has F217A, N268W, A198I, and N259T mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh3004, which has F217A, N268W, A195S, and N341W mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh3005, which has F217A, N268W, T153K, and A195S mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh3006, which has F217A, N268W, I28R, and K389I mutations in

addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh3007, which has F217A, N268W, T153R, and A195T mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh3008, which has F217A, N268W, I28R, T153R, A198I, and N341W mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh3009, which has F217A, N268W, A195T, N259T, and N341W mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh3013, which has F217A, N268W, I28R, A195T, N259T, and K389I mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh3015, which has F217A, N268W, I28R, N259T, and N341W mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh3018, which has F217A, N268W, I28R, A195S, and K389I mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh3019, which has F217A, N268W, A195T, and N341W mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh3023, which has F217A, N268W, I28R, A195T, N341W mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh3026, which has F217A, N268W, I28R, A195T, N259T, and T447A mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh3032, which has F217A, N268W, I28R, A195S, N259T, and N341W mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh3038, which has F217A, N268W, I28R, A195T, N259T, N341W, and K389I mutations in addition to those in the M3-5 variant. In one example, there is provided a galactose oxidase variant GOh3049, which has F217A, N268W, T153R, and N341W mutations in addition to those in the M3-5 variant. In one example, a modified galactose oxidase having the F217A, N268W, T153R, and N341W mutations corresponds to galactose oxidase variant GOh3049.

[0061] In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence of at least one modified galactose oxidase variant set forth in the even numbered sequences of SEQ ID NOS: 7-298. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of

the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence of at least one modified galactose oxidase variant set forth in the following even numbered sequences: SEQ ID NOS: 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, or 298. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 8. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 10. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 12. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 14. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 16. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 18. In one example, the present disclosure refers to the modified galactose oxidase

disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 20. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 40. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 60. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 80. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 100. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 150. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 200. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 250. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 298.

[0062] In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in the even numbered sequences of SEQ ID NOS: 7-298. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in the following even numbered sequences: SEQ ID NOS: 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, or 298. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 8. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 10. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 12. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 14. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 16. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 18. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 20. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide

- sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 40. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 60. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 80. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 100. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 150. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 200. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 250. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 298.
- 20 **[0063]** In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the mutation is selected from the group consisting of:
- (a) S314C;
 - (b) N268W;
 - (c) F217A;
 - 25 (d) a combination of F217A and N268W;
 - (e) a combination of F217A, N268W and A195S;
 - (f) a combination of F217A, N268W and N259T;
 - (g) a combination of F217A, N268W and A195T;
 - (h) a combination of F217A, N268W and A198I;
 - 30 (i) a combination of F217A, N268W and T202I;
 - (j) a combination of F217A, N268W and Y352W;
 - (k) a combination of F217A, N268W and A24H;

- (l) a combination of F217A, N268W and I28R;
- (m) a combination of F217A, N268W and D239E;
- (n) a combination of F217A, N268W and A24N;
- (o) a combination of F217A, N268W and E218K;
- 5 (p) a combination of F217A, N268W and E218F;
- (q) a combination of F217A, N268W and Y599M;
- (r) a combination of F217A, N268W and L226Q;
- (s) a combination of F217A, N268W and A195V;
- (t) a combination of F217A, N268W, A195T and Y352W;
- 10 (u) a combination of F217A, N268W, I28R and K389I;
- (v) a combination of F217A, N268W, I28R, A195T, N259T, and K389I; and
- (w) a combination of F217A, N268W, I28R, A195T, N259T, N341W, and K389I.

[0064] In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the modified galactose oxidase comprises the mutations of F217A and N268W.

[0065] In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to SEQ ID NO:68.

[0066] In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the modified galactose oxidase further comprises at least one mutation selected from the group consisting of A24H, A24N, A26H, A26R, I28F, I28M, I28R, Q45D, Q45E, Q45N, E49K, F65P, N69D, N69E, N69F, N69H, N69L, N69M, N69T, N69W, N69Y, W104G, W104N, S114N, S114R, T117D, T153K, T153R, G157N, S172E, S173K, S173R, T175E, T175H, T175I, T175K, V193T, P194C, A195SX, A195T, A195V, A197C, A197G, A198I, T202D, T202I, T202K, T202Q, N214R, N214S, E218F, E218K, E218P, E218Y, S220T, I224W, L226Q, L226V, D239E, D239P, D239Q, R240G, F250E, F250Y, N259T, T265S, D269N, I284S, I284Y, G294A, F313R, S314C, Y325F, N341W, A346L, K348S, Y352T, Y352W, M353F, N356K, N356R, N356W, K389I, A401D, T429W, T447A, I485A, I485K, I485R, F487R, L537G, C538K, C538R, F546M, S559P, S576D, Y599M, Q662D, and Q662P, wherein the position of the mutation is numbered with reference to SEQ ID NO: 6.

[0067] In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence of at least one modified galactose oxidase variant set forth in SEQ ID NOS: 70, 72 or the even numbered sequences of SEQ ID NOS: 77-298. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 70. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence of at least one modified galactose oxidase variant set forth in the following even numbered sequences: SEQ ID NOS: 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, or 298. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 78. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 80. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%,

96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 90. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 90. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 100. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 120. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 140. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 160. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 180. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 200. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 250. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%,

86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence set forth in SEQ ID NO: 298.

[0068] In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NOS: 70, 72 or the even numbered sequences of SEQ ID NOS: 77-298. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 70. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 72. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in the following even numbered sequences: SEQ ID NOS: 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, or 298. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 78. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 80. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 90. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 100. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 120. In one example, the present disclosure refers to the

modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 140. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 160. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 180. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 200. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 250. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NO: 298.

[0069] In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the modified galactose oxidase comprises one or more of the following properties:

- (a) enhanced protein expression by at least 1.01-fold compared to the galactose oxidase variant M3-5 or by at least 1.01-fold compared to the modified galactose oxidase disclosed herein;
- (b) enhanced solubility by at least 1.01-fold compared to the galactose oxidase variant M3-5 or by at least 1.01-fold compared to the modified galactose oxidase disclosed herein;
- (c) enhanced thermal stability by at least 1.01-fold compared to the galactose oxidase variant M3-5 or by at least 1.01-fold compared to the modified galactose oxidase disclosed herein at a temperature of at least 50°C;
- (d) increased enzymatic activity by at least 1.01-fold compared to the galactose oxidase variant M3-5 or by at least 1.01-fold compared to the modified galactose oxidase disclosed herein, wherein the enzymatic activity comprises converting a secondary alcohol to a ketone, wherein optionally the secondary alcohol is a bulky secondary alcohol or unactivated secondary alcohol; and

(e) reduced enantioselectivity by at least 1.01-fold compared to the galactose oxidase variant M3-5 or by at least 1.01-fold compared to the modified galactose oxidase disclosed herein.

[0070] In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the modified galactose oxidase has enhanced protein expression by at least 1.01-fold compared to the galactose oxidase variant M3-5 or by at least 1.01-fold compared to the modified galactose oxidase variant GOh1052 that has F217A and N268W mutations. In one example, the modified galactose oxidase has enhanced protein expression by about 1.01 to 1.73-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has enhanced protein expression by at least about 1.06-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has enhanced protein expression by at least about 1.1-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has enhanced protein expression by at least about 1.2-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has enhanced protein expression by at least about 1.3-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has enhanced protein expression by at least about 1.4-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has enhanced protein expression by at least about 1.5-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has enhanced protein expression by at least about 1.6-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has enhanced protein expression by at least about 1.7-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has enhanced protein expression by about 1.01 to 10.09-fold compared to the galactose oxidase variant GOh1052. In one example, the modified galactose oxidase has enhanced protein expression by at least about 1.01-fold compared to the galactose oxidase variant GOh1052. In one example, the modified galactose oxidase has enhanced protein expression by at least about 2-fold compared to the galactose oxidase variant GOh1052. In one example, the modified galactose oxidase has enhanced protein expression by at least about 3-fold compared to the galactose oxidase variant GOh1052. In one example, the modified galactose oxidase has enhanced protein expression by at least about 4-fold compared to the galactose oxidase variant GOh1052. In one example, the modified galactose oxidase has enhanced protein expression by at least about 5-fold compared

to the galactose oxidase variant GOh1052. In one example, the modified galactose oxidase has enhanced protein expression by at least about 6-fold compared to the galactose oxidase variant GOh1052. In one example, the modified galactose oxidase has enhanced protein expression by at least about 7-fold compared to the galactose oxidase variant GOh1052. In one example, the modified galactose oxidase has enhanced protein expression by at least about 8-fold compared to the galactose oxidase variant GOh1052. In one example, the modified galactose oxidase has enhanced protein expression by at least about 9-fold compared to the galactose oxidase variant GOh1052. In one example, the modified galactose oxidase has enhanced protein expression by at least about 10-fold compared to the galactose oxidase variant GOh1052. In one example, the modified galactose oxidase has enhanced protein expression by at least about 10-fold compared to the galactose oxidase variant GOh1052. In one specific example, the modified galactose oxidase has enhanced protein expression by at least 1.51-fold compared to the galactose oxidase variant M3-5. In one specific example, the modified galactose oxidase has enhanced protein expression by at least 2.58-fold compared to the galactose oxidase variant GOh1052. In one specific example, the modified galactose oxidase has enhanced protein expression by at least 4.29-fold compared to the galactose oxidase variant GOh1052.

[0071] In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the modified galactose oxidase has enhanced solubility by at least 1.01-fold compared to the galactose oxidase variant M3-5 or by at least 1.01-fold compared to the modified galactose oxidase variant GOh1052 that has the F217A and N268W mutations. In one example, the modified galactose oxidase has enhanced solubility by about 1.01 to 1.67-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has enhanced solubility by at least about 1.1-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has enhanced solubility by at least about 1.2-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has enhanced solubility by at least about 1.3-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has enhanced solubility by at least about 1.4-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has enhanced solubility by at least about 1.5-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has enhanced solubility by at least about 1.6-fold compared to the galactose oxidase variant M3-5. In one specific example, the modified galactose oxidase has enhanced solubility

by at least about 1.13-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has enhanced solubility by about 1.01 to 4.57-fold compared to the galactose oxidase variant GOh1052. In one example, the modified galactose oxidase has enhanced solubility by at least about 1.01-fold compared to the galactose oxidase variant
5 GOh1052. In one example, the modified galactose oxidase has enhanced solubility by at least about 1.02-fold compared to the galactose oxidase variant GOh1052. In one example, the modified galactose oxidase has enhanced solubility by at least about 2-fold compared to the galactose oxidase variant GOh1052. In one example, the modified galactose oxidase has enhanced solubility by at least about 3-fold compared to the galactose oxidase variant
10 GOh1052. In one example, the modified galactose oxidase has enhanced solubility by at least about 4-fold compared to the galactose oxidase variant GOh1052. In one specific example, the modified galactose oxidase has enhanced solubility by at least about 1.01-fold compared to the galactose oxidase variant GOh1052. In one specific example, the modified galactose oxidase has enhanced solubility by at least about 2.82-fold compared to the galactose oxidase variant
15 GOh1052. In one specific example, the modified galactose oxidase has enhanced solubility by at least about 4.57-fold compared to the galactose oxidase variant GOh1052. In one example, solubility of the galactose oxidase variant is determined using the ratio of protein expression of soluble proteins over insoluble proteins. The higher the value, the more soluble it is. Solubility is then compared against either M3-5 (SEQ ID NO.: 6) or GOh1052 (SEQ ID NO.:
20 68), where the fold improvement is determined.

[0072] In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the modified galactose oxidase has enhanced thermal stability by at least 1.01-fold compared to the modified galactose oxidase variant GOh1052 that has F217A and N268W mutations at a temperature of at least 50°C or by at least 1.52-fold compared to
25 the modified galactose oxidase variant M3-5 at a temperature of at least 55°C. In one example, the modified galactose oxidase has enhanced thermal stability by about 1.52 to 1.61-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has enhanced thermal stability by at least about 1.6-fold compared to the galactose oxidase variant M3-5. In one specific example, the modified galactose oxidase has enhanced
30 thermal stability by at least about 1.52-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has enhanced thermal stability by about 1.01 to 1.61-fold compared to the galactose oxidase variant GOh1052. In one example, the modified

galactose oxidase has enhanced thermal stability by at least about 1.01-fold compared to the galactose oxidase variant GOh1052. In one example, the modified galactose oxidase has enhanced thermal stability by at least about 1.1-fold compared to the galactose oxidase variant GOh1052. In one example, the modified galactose oxidase has enhanced thermal stability by at least about 1.2-fold compared to the galactose oxidase variant GOh1052. In one example, the modified galactose oxidase has enhanced thermal stability by at least about 1.3-fold compared to the galactose oxidase variant GOh1052. In one example, the modified galactose oxidase has enhanced thermal stability by at least about 1.4-fold compared to the galactose oxidase variant GOh1052. In one example, the modified galactose oxidase has enhanced thermal stability by at least about 1.5-fold compared to the galactose oxidase variant GOh1052. In one example, the modified galactose oxidase has enhanced thermal stability by at least about 1.6-fold compared to the galactose oxidase variant GOh1052. In one specific example, the modified galactose oxidase has enhanced thermal stability by at least about 1.50-fold compared to the galactose oxidase variant GOh1052. In one specific example, the modified galactose oxidase has enhanced thermal stability by at least about 1.61-fold compared to the galactose oxidase variant GOh1052. In one example, thermal stability of the galactose oxidase variants is tested using a two-phase approach. In one example, higher temperatures of 50°C and 55°C were tested in the two-phase approach by: (1) heating the enzyme at temperature for 30 minutes and then followed by (2) a contacting step of the heated enzyme and substrate combined at 25°C for a specified reaction time, typically for 24 hours. In one example, 50°C was the temperature at which the enzymes were incubated at for 30 minutes before being used in the standard 25°C activity assay, which was done to assess thermal stability of the enzyme by comparison of the thermally challenged activity against enzyme activity that was not thermally challenged. In one example, 55°C was the temperature at which the enzymes were incubated at for 30 minutes before being used in the standard 25°C activity assay, which was done to assess thermal stability of the enzyme by comparison of the thermally challenged activity against enzyme activity that was not thermally challenged. These are distinct from the 40°C activity assay, which is an activity assay conducted at higher temperatures to assess enzyme performance at higher temperatures. Although it can also be taken as a measure of thermal stability, the measure used to assess thermal stability was the former (50°C for 30 minutes thermal challenge assay).

[0073] In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the modified galactose oxidase has increased enzymatic activity by at least 1.01-fold compared to the galactose oxidase variant M3-5 or by at least 1.01-fold compared to the modified galactose oxidase variant GOh1052 that has F217A and N268W mutations, wherein the enzymatic activity comprises converting a secondary alcohol to a ketone, wherein optionally the secondary alcohol is a bulky secondary alcohol or unactivated secondary alcohol. In one example, the modified galactose oxidase has increased enzymatic activity by at least 1.1-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has increased enzymatic activity by at least 2-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has increased enzymatic activity by at least 3-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has increased enzymatic activity by at least 4-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has increased enzymatic activity by at least 5-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has increased enzymatic activity by at least 6-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has increased enzymatic activity by at least 7-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has increased enzymatic activity by at least 8-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase has increased enzymatic activity by at least 9-fold compared to the galactose oxidase variant M3-5. In one specific example, the modified galactose oxidase has increased enzymatic activity by 1.85-fold compared to the galactose oxidase variant M3-5. In one specific example, the modified galactose oxidase has increased enzymatic activity by 2.18-fold compared to the galactose oxidase variant M3-5. In one specific example, the modified galactose oxidase has increased enzymatic activity by at least 1.5-fold better than M3-5 for Substrate 128 (alpha-tetralol). In one specific example, the modified galactose oxidase has increased enzymatic activity by at least 1.5-fold better than M3-5 for Substrate 128 (alpha-tetralol). In one specific example, the modified galactose oxidase has increased enzymatic activity by at least 1.04-fold better than GOh1052 for substrate 152 (1-phenyl-1-butanol). In one specific example, the modified galactose oxidase has increased enzymatic activity by at least 1.04-fold better than GOh1052 for substrate 152 (1-phenyl-1-butanol). In one specific example, the modified galactose oxidase has increased enzymatic activity by at least 1.01-fold

better than M3-5 for 1 or more substrates in the 64-substrate panel in **Fig. 1**. In one specific example, the modified galactose oxidase has increased enzymatic activity by at least 1.1-fold better than M3-5 for 1 or more substrates in the 64-substrate panel in **Fig. 1**. In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, wherein the modified galactose oxidase comprises increased enzymatic activity by at least 10-fold compared to the galactose oxidase variant M3-5 or by at least 1.2-fold compared to the modified galactose oxidase disclosed herein, wherein the enzymatic activity comprises converting a secondary alcohol to a ketone, wherein optionally the secondary alcohol is a bulky secondary alcohol or unactivated secondary alcohol.

- 10 **[0074]** In one example, the present disclosure refers to the modified galactose oxidase disclosed herein, reduced enantioselectivity by at least 1.04-fold compared to the galactose oxidase variant M3-5 or by at least 1.15-fold compared to the galactose oxidase variant GOh1052. In one example, the modified galactose oxidase disclosed herein, reduced enantioselectivity by about 1.04 to 12.9-fold compared to the galactose oxidase variant M3-5.
- 15 In one example, the modified galactose oxidase disclosed herein, reduced enantioselectivity by at least 1.1-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase disclosed herein, reduced enantioselectivity by at least 2-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase disclosed herein, reduced enantioselectivity by at least 3-fold compared to the galactose oxidase variant
- 20 M3-5. In one example, the modified galactose oxidase disclosed herein, reduced enantioselectivity by at least 4-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase disclosed herein, reduced enantioselectivity by at least 5-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase disclosed herein, reduced enantioselectivity by at least 6-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase disclosed herein, reduced enantioselectivity by at least 7-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase disclosed herein, reduced enantioselectivity by at least 8-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase disclosed herein, reduced enantioselectivity by at least
- 25 9-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase disclosed herein, reduced enantioselectivity by at least 10-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase disclosed
- 30

herein, reduced enantioselectivity by at least 11-fold compared to the galactose oxidase variant M3-5. In one example, the modified galactose oxidase disclosed herein, reduced enantioselectivity by at least 12-fold compared to the galactose oxidase variant M3-5. In one specific example, the modified galactose oxidase disclosed herein, reduced enantioselectivity by 12.9-fold compared to the galactose oxidase variant M3-5. In one specific example, the GOh1XXX modified galactose oxidase disclosed herein, has minimum reduced enantioselectivity of 0.8 R/S ratio from M3-5 experimental value of 20.6 R/S ratio (for substrate 128 – alpha-tetralol). In one example, the modified galactose oxidase disclosed herein, reduced enantioselectivity by about 1.15 to 1.59-fold compared to the galactose oxidase variant GOh1052. In one example, the modified galactose oxidase disclosed herein, reduced enantioselectivity by at least 1.2-fold compared to the galactose oxidase variant GOh1052. In one example, the modified galactose oxidase disclosed herein, reduced enantioselectivity by at least 1.3-fold compared to the galactose oxidase variant GOh1052. In one example, the modified galactose oxidase disclosed herein, reduced enantioselectivity by at least 1.4-fold compared to the galactose oxidase variant GOh1052. In one example, the modified galactose oxidase disclosed herein, reduced enantioselectivity by at least 1.5-fold compared to the galactose oxidase variant GOh1052. In one specific example, the modified galactose oxidase disclosed herein, reduced enantioselectivity by 1.59-fold compared to the galactose oxidase variant GOh1052. In one specific example, the GOh2XXX and GOh3XXX modified galactose oxidase disclosed herein, has minimum reduced enantioselectivity of 1.04 R/S ratio from M3-5 (for substrate 128 – alpha-tetralol) or from GOh1052 (for substrate 152 – 1-phenyl-1-butanol).

[0075] In one aspect, the present disclosure refers to a polynucleotide sequence encoding the modified galactose oxidase disclosed herein.

[0076] In one example, the present disclosure refers to the polynucleotide sequence disclosed herein, wherein the polynucleotide sequence comprises at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% or more sequence identity to SEQ ID NO: 5, wherein SEQ ID NO: 5 is a polynucleotide sequence of the galactose oxidase variant M3-5, wherein the polynucleotide sequence disclosed herein comprises at least one mutation at one or more positions which leads to at least one mutation in the polypeptide sequence of the modified galactose oxidase disclosed herein.

[0077] In one example, the present disclosure refers to the polynucleotide sequence disclosed herein, wherein the polynucleotide is codon optimized, wherein optionally the polynucleotide is codon optimized for protein expression in *Escherichia coli*. In one example, the polynucleotide is codon optimized for protein expression in other types of cells known in the art, such as yeast cells, mammalian cells or other suitable cells known in the art. In one example, the polynucleotide is codon optimized for protein expression in yeast cells such as *Saccharomyces cerevisiae* and *Pichia pastoris*. In one example, the polynucleotide is codon optimized for protein expression in mammalian cells such as Chinese Hamster Ovary (CHO) cells. The term "codon optimization" as used herein, refers to methods to improve codon composition of a polynucleotide without altering the amino acid sequence, since it is known in the art that most amino acids can be encoded by more than one codon.

[0078] In one example, the present disclosure refers to the polynucleotide sequence disclosed herein, wherein the polynucleotide sequence is further linked to a control sequence. In one example, the control sequence is a promoter sequence or a termination sequence. In one example, the promoter sequence is a lac promoter sequence, CMV promoter sequence, SV40 promoter sequence, PBAD promoter sequence, GAL promoter sequence, AOX1 promoter sequence, or other promoter sequences that are well-known in the art. In one example, the PBAD promoter can be used for controlling gene expression in *Escherichia coli* (*E. coli*). In one example, the GAL promoter can be used for controlling gene expression in *Saccharomyces cerevisiae* (*S. cerevisiae*). In one example, the AOX1 promoter can be used for controlling gene expression in *Pichia pastoris* (*P. pastoris*). In one specific example, the promoter sequence is a lac promoter sequence. The term "control sequence" as used herein refers to a regulatory sequence or regulatory element within a polynucleotide sequence that regulates gene expression. Examples of "control sequences" that are well-known in the art are promoters, enhancers, repressors, and terminators.

[0079] In one example, the present disclosure refers to the polynucleotide sequence disclosed herein, wherein the polynucleotide comprises an odd numbered sequence of SEQ ID NOS: 7-298. In one example, the present disclosure refers to the polynucleotide sequence disclosed herein, wherein the polynucleotide comprises an odd numbered sequence of SEQ ID NOS: 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 69, 71, 73, 75, 77, 79, 81, 83, 85, 87, 89, 91, 93, 95, 97, 99, 101, 103, 105, 107, 109, 111, 113, 115, 117, 119, 121, 123, 125, 127, 129, 131, 133, 135, 137, 139, 141, 143,

145, 147, 149, 151, 153, 155, 157, 159, 161, 163, 165, 167, 169, 171, 173, 175, 177, 179, 181, 183, 185, 187, 189, 191, 193, 195, 197, 199, 201, 203, 205, 207, 209, 211, 213, 215, 217, 219, 221, 223, 225, 227, 229, 231, 233, 235, 237, 239, 241, 243, 245, 247, 249, 251, 253, 255, 257, 259, 261, 263, 265, 267, 269, 271, 273, 275, 277, 279, 281, 283, 285, 287, 289, 291, 293, 295, 5 or 297. In one example, the present disclosure refers to the polynucleotide sequence disclosed herein, wherein the polynucleotide comprises the sequence of SEQ ID NO: 7. In one example, the present disclosure refers to the polynucleotide sequence disclosed herein, wherein the polynucleotide comprises the sequence of SEQ ID NO: 9. In one example, the present disclosure refers to the polynucleotide sequence disclosed herein, wherein the polynucleotide 10 comprises the sequence of SEQ ID NO: 11. In one example, the present disclosure refers to the polynucleotide sequence disclosed herein, wherein the polynucleotide comprises the sequence of SEQ ID NO: 13. In one example, the present disclosure refers to the polynucleotide sequence disclosed herein, wherein the polynucleotide comprises the sequence of SEQ ID NO: 15. In one example, the present disclosure refers to the polynucleotide sequence disclosed herein, 15 wherein the polynucleotide comprises the sequence of SEQ ID NO: 17. In one example, the present disclosure refers to the polynucleotide sequence disclosed herein, wherein the polynucleotide comprises the sequence of SEQ ID NO: 19. In one example, the present disclosure refers to the polynucleotide sequence disclosed herein, wherein the polynucleotide comprises the sequence of SEQ ID NO: 21. In one example, the present disclosure refers to the 20 polynucleotide sequence disclosed herein, wherein the polynucleotide comprises the sequence of SEQ ID NO: 31. In one example, the present disclosure refers to the polynucleotide sequence disclosed herein, wherein the polynucleotide comprises the sequence of SEQ ID NO: 41. In one example, the present disclosure refers to the polynucleotide sequence disclosed herein, wherein the polynucleotide comprises the sequence of SEQ ID NO: 51. In one example, the 25 present disclosure refers to the polynucleotide sequence disclosed herein, wherein the polynucleotide comprises the sequence of SEQ ID NO: 61. In one example, the present disclosure refers to the polynucleotide sequence disclosed herein, wherein the polynucleotide comprises the sequence of SEQ ID NO: 71. In one example, the present disclosure refers to the polynucleotide sequence disclosed herein, wherein the polynucleotide comprises the sequence 30 of SEQ ID NO: 81. In one example, the present disclosure refers to the polynucleotide sequence disclosed herein, wherein the polynucleotide comprises the sequence of SEQ ID NO: 91. In one example, the present disclosure refers to the polynucleotide sequence disclosed herein,

wherein the polynucleotide comprises the sequence of SEQ ID NO: 101. In one example, the present disclosure refers to the polynucleotide sequence disclosed herein, wherein the polynucleotide comprises the sequence of SEQ ID NO: 151. In one example, the present disclosure refers to the polynucleotide sequence disclosed herein, wherein the polynucleotide
5 comprises the sequence of SEQ ID NO: 201. In one example, the present disclosure refers to the polynucleotide sequence disclosed herein, wherein the polynucleotide comprises the sequence of SEQ ID NO: 251. In one example, the present disclosure refers to the polynucleotide sequence disclosed herein, wherein the polynucleotide comprises the sequence of SEQ ID NO: 297.

10 **[0080]** In one aspect, the present disclosure refers an expression vector comprising the polynucleotide sequence disclosed herein. In one example, the expression vector is selected from the group consisting of a plasmid and a viral vector. Suitable expression vectors for production of proteins (such as enzymes, such as the modified galactose oxidase of the present disclosure) are well known to those skilled in the art. Examples of plasmid vectors include
15 pET28a, pcDNA3.1, pGEX, pCMV, pYES, and pGAPZ. In one example, the pYES plasmid vector is designed for protein expression in *Saccharomyces cerevisiae* (*S. cerevisiae*). In one example, the pGAPZ plasmid vector is designed for protein expression in *Pichia pastoris* (*P. pastoris*). In one specific example, the expression vector is a pET28a plasmid vector. Examples of viral vectors include Adeno-Associated Viral Vector (AAV) and lentiviral vector. In one
20 example, the expression vector comprising the polynucleotide sequence disclosed herein may be vectors generally used for the production of proteins/enzymes which are known to those skilled in the art.

[0081] In one aspect, the present disclosure refers to a host cell comprising the polynucleotide sequence disclosed herein or the expression vector disclosed herein. In one example, the
25 present disclosure refers to a host cell comprising the polynucleotide sequence disclosed herein. In one example, the present disclosure refers to a host cell comprising the expression vector disclosed herein. In one example, the host cell disclosed herein is a prokaryotic cell or eukaryotic cell. In one example, the host cell is a prokaryotic cell. In one specific example, the prokaryotic cell is *Escherichia coli*. In one example, the host cell comprising the polynucleotide
30 sequence disclosed herein or the expression vector disclosed herein is *E. coli* BL21(DE3). In one example, the host cell comprising the polynucleotide sequence disclosed herein or the

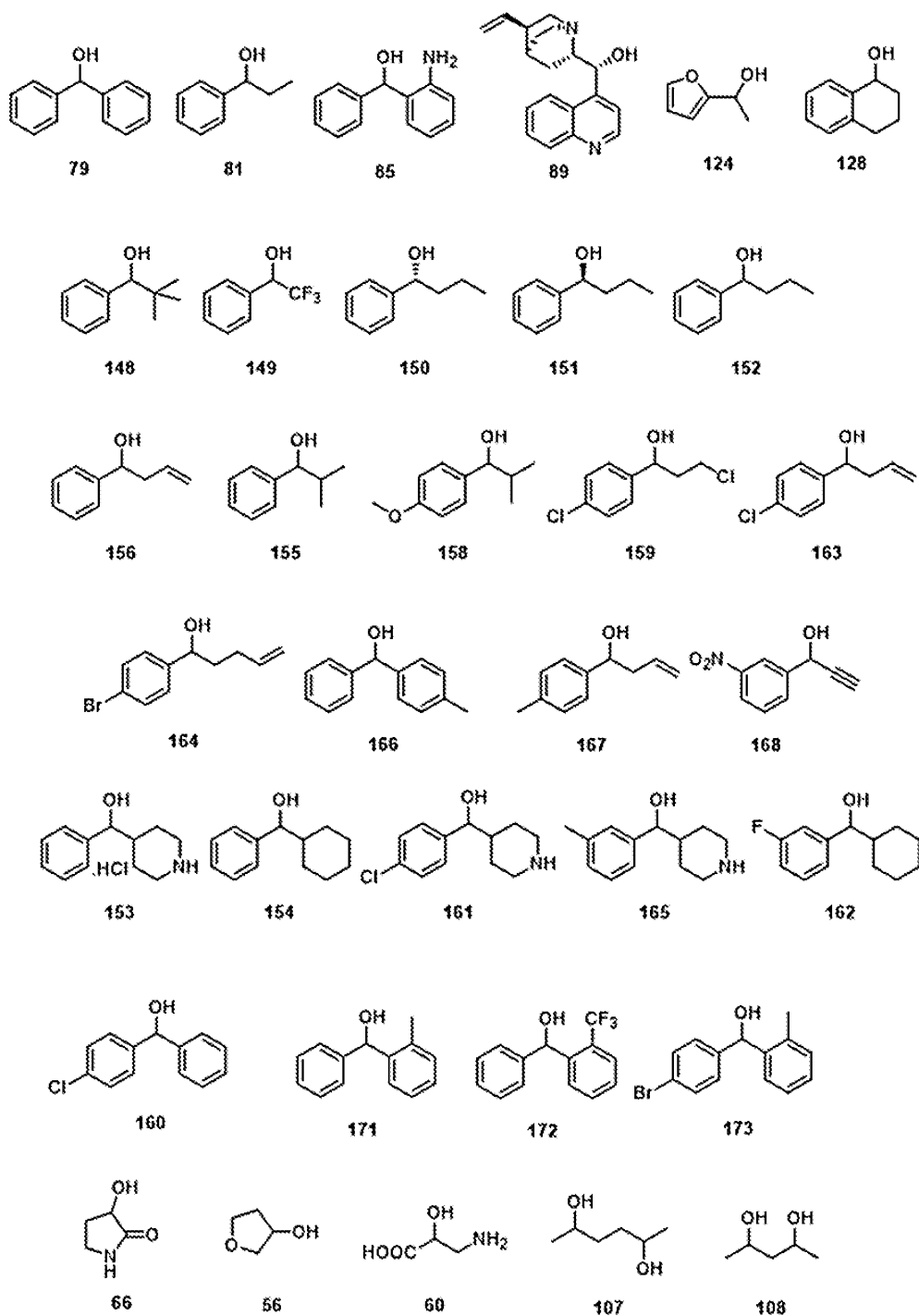
expression vector disclosed herein may be cells generally used for the production of proteins/enzymes which are known to those skilled in the art.

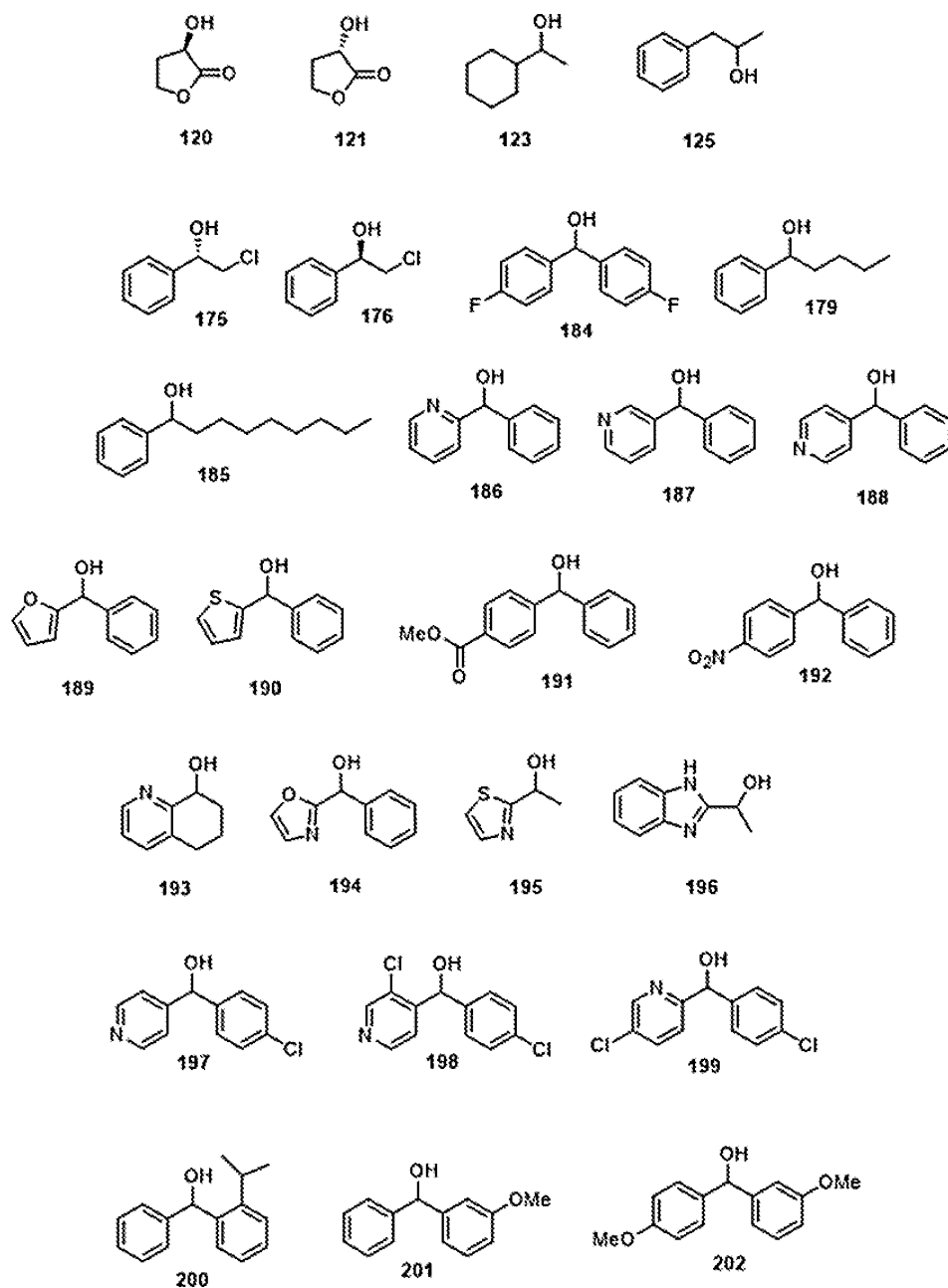
[0082] In one aspect, the present disclosure refers to a method of producing a modified galactose oxidase, comprising culturing the host cell disclosed herein under suitable culture conditions such that the modified galactose oxidase is produced. In one example, the method comprises culturing the host cell disclosed herein in a culture medium. In one example, the culture medium is lysogeny broth (LB) medium supplemented with kanamycin, or any other suitable culture medium known in the art. In one example, the method of producing the modified galactose oxidase disclosed herein, further comprises recovering the modified galactose oxidase from the culture and/or the host cell. In one example, the method of producing the modified galactose oxidase disclosed herein, further comprises recovering the modified galactose oxidase from the culture. In one example, the method of producing the modified galactose oxidase disclosed herein, further comprises recovering the modified galactose oxidase from the host cell. In one example, the method of producing the modified galactose oxidase disclosed herein, further comprises recovering the modified galactose oxidase from the culture and host cell. In one example, the method of recovering the modified galactose oxidase disclosed herein from the culture and host cell are commonly used methods of protein recovery from culture and host cells which are well-known to those skilled in the art. In one example, the modified galactose oxidase disclosed herein is recovered from the culture and host cell through cell harvesting by centrifugation, where the proteins from the culture medium are separated based on density differences. In one example, the modified galactose oxidase disclosed herein is recovered from the culture and host cell through cell harvesting by filtration, whereby culture media are filtered to separate host cells from the culture media using membranes filters. In one example, the modified galactose oxidase disclosed herein is recovered from the culture and host cell through cell lysis/disruption by mechanical or chemical disruption of host cells to disrupt cell walls/membranes and release intracellular proteins. In one example, the method of producing the modified galactose oxidase disclosed herein, further comprises purifying the modified galactose oxidase. In one example, the method of purifying the modified galactose oxidase disclosed herein is by affinity chromatography, using specific affinity tags such as His-tag and GST-tag. In one example, the method of purifying the modified galactose oxidase disclosed herein is by ion exchange chromatography, whereby proteins are separated based on charge differences. In one example, the method of purifying

the modified galactose oxidase disclosed herein is by size exclusion chromatography, whereby proteins are separated based on their size and molecular weight. In one specific example, the method of purifying the modified galactose oxidase disclosed herein is by affinity chromatography, using His-tag. In one example, the method of producing and purifying the modified galactose oxidase disclosed herein may be methods generally used for the production and purification of proteins, such as enzymes, which are known to those skilled in the art.

[0083] In one aspect, the present disclosure refers to a method of producing a ketone from a secondary alcohol, comprising contacting the secondary alcohol with the modified galactose oxidase disclosed herein under suitable conditions for an oxidation reaction. In one example, the secondary alcohol is a bulky secondary alcohol or unactivated secondary alcohol. In one example, the secondary alcohol is a bulky secondary alcohol which comprises one or more bulky substituents. In one example, the unactivated secondary alcohol is an aliphatic secondary alcohol without a benzene ring in the alpha position adjacent to the alcohol group.

[0084] In one example, the secondary alcohol comprises the formula R^1R^2CHOH , wherein R^1 and R^2 are independently selected from the group consisting of cycloalkyl, aryl, heteroaryl, alkyl, alkylene, alkynyl, haloalkyl, carboxyl, and carbonyl, wherein the cycloalkyl, aryl, heteroaryl, alkyl, alkylene, alkynyl, haloalkyl, carboxyl, and carbonyl is optionally substituted with one or more substituents selected from the group consisting of alkyl, halogen, alkyl halide, alkylene, alkynyl, alkoxy, cyano, oxo, nitro, amino, thiol, carboxyl, ester and hydroxyl. In one example, the secondary alcohol is selected from the group consisting of:





[0085] In one example, the secondary alcohol is chiral or non-chiral. In one example, the
5 secondary alcohol is chiral. In one example, the secondary alcohol is non-chiral. In one
example, the chiral secondary alcohol is present as (S)-enantiomer, (R)-enantiomer, or a

mixture of (S)- and (R)-enantiomers. In one example, the chiral secondary alcohol is present as a racemic mixture.

[0086] In one example, the present disclosure refers to a method of producing a ketone from a secondary alcohol, comprising contacting the secondary alcohol with the modified galactose oxidase disclosed herein, wherein the contacting step is performed at a temperature of 25°C, 30°C, 35°C, 40°C, 45°C, 50°C, 55°C or more. In one example, the contacting step is performed at a temperature of 25°C. In one example, the contacting step is performed at a temperature of 30°C. In one example, the contacting step is performed at a temperature of 35°C. In one example, the contacting step is performed at a temperature of 40°C. In one example, the contacting step is performed at a temperature of 45°C. In one example, the contacting step is performed at a temperature of 50°C. In one example, the contacting step is performed at a temperature of 55°C. In one example, the contacting step is performed at a temperature higher than 55°C. In one example, the contacting step refers to a step where the substrate and the enzyme are first mixed, before the oxidation reaction occurs. In one example, the contacting step is performed at a temperature of 25°C, 30°C, 35°C, 40°C, 45°C, 50°C, 55°C or more, wherein optionally the temperature is 35°C. In one example, the oxidation reaction can be performed at lower temperatures than 40°C and can be conducted at 25°C. In some examples, certain galactose oxidase mutants have shown enzymatic activity even after a thermal challenge at 55°C. Optimal temperature for the reaction depends on, for example, enzyme variant, substrate as well as which output variable. Taking GOh1052 variant with substrate 152 (1-phenyl-1-butanol) as an example, although 40°C is the optimal temperature for fastest initial rate of reaction, 35°C is preferred over a 24-hour reaction period as it results in higher overall yields (72% at 35°C vs 55% at 40°C).

[0087] In one example, the method of producing a ketone from a secondary alcohol disclosed herein, further comprises converting the secondary alcohol into an active pharmaceutical ingredient (API). The term "active pharmaceutical ingredient" as used herein refers to a biologically active component of a pharmaceutical drug responsible for the therapeutic effect of the drug.

[0088] In one aspect, the present disclosure refers to a kit for use in the method disclosed herein, wherein the kit comprises the modified galactose oxidase disclosed herein. In one example, the kit disclosed herein comprises one or more of the following: (a) one or more reaction buffers; (b) one or more reaction vessels, wherein optionally the reaction vessel is a

HPLC vial; (c) one or more reaction solvents, wherein optionally the reaction solvent is 5% v/v dimethyl sulfoxide in 100 mM sodium phosphate buffer with a pH of 7; (d) one or more secondary alcohol substrates; (e) one or more co-enzymes to break down the by-product of the oxidation reaction, wherein optionally the co-enzyme is a horseradish peroxidase that breaks down the H_2O_2 ; and (f) instructions for performing the method disclosed herein. In one example, the one or more reaction buffer is Jones Reagent. In one example, the one or more reaction buffer is PCC (Pyridinium chlorochromate). In one example, the one or more reaction buffer contains an enzyme capable of catalysing the conversion of secondary alcohols to ketones. In one example, the enzyme is alcohol dehydrogenase. In one example, the one or more reaction buffer contains an enzyme and cofactors. In one example, the enzyme is alcohol dehydrogenase and the cofactor is NAD^+ (nicotinamide adenine dinucleotide) or $NADP^+$ (nicotinamide adenine dinucleotide phosphate). In some examples, the reagents in the kit as described herein may be provided in separate containers comprising the components independently distributed in one or more containers.

EXAMPLES

[0089] Methods

[0090] *Galactose oxidase expression in E. coli and purification*

[0091] The wildtype galactose oxidase gene from *Fusarium graminearum* was synthesized (Twist Bioscience) and cloned into the expression vector pET28a (Novagen) using the *NdeI* and *XhoI* restriction sites. Eight additional mutations (S33P, M93V, G218E, W313F, R353M, Q429T, V517A, N558D) were incorporated into the wildtype galactose oxidase gene via splicing by overlap extension (SOE) method to produce GOh1001b variant. The GOh1001b plasmid was then transformed into *E. coli* BL21(DE3) strain. The *E. coli* containing the plasmid was grown in 250 mL lysogeny broth (LB) medium with 50 μ g/mL kanamycin at 37°C until an absorbance of 0.5 at 600 nm was reached. Overexpression was induced by adding 0.1 mM isopropyl β -D-1-thiogalactopyranoside (IPTG) and incubation was continued at 16°C for 20 hours. Cells were harvested by centrifugation (2,450 x g for 15 minutes). The cell pellet was resuspended in 12 mL of 100 mM sodium phosphate buffer, pH 7.0 and the cells were lysed using a cell disruptor (Constant Systems) at 40 kPSI. The lysate was then centrifuged, and the clarified supernatant was added to TALON metal affinity resin (Clontech). The supernatant-resin mixture was incubated at 4°C with rotation for 2 hours. The His-tagged protein bound

resin was washed with binding buffer (100 mM sodium phosphate buffer, pH 7.0, 300 mM NaCl, 5 mM imidazole) and eluted with elution buffer (100 mM sodium phosphate buffer, pH 7.0, 300 mM NaCl, 250 mM imidazole). The elution was desalted using PD-10 desalting column (GE Healthcare) in 100 mM sodium phosphate buffer, pH 7.0. The protein concentration was measured using PierceTM BCA Protein Assay kit (Thermo Fisher Scientific) against diluted albumin (BSA) standards as provided inside the kit. The purified protein was then diluted to 400 µg/mL and activated with 1 mM copper sulphate at 25°C for 15 minutes.

[0092] Codon optimization for GO01b variant

[0093] Synthesized gene was ordered from Twist Bioscience. Utilizing their website tool, amino acid sequence was entered, and desired codon usage table selected (*E. coli*). Twist Bioscience's codon optimization algorithm subsequently provided the DNA nucleotide sequence. Algorithm results are not reproducible as identical amino acid sequences keyed in twice will return different DNA nucleotide sequences.

[0094] Library construction and new variant construction

[0095] Round 1: Saturation mutagenesis (NNK) at the active sites was performed on GOh1001b variant via SOE method to generate libraries for high throughput (HTP) screening. Beneficial mutations from HTP screening were combined via SOE method.

[0096] Round 2: Site saturation mutagenesis libraries on GOh1052 variant were ordered from either Twist Bioscience or GenScript with codon usage for *E. coli* expression at each mutated position only.

[0097] Round 3: Beneficial mutations from Round 2 were combined via SOE method on GOh1052 variant. For combinatorial library on GOh1052 variant, oligos with wildtype DNA codon and mutation DNA codon at each position were ordered and pooled together with equal ratio to give a theoretical 50% rate of mutation incorporation. Combinatorial library was constructed via SOE method.

[0098] High throughput growth and lysis

[0099] For each NNK library in round 1, 84 colonies for variants (32 codons, ~93% coverage), six (6) colonies for GOh1001b variant, and six (6) colonies for negative control (pET28a) were inoculated into a 96-well plate. For round 2 libraries, 19 colonies per position (i.e., 19 other amino acid residues from wildtype residue), six (6) colonies for GOh1052 variant, and six (6) colonies for negative control (pET28a) were inoculated into a 96-well plate. For round 3 combinatorial library, 84 colonies for variants, six (6) colonies for GOh1052 variant, and six

(6) colonies for negative control (pET28a) were inoculated into a 96-well plate (for five (5) plates, ~95% coverage) Individual colony was inoculated in 180 μ L LB medium containing kanamycin (50 μ g/mL) and cultured overnight at 37°C. 20 μ L of cultures were transferred to 380 μ L LB medium containing 50 μ g/mL kanamycin and grown until an absorbance of 0.5 at 600 nm was reached. Overexpression was induced by adding 0.1 mM IPTG and incubation was continued at 16°C for 20 hours. Cells were harvested by centrifugation (2,182 x g for 10 min at 4°C). The cell pellets were lysed with 250 μ L lysis buffer (100 mM sodium phosphate buffer, pH 7.0, 0.1% Triton-X, 1 mM copper sulphate) at room temperature for 2 hours at speed 6.5 on titer plate shaker (Barnstead). The lysates were obtained by centrifugation (2,182 x g for 20 min at 4°C).

[0100] ABTS-HRP* colorimetric assay (Fig. 5)

[0101] HTP colorimetric assay conditions: Substrate (1 mM in DMSO), ABTS (2.5 mM in water), HRP (Toyobo, 25 μ g/mL), and galactose oxidase lysates (25 μ L) in a final volume of 200 μ L with final concentration of dimethylsulfoxide (DMSO) at 5% v/v in 100mM sodium phosphate buffer (pH 7.0). HTP colorimetric assay was carried out using 96-well clear shallow well plates at room temperature and read at 405 nm using a microplate reader (Tecan Infinite M200 Pro) for the following timepoints: every 2 minutes for 1 hour, every 10 minutes for next 2 hours, every 30 minutes for next 5 hours, every 2 hours for next 16 hours for a total of 24 hours.

[0102] Focused secondary alcohol substrate panel colorimetric assay: Identical conditions to HTP colorimetric assay except with galactose oxidase purified protein (20 μ g/mL) instead of galactose oxidase lysates. Better performing variants against secondary alcohol substrates were selected based on the following formula (maximum absorbance x initial velocity). *ABTS refers to 2,2'-azino-bis(3-ethylbenzothiazoline-6-sulfonic acid), HRP refers to Horseradish peroxidase.

[0103] F217 Fitness Landscape (Enantiomeric Bias)

[0104] HTP enzymatic reaction conditions: Substrate 128 (1 mM), HRP (25 μ g/mL), and galactose oxidase purified protein (100 μ g/mL) in a final volume of 200 μ L with final concentration of DMSO at 5% v/v in 100mM sodium phosphate buffer (pH 7.0). HTP enzymatic reaction was carried out using 96-well deepwell plates with breathable seal at 25°C, 220 rpm. Reaction was stopped at 24 hours via addition of methanol (200 μ L). The precipitated

protein was then removed by centrifugation (2,182 x g for 20 minutes). 10 µL of the reaction mixture was sampled for HPLC-UV analysis.

[0105] *Thermostability Assay*

[0106] Enzyme heat treatment conditions: Purified enzyme (60 µL, 400 µg/mL) was incubated at 55°C for 30 minutes in PCR strip tubes using Bio-Rad PTC-200 Thermal Cycler. The heat-treated enzymatic solution was transferred to 1.5 mL tubes and the precipitated protein was removed by centrifugation (20,238 x g for 5 min at 4°C). 50 µL of the heat-treated enzymatic solution was transferred to a 96 deep well plate for activity assay. **Activity assay:** Substrate 128 (1 mM), HRP (25 µg/mL), and heat-treated galactose oxidase purified protein (100 µg/mL) in a final volume of 200 µL with final concentration of DMSO at 5% v/v in 100 mM sodium phosphate buffer (pH 7.0). Reactions were carried out in 96 deepwell plates with breathable seal at 25°C, 220 rpm. Reactions were stopped at 24 h via addition of methanol (200 µL). The precipitated protein was then removed by centrifugation (2,182 x g for 20 minutes at 4°C). 10 µL of the reaction mixture was sampled for HPLC-UV analysis. The full experimental materials include:

- Suitable reaction vessel (i.e. 2 mL HPLC vials were used)
- 5% v/v Dimethyl sulfoxide in 100 mM sodium phosphate buffer (pH = 7) as reaction solvent (200 µL)
- Secondary alcohol substrate (1 mM)
- Horseradish peroxidase (25 µg / mL) as a co-enzyme to breakdown H₂O₂ that is produced as a by-product of the oxidation reaction
- Galactose oxidase protein (40 µg / mL)
- Sufficient atmospheric oxygen content.

[0107] *Enzyme Kinetics*

[0108] Kinetics colorimetric assay conditions for substrate 128: Substrate 128 (varying concentrations from 2.5 to 30 mM), ABTS (2.5 mM), HRP (25 µg/mL) and galactose oxidase purified protein (amount is variant dependent) in a final volume of 200 µL with final concentration of DMSO at 5% v/v in 100 mM sodium phosphate buffer (pH 7.0). Kinetic parameters were obtained by the best-fit model of initial velocity against substrate concentrations based on Michaelis-Menten equation using GraphPad Prism 8 (GraphPad Software).

[0109] Amount of galactose oxidase purified protein used: GOh1001b (100 µg/mL), GOh1021 (10 µg/mL), GOh1036 (10 µg/mL), GOh1052 (5 µg/mL)

[0110] *High-Performance Liquid Chromatography (HPLC)*

[0111] *HPLC validation*

- 5 [0112] Purified protein reaction conditions: Substrate (1 mM), HRP (25 µg/mL), and galactose oxidase purified protein (100 µg/mL) in a final volume of 200 µL with final concentration of DMSO at 5% v/v in 100mM sodium phosphate buffer (pH 7.0). Purified protein reaction was carried out in sealed 2 mL HPLC vials at 25°C, 220 rpm. Reaction was stopped at 24 hours via addition of methanol (200 µL). The precipitated protein was then removed by centrifugation
- 10 (20,238 x g for 1 minute). 10 µL of the reaction mixture was sampled for HPLC-UV analysis.

[0113] 40°C heated activity assay conditions: The conditions are identical to the purified protein reaction conditions described above except that the reactions are conducted at 40°C temperature for a reaction period of 6 hours.

[0114] *HPLC analysis*

- 15 [0115] HPLC analysis was carried out using Shimadzu Prominence system UFLC or Agilent HPLC 1200 Infinity series paired with CTC Analytics HTS PAL LC Autosampler.

[0116] Mobile phase A: Water; B: Acetonitrile. Column: Phenomenex, Luna® 5 µm C18(2) 100 Å, LC Column 150 x 4.6 mm, 1 mL/minute flow rate

- [0117] Standards (200 µL) of 1 mM substrate and 1 mM product for each compound were
- 20 prepared with 5% DMSO v/v in 100 mM sodium phosphate buffer (pH 7.0) then diluted with methanol (200 µL) before being run with each sample for quantification according to the following formula:

$$HPLC\ Yield\% = \frac{Peak\ Integral\ (Sample)}{Peak\ Integral\ (Standard)}$$

- 25 [0118] *HRP-ABTS Colorimetric Assay*

[0119] *HRP-ABTS Colorimetric Assay Screening Data*

[0120] Colorimetric activities were assessed calculated from two parameters measured via 405 nm absorbance data gathered by microplate reader (Tecan) according to the following formula:

$$Colorimetric\ Activity = Rate \times Maximum\ Absorbance \times 100$$

- 30 where,

Colorimetric Activity = measure of enzymatic activity

Rate = initial rate of increase in absorbance in the first 8 min

Maximum Absorbance = maximum absorbance recorded over the 24 h reaction period

[0121] Table 1 - Table of galactose oxidase mutations investigated in the present disclosure

Mutation	Position of mutation, numbered based on the protein sequence of the M3-5 variant of galactose oxidase
A24H	24
A24N	24
A26H	26
A26R	26
I28F	28
I28M	28
I28R	28
Q45D	45
Q45E	45
Q45N	45
E49K	49
F65P	65
N69D	69
N69E	69
N69F	69
N69H	69
N69L	69
N69M	69
N69T	69
N69W	69
N69Y	69
W104G	104
W104N	104
S114N	114
S114R	114
T117D	117
T153K	153
T153R	153
G157N	157
S172E	172
S173K	173
S173R	173
T175E	175
T175H	175
T175I	175
T175K	175

V193T	193
P194C	194
A195S	195
A195T	195
A195V	195
A197C	197
A197G	197
A198I	198
T202D	202
T202I	202
T202K	202
T202Q	202
N214R	214
N214S	214
F217A	217
F217C	217
F217D	217
F217E	217
F217G	217
F217H	217
F217I	217
F217K	217
F217L	217
F217M	217
F217N	217
F217P	217
F217Q	217
F217R	217
F217S	217
F217T	217
F217V	217
F217Y	217
E218F	218
E218K	218
E218P	218
E218Y	218
S220T	220
I224W	224
L226Q	226
L226V	226
D239E	239
D239P	239
D239Q	239

R240G	240
F250E	250
F250Y	250
N259T	259
T265S	265
N268W	268
D269N	269
I284S	284
I284Y	284
G294A	294
F313R	313
S314C	314
Y325F	325
N341W	341
A346L	346
K348S	348
Y352T	352
Y352W	352
M353F	353
N356K	356
N356R	356
N356W	356
K389I	389
A401D	401
T429W	429
T447A	447
I485A	485
I485K	485
I485R	485
F487R	487
L537G	537
C538K	538
C538R	538
F546M	546
S559P	559
S576D	576
Y599M	599
Q662D	662
Q662P	662

[0122] Exemplary minimum fold changes**[0123] The following exemplary minimum fold changes are to be considered:**

- For GOh1XXX variant activity (Table 2) – 1.5-fold more than M3-5 for Substrate 128 (alpha-tetralol)
- 5 • For GOh2XXX and GOh3XXX variant activity (Tables 3 and 4 – 1.04-fold more than GOh1052 for substrate 152 (1-phenyl-1-butanol) indicated by “Y” in “Activity (HPLC)” column in Table 6.
- For GOhXXXX variant activity (Table 2 – 1.1-fold better than M3-5 for 1 or more substrates in the 64-substrate panel in **Fig. 1**.
- 10 • For GOh1XXX protein expression (Table 14) - 1.06-fold better than M3-5; For GOh1XXX solubility (Table 16) - 1.13-fold better than M3-5; and thermal stability (Table 12) - 1.52-fold better than M3-5
- For GOh2XXX and GOh3XXX protein expression (Table 13) - 1.01-fold better than GOh1052; solubility (Table 15) - 1.02-fold better than GOh1052; and thermal
- 15 stability (Table 11) – 1.01-fold better than GOh1052
- For GOh1XXX enantioselectivity (Table 18 – minimum reduction of 0.8 R/S ratio from M3-5 experimental value of 20.6 R/S ratio (for substrate 128 – alpha-tetralol)
- For GOh2XXX and GOh3XXX enantioselectivity (Tables 17 and 18 – minimum 1.04-fold change reduction in R/S ratio from M3-5 (for substrate 128 – alpha-
- 20 tetralol) or from GOh1052 (for substrate 152 – 1-phenyl-1-butanol)
- For ease of comparison, interpretation of reduced enantioselectivity is conveyed as absolute units as a ratio in conversion of (R)- and (S)-enantiomers of the substrate. Higher R/S ratios indicate higher enantioselectivity for (R)-enantiomers while R/S ratios closer to 1 indicate reduced enantioselectivity, with 1 R/S ratio being no
- 25 enantioselectivity.

[0124] Table 2 - The colorimetric activity of purified galactose oxidase enzymes activity profile benchmarked against M3-5 backbone.

Mutant No.	Substrate	Mutations (on M3-5)	Activity Fold Change
M3-5	66, 120, 121, 128, 166	backbone	1.0
GOh1008	66	S314C	19.9
GOh1017	66	F217Q	8.4
GOh1018	66	F217N	3.1

GOh1042	66	F217M	3.0
GOh1039	66	F217G	2.2
GOh1020	66	F217S	2.0
GOh1036	66	F217A	1.3
GOh1006	66	M353F	1.1
GOh1021	120	N268W	3.3
GOh1015	121	F217V	2.1
GOh1017	128	F217Q	132.2
GOh1036	128	F217A	101.9
GOh1039	128	F217G	87.9
GOh1042	128	F217M	73.0
GOh1015	128	F217V	68.7
GOh1018	128	F217N	67.7
GOh1043	128	F217R	40.8
GOh1021	128	N268W	39.8
GOh1030	128	F217I	22.9
GOh1016	128	F217P	20.1
GOh1031	128	F217T	15.0
GOh1020	128	F217S	13.6
GOh1034	128	F217E	5.6
GOh1008	128	S314C	4.9
GOh1009	128	S314K	4.3
GOh1010	128	S314L	3.5
GOh1006	128	M353F	3.1
GOh1023	128	N268F	3.1
GOh1025	128	E218P	3.1
GOh1013	128	L537G	2.5
GOh1024	128	N268K	1.9
GOh1012	128	S314T	1.5
GOh1052	166	F217A, N268W	3643.3
GOh1048	166	F217V, E218P	452.9
GOh1051	166	E218P, L537G	192.2
GOh1045	166	F217P, E218P	188.9
GOh1046	166	F217P, L537G	85.4
GOh1049	166	F217V, L537G	58.3
GOh1055	166	F217G, N268W	47.4

[0125] 39 purified enzymes show improved activity profile benchmarked against M3-5 backbone (Table 2). The experimental conditions used were: Purified protein (10 μ L, 400 μ g/mL), 5 μ L HRP (1mg/mL), 2.5 mM ABTS, 5% DMSO v/v, 1 mM substrate, 25°C, topped up to 200 μ L with 100mM sodium phosphate (pH 7.0) buffer, 24 hours.

[0126] Table 3 - The colorimetric activity of purified galactose oxidase enzymes activity profile benchmarked against GOh1052 (F217A, N268W from M3-5) backbone for substrate 152.

Mutant No.	Mutations (on GOh1052)	Activity Fold Change
GOh1052	backbone	1.0
GOh2015	A197C	22.2
GOh2010	Y352F	18.2
GOh2072	S114R	13.3
GOh2013	Y352T	9.5
GOh2026	K389I	8.2
GOh2011	G294A	8.1
GOh2016	R240G	6.2
GOh2021	T202I	5.9
GOh2025	A346L	4.1
GOh2002	V193T	1.8
GOh2019	T202D	1.8
GOh2020	T202Q	1.8
GOh2018	K348S	1.5
GOh2022	T202K	1.4

- 5 [0127] 14 purified enzymes show improved activity profile benchmarked against GOh1052 (F217A, N268W from M3-5) backbone for substrate 152 (Table 3). The experimental conditions used were: Purified protein (10 μ L, 400 μ g/mL), 5 μ L HRP (1 mg/mL), 2.5 mM ABTS, 5% DMSO v/v, 1 mM substrate 152, 25°C, topped up to 200 μ L with 100 mM sodium phosphate (pH 7.0) buffer, 24 hours.
- 10 [0128] Table 4 - The High Performance Liquid Chromatography (HPLC) Yield Activity of purified galactose oxidase enzymes activity profile benchmarked against GOh1052 (F217A, N268W from M3-5) backbone for substrate 152.

Mutant No.	Mutations (on GOh1052)	Activity Fold Change
GOh1052	backbone	1.00
GOh2082	E218F	2.68
GOh2081	A195V	2.04
GOh2044	A24H	2.00
GOh2086	I28F	1.84
GOh2012	A195T	1.80

GOh2027	Y352W	1.76
GOh2045	I28R	1.76
GOh2085	A26R	1.76
GOh2070	D239E	1.68
GOh2084	I224W	1.64
GOh2087	E218Y	1.60
GOh2083	L226Q	1.56
GOh2091	A24N	1.52
GOh2023	P194C	1.36
GOh2092	A26H	1.36
GOh2039	E218K	1.28
GOh2090	F546M	1.28
GOh2001	A195S	1.24
GOh2080	S173K	1.20
GOh2014	N341W	1.16
GOh2076	S173R	1.16
GOh2079	Q662D	1.16
GOh2008	N259T	1.12
GOh2043	I284Y	1.08
GOh2046	I28M	1.08
GOh2047	S576D	1.08
GOh2017	A198I	1.04
GOh2048	I284S	1.04
GOh2055	A197G	1.04
GOh2071	T117D	1.04
GOh2075	Q662P	1.04
GOh2078	S172E	1.04
GOh2089	D239Q	1.04

[0129] 33 purified enzymes show improved activity profile benchmarked against GOh1052 (F217A, N268W from M3-5) backbone for substrate 152 (Table 4). The experimental conditions used were: purified protein (20 μ L, 400 μ g/mL), 5 μ L HRP (1 mg/mL), 5% DMSO v/v, 1 mM substrate 152, 25°C, 220 rpm, topped up to 200 μ L with 100 mM sodium phosphate (pH 7.0) buffer (in 2 mL HPLC vials), 6 hours.

[0130] Table 5 - The 40°C Activity of purified galactose oxidase enzymes activity profile benchmarked against GOh1052 (F217A, N268W from M3-5) backbone for substrate 152.

Mutant No.	Mutations (on GOh1052)	HPLC Yield of Ketone
GOh1052	backbone	33%

GOh3006	I28R, K389I	72%
GOh3008	I28R, T153R, A198I, N341W	64%
GOh3038	I28R, A195T, N259T, N341W, K389I	64%
GOh3013	I28R, A195T, N259T, K389I	63%
GOh3026	I28R, A195T, N259T, T447A	63%
GOh3023	I28R, A195T, N341W, K389I	61%
GOh2045	I28R	61%
GOh2044	A24H	59%
GOh2070	D239E	57%
GOh3032	I28R, A195S, N259T, N341W	56%
GOh3015	I28R, N259T, N341W	52%
GOh3018	I28R, A195S, K389I	52%
GOh2082	E218F	52%
GOh2083	L226Q	52%
GOh3003	A198I, N259T	51%
GOh2014	N341W	50%
GOh2017	A198I	50%
GOh2091	A24N	49%
GOh2086	I28F	47%
GOh2087	E218Y	47%
GOh2084	I224W	46%
GOh2085	A26R	44%
GOh2023	P194C	43%
GOh2119	A401D	43%
GOh2027	Y352W	41%
GOh2055	A197G	41%
GOh2089	D239Q	41%
GOh2092	A26H	41%
GOh2117	T175K	41%
GOh2081	A195V	40%
GOh2039	E218K	39%
GOh2114	T175E	39%
GOh2115	T175H	39%
GOh2008	N259T	38%
GOh2043	I284Y	36%
GOh2046	I28M	36%
GOh2098	Q45E	36%
GOh2116	T175I	36%
GOh2071	T117D	35%
GOh2090	F546M	35%
GOh2111	W104N	35%
GOh3002	N341W, Y352T	34%
GOh2048	I284S	34%

GOh2056	T265S	34%
GOh2076	S173R	34%

- [0131]** 45 purified enzymes show improved heated activity profile benchmarked against GOh1052 (F217A, N268W from M3-5) backbone for substrate 152 (Table 5). The experimental conditions used were: purified protein (20 μ L, 400 μ g/mL), 5 μ L HRP (1 mg/mL),
- 5 5% DMSO v/v, 1 mM substrate 152, 40°C, 220 rpm, topped up to 200 μ L with 100 mM sodium phosphate (pH 7.0) buffer (in 2 mL HPLC vials), 6 hours.

[0132] Table 6 - The activity, stability, solubility, expression, and enantioselectivity of modified galactose oxidases

Name	Mutations on top of M3-5	Activity (HPLC)	Activity (Colorimetric)	Thermal Stability	Solubility	Expression	Relaxed Enantioselectivity
GOh1006	M353F		Y+	Y	Y	Y	
GOh1008	S314C		Y+		Y	Y	
GOh1013	L537G	Y	Y+		Y	Y	
GOh1015	F217V	Y	Y+				Y
GOh1016	F217P	Y	Y+				Y
GOh1017	F217Q	Y	Y+			Y	
GOh1018	F217N	Y	Y+			Y	
GOh1020	F217S	Y	Y+	Y		Y	Y
GOh1021	N268W	Y	Y+		Y		
GOh1025	E218P	Y	Y+			Y	
GOh1030	F217I	Y					Y
GOh1031	F217T	Y			Y		Y
GOh1032	F217L				Y		Y
GOh1034	F217E		Y+		Y		Y
GOh1035	F217Y				Y	Y	
GOh1036	F217A		Y+	Y	Y		Y
GOh1037	F217C						Y
GOh1038	F217D				Y		Y
GOh1039	F217G		Y+			Y	Y
GOh1040	F217H					Y	Y
GOh1041	F217K				Y		Y
GOh1042	F217M		Y+				Y
GOh1043	F217R		Y+				Y
GOh1045	F217P, E218P		Y+				
GOh1046	F217P, L537G		Y+				

GOh1047	F217P, E218P, L537G		Y+				
GOh1048	F217V, E218P		Y+				
GOh1049	F217V, L537G		Y+				
GOh1050	F217V, E218P, L537G		Y+				
GOh1051	E218P, L537G		Y+				
GOh1052	F217A, N268W		Y+				
GOh1053	F217A, N268W, M353F		Y+				
GOh1054	F217A, N268W, S314C		Y+				
GOh1055	F217G, N268W		Y+				
GOh1056	F217G, N268W, M353F		Y+				
GOh2001	F217A, N268W, A195S	Y	Y+		Y		Y
GOh2002	F217A, N268W, V193T		Y+				
GOh2008	F217A, N268W, N259T		Y+	Y			
GOh2010	F217A, N268W, Y325F		Y+				
GOh2011	F217A, N268W, G294A		Y+				
GOh2012	F217A, N268W, A195T	Y	Y+		Y		
GOh2013	F217A, N268W, Y352T		Y+				
GOh2014	F217A, N268W, N341W		Y+	Y		Y	Y
GOh2015	F217A, N268W, A197C		Y+				

GOh2016	F217A, N268W, R240G		Y+				
GOh2017	F217A, N268W, A198I		Y+	Y			
GOh2018	F217A, N268W, K348S		Y+				
GOh2019	F217A, N268W, T202D		Y+				Y
GOh2020	F217A, N268W, T202Q		Y+			Y	
GOh2021	F217A, N268W, T202I		Y+	Y		Y	
GOh2022	F217A, N268W, T202K		Y+			Y	
GOh2023	F217A, N268W, P194C	Y	Y+	Y		Y	
GOh2025	F217A, N268W, A346L		Y+			Y	Y
GOh2026	F217A, N268W, K389I		Y+		Y	Y	
GOh2027	F217A, N268W, Y352W	Y	Y+			Y	Y
GOh2028	F217A, N268W, C538K		Y+			Y	
GOh2029	F217A, N268W, C538R		Y+		Y	Y	
GOh2030	F217A, N268W, F250E				Y		
GOh2031	F217A, N268W, F250Y				Y		
GOh2032	F217A, N268W, N356K		Y+		Y		
GOh2033	F217A, N268W, N356R		Y+		Y	Y	

GOh2034	F217A, N268W, N356W		Y+		Y	Y	
GOh2037	F217A, N268W, F487R		Y+				
GOh2038	F217A, N268W, T429W			Y	Y	Y	
GOh2039	F217A, N268W, E218K	Y	Y+				
GOh2041	F217A, N268W, F313R			Y	Y	Y	
GOh2043	F217A, N268W, I284Y		Y+	Y			
GOh2044	F217A, N268W, A24H	Y	Y+	Y			
GOh2045	F217A, N268W, I28R	Y	Y+	Y	Y		
GOh2046	F217A, N268W, I28M		Y+	Y	Y		
GOh2047	F217A, N268W, S576D				Y		
GOh2048	F217A, N268W, I284S		Y+	Y	Y		
GOh2050	F217A, N268W, F65P			Y	Y		
GOh2053	F217A, N268W, T153R			Y			
GOh2055	F217A, N268W, A197G			Y	Y		
GOh2056	F217A, N268W, T265S			Y	Y		
GOh2057	F217A, N268W, S220T				Y		
GOh2058	F217A, N268W, N214S				Y		

GOh2061	F217A, N268W, I485A				Y		
GOh2064	F217A, N268W, N214R			Y	Y		
GOh2066	F217A, N268W, D269N				Y	Y	
GOh2067	F217A, N268W, I485R				Y	Y	
GOh2068	F217A, N268W, I485K				Y		
GOh2070	F217A, N268W, D239E	Y	Y+	Y		Y	
GOh2071	F217A, N268W, T117D		Y+				
GOh2072	F217A, N268W, S114R		Y+		Y	Y	
GOh2073	F217A, N268W, S559P				Y	Y	
GOh2074	F217A, N268W, S114N				Y		
GOh2075	F217A, N268W, Q662P		Y+		Y		
GOh2076	F217A, N268W, S173R		Y+				
GOh2077	F217A, N268W, D239P				Y		
GOh2078	F217A, N268W, S172E				Y	Y	
GOh2079	F217A, N268W, Q662D		Y+		Y	Y	
GOh2080	F217A, N268W, S173K	Y	Y+		Y		
GOh2081	F217A, N268W, A195V	Y	Y+		Y	Y	

GOh2082	F217A, N268W, E218F	Y	Y+	Y	Y	Y	
GOh2083	F217A, N268W, L226Q	Y		Y	Y	Y	
GOh2084	F217A, N268W, I224W	Y		Y	Y		
GOh2085	F217A, N268W, A26R	Y		Y			
GOh2086	F217A, N268W, I28F	Y	Y+	Y			
GOh2087	F217A, N268W, E218Y	Y		Y	Y		
GOh2088	F217A, N268W, L226V				Y		
GOh2089	F217A, N268W, D239Q			Y	Y		
GOh2090	F217A, N268W, F546M	Y			Y		
GOh2091	F217A, N268W, A24N	Y	Y+	Y	Y		
GOh2092	F217A, N268W, A26H	Y		Y			
GOh2093	F217A, N268W, Y599M			Y		Y	
GOh2094	F217A, N268W, G157N			Y	Y	Y	
GOh2097	F217A, N268W, Q45D			Y	Y		
GOh2098	F217A, N268W, Q45E			Y	Y	Y	
GOh2099	F217A, N268W, Q45N					Y	
GOh2100	F217A, N268W, E49K			Y			

GOh2101	F217A, N268W, N69D				Y	Y	
GOh2102	F217A, N268W, N69E				Y	Y	
GOh2103	F217A, N268W, N69F			Y			
GOh2104	F217A, N268W, N69H			Y			
GOh2105	F217A, N268W, N69L			Y		Y	
GOh2106	F217A, N268W, N69M			Y			
GOh2107	F217A, N268W, N69T			Y			
GOh2108	F217A, N268W, N69W			Y			
GOh2109	F217A, N268W, N69Y			Y		Y	
GOh2110	F217A, N268W, W104G	Y				Y	
GOh2111	F217A, N268W, W104N	Y		Y		Y	
GOh2114	F217A, N268W, T175E	Y		Y		Y	
GOh2115	F217A, N268W, T175H	Y		Y		Y	
GOh2116	F217A, N268W, T175I			Y		Y	
GOh2117	F217A, N268W, T175K	Y		Y	Y	Y	
GOh2119	F217A, N268W, A401D	Y			Y	Y	
GOh3001	F217A, N268W, A195T, Y352W	Y	Y+		Y		

GOh3002	F217A, N268W, N341W, Y352T	Y		Y		Y	
GOh3003	F217A, N268W, A198I, N259T			Y			
GOh3004	F217A, N268W, A195S, N341W					Y	
GOh3005	F217A, N268W, T153K, A195S	Y			Y	Y	
GOh3006	F217A, N268W, I28R, K389I	Y	Y+	Y			
GOh3007	F217A, N268W, T153R, A195T	Y					
GOh3008	F217A, N268W, I28R, T153R, A198I, N341W	Y		Y			
GOh3009	F217A, N268W, A195T, N259T, N341W	Y				Y	
GOh3013	F217A, N268W, I28R, A195T, N259T, K389I	Y	Y+	Y	Y		
GOh3015	F217A, N268W, I28R, N259T, N341W	Y		Y	Y	Y	
GOh3018	F217A, N268W, I28R, A195S, K389I	Y		Y	Y		

GOh3019	F217A, N268W, A195T, N341W	Y			Y	Y	
GOh3023	F217A, N268W, I28R, A195T, N341W, K389I	Y			Y		
GOh3026	F217A, N268W, I28R, A195T, N259T, T447A	Y		Y	Y		
GOh3032	F217A, N268W, I28R, A195S, N259T, N341W	Y		Y	Y	Y	
GOh3038	F217A, N268W, I28R, A195T, N259T, N341W, K389I	Y	Y+	Y			
GOh3049	F217A, N268W, T153R, N341W			Y			

[0133] For “Activity (HPLC)”:

[0134] Interpretation is as follows:

- (a) if a “Y” is obtained for a GOh1XXX modified galactose oxidase tested, then the activity of said modified galactose oxidase is at least 10-fold better than the M3-5 variant for substrate 128 (alpha-tetralol); and
- (b) if a “Y” is obtained for a GOh2XXX or GOh3XXX modified galactose oxidase tested, then the activity of said modified galactose oxidase is at least 1.2-fold better than GOh1052 for substrate 152 (1-phenyl-1-butanol).

[0135] For GOhXXXX variant activity – the minimum fold change for said variant to be considered as having better activity is 1.01-fold better than M3-5 for 1 or more substrates in the 64-substrate panel (indicated in **Fig. 1** of the present disclosure).

[0136] For “Activity (Colorimetric)”:

[0137] Interpretation is as follows:

- (a) if a “Y+” is obtained for any of modified galactose oxidase tested, then said modified galactose oxidase is better than the M3-5 variant for some substrate in the colorimetric substrate panel.

[0138] For “Stability” (thermal stability), “Solubility” and “Expression” (protein expression):

[0139] Interpretation is as follows:

- (a) if a “Y” is obtained for a GOh1XXX modified galactose oxidase tested, then the properties of said modified galactose oxidase is better than the M3-5 variant by 1.01-fold; and (b) if a “Y” is obtained for a GOh2XXX or GOh3XXX modified galactose oxidase tested, then the properties of said modified galactose oxidase is better than Goh1052 by 1.01-fold.

[0140] For the measure of “Relaxed Enantioselectivity”

[0141] Interpretation is as follows:

- [0142] (a) if a “Y” is obtained for any of the modified galactose oxidase tested, then the enantioselectivity of said modified galactose oxidase is reduced by 1.01-fold compared to that of the M3-5 variant baseline.

- [0143] For ease of comparison, interpretation of reduced enantioselectivity is conveyed as absolute units as a ratio in conversion of (R)- and (S)-enantiomers of the substrate. Higher R/S ratios indicate higher enantioselectivity for (R)-enantiomers while R/S ratios closer to 1 indicate reduced enantioselectivity, with 1 R/S ratio being no enantioselectivity.

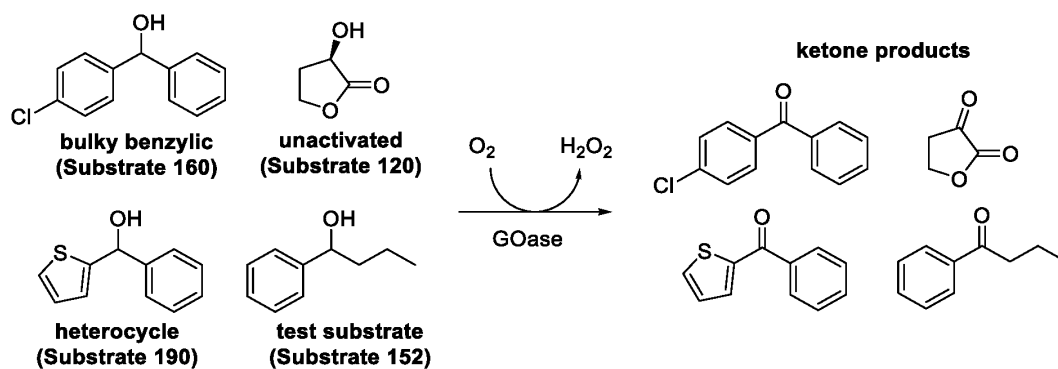
[0144] For GOh1XXX enantioselectivity – minimum reduction of 0.8 R/S ratio from M3-5 experimental value of 20.6 R/S ratio (for substrate 128 – alpha-tetralol)

- [0145] For GOh2XXX and GOh3XXX enantioselectivity – minimum reduction of 0.22 R/S ratio from GOh1052 experimental value of 1.67 R/S ratio (for substrate 152 – 1-phenyl-1-butanol).

[0146] **Results**

[0147] *Identification of galactose oxidase mutants*

- [0148] High throughput screening of 6,692 galactose oxidase variants from 352 amino acid positions against substrate 152 have revealed that 31 galactose oxidase variants (0.46%) show improved enzymatic activity ($\geq 1.2\times$ baseline, Table 7). The oxidation reaction of selected examples of bulky benzylic, unactivated, and heterocyclic aliphatic secondary alcohol substrates to ketones by galactose oxidase mutants are shown in the chemical equation below:



[0149] Table 7 - Table showing the Activity Hits from High Throughput Screening of 6,692 galactose oxidase variants

Variant	Activity vs GOh1052
E218F	2.13
Y599M	1.84
L226Q	1.66
A24H	1.51
A195V	1.49
A26R	1.35
I28A	1.33
L226R	1.33
I224W	1.32
I28M	1.31
D239Q	1.31
K508P	1.31
A401D	1.30
D239E	1.30
I28P	1.29
E218Y	1.29
A26F	1.28
A24N	1.28
I28D	1.28
T542G	1.28
L226V	1.27
I28R	1.26
I28E	1.26
G157N	1.26
A26H	1.25

E218W	1.25
T616V	1.23
I28F	1.23
A24G	1.22
I28H	1.21
A26D	1.20

[0150] 31 Activity Hits were obtained from High Throughput Screening of 6,692 galactose oxidase variants. For the screening, GOh1052 was used as the backbone with 10 mutations (S33P, M93V, F217A, G218E, N268W, W313F, R353M, Q429T, V517A, N558D) from wild-type galactose oxidase from *Fusarium graminearum*. Screening conditions are described in paragraph [0109] and the Activity calculations are described in paragraph [0128] above.

[0151] Table 8 - Selected first generation galactose oxidase variant examples based on M3-5 backbone with improved activity for chosen bulky benzylic and unactivated alcohol substrates.

Name	Mutations	Activity (bulky benzylic – substrate 160)	Activity (unactivated – substrate 120)	Comment
M3-5	backbone	1.54	135	Baseline
GOh1008	S314C	2.04	264	unactivated activity
GOh1021	N268W	5.47	446	unactivated activity
GOh1036	F217A	6921	4.50	bulky benzylic activity
GOh1052	F217A, N268W	5884	2.87	generalist activity

As described in paragraph [0110] above, Activity = initial rate * max absorbance * 100. Max absorbance = indirect measure of ketone yield based on 405nm absorbance of a colorimetric probe (ABTS) measuring H_2O_2 .

[0152] Table 9 - Selected second generation variant examples based on GOh1052 (F217A, N268W from M3-5) backbone with improved properties. Up to 10⁴-fold activity improvement from baseline M3-5 variant.

Name	Mutations	Activity (bulky benzylic – substrate 160)	Activity (hetero- cycle – substrate 190)	R/S Ratio ^a – substrate 152	Residual Activity ^b – substrate 152	Comment
GOh1052	backbone	5884	4862	1.67	56%	baseline

GOh2001	A195S	5996	2125	1.05	39%	activity, relaxed enantioselectivity
GOh2008	N259T	6529	5394	2.00	84%	activity
GOh2012	A195T	6393	2874	1.73	3%	activity
GOh2017	A198I	5662	1034	-	79%	thermostable
GOh2021	T202I	2376	296	-	74%	thermostable
GOh2027	Y352W	2116	1885	1.45	38%	ortho-substrate activity
GOh2044	A24H	8582	36573	-	74%	activity
GOh2045	I28R	6469	9346	-	79%	activity & thermostable
GOh2070	D239E	11412	8105	-	78%	activity & thermostable
GOh2091	A24N	-	-	-	82%	activity & thermostable

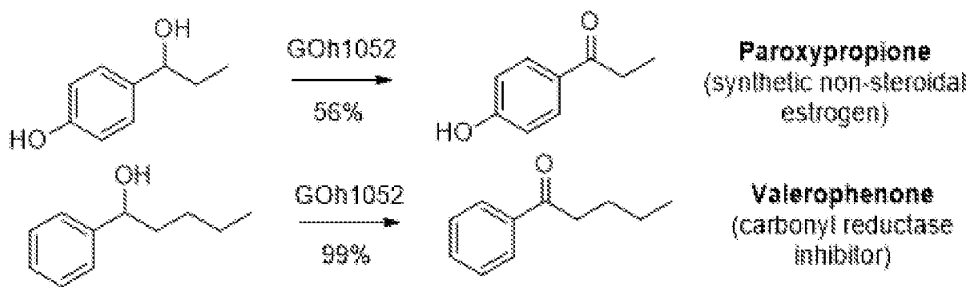
As described in paragraph [0110] above, Activity = initial rate * max absorbance * 100. Max absorbance = indirect measure of ketone yield based on 405nm absorbance of a colorimetric probe (ABTS) measuring H₂O₂. ^aR/S ratio = [(R-isomer substrate 152 converted) / (S-isomer substrate 152 converted)] starting from a 50/50 mixture of each. ^bResidual activity = (substrate 152 ketone yield using enzyme heated at 50°C for 30 min) / (substrate 152 ketone yield using fresh enzyme).

[0153] Selected examples of additional combinatorial third generation variants (incorporating 4 or more synergistic mutations to the M3-5 variant) including galactose oxidase variant GOh3001 (A195T, F217A, N268W, Y352W) showed improved generalist activity and improved acceptance of ortho-substituted substrates (**Fig. 3**), and galactose oxidase variant GOh3006 (I28R, F217A, N268W, K389I) showed synergistic mutations that combine desirable traits of high activity and thermostability (**Fig. 4**).

[0154] *Synthesis of active pharmaceutical ingredient (API) molecules using galactose oxidase variants*

[0155] Identified beneficial enzyme mutations were applied to synthesize API molecules. The chemical equation below shows two examples of the biocatalytic synthesis of APIs by galactose oxidase variant GOh1052.

74



[0156] *Analysis of the enzyme generalist activity of 12 galactose oxidase mutants*

[0157] To determine the enzyme generalist activity of galactose oxidase mutants, purified galactose oxidase enzyme mutants were screened against a panel of 60 secondary alcohols. The screening conditions were:

- 10 μL purified enzyme (400 $\mu\text{g/mL}$)
- 5 μL horseradish peroxidase (1 mg/mL)
- 1 mM secondary alcohol substrate
- 2.5 mM ABTS (colorimetric indicator)
- 5% dimethylsulfoxide v/v in 100 mM sodium phosphate buffer ($\text{pH} = 7$)
- 200 μL total reaction volume

[0158] Table 10 below lists 12 galactose oxidase mutants with good enzyme generalist activity compared to the M3-5 variant across the 60-substrate panel. The 60 secondary alcohol substrate panel is shown in **Fig. 1**. The activity fold improvements have been rounded to the nearest 100.

[0159] Table 10 - Table of 12 galactose oxidase mutants with good generalist activity across the 60-substrate panel.

Mutant	Mutations	Averaged Activity Fold vs M3-5 (across 60 Substrates)
GOh1001b (M3-5)	Backbone	1
GOh1036	F217A	900
GOh1052	F217A, N268W	600
GOh2001	F217A, N268W, A195S	600
GOh2008	F217A, N268W, N259T	800

GOh2012	F217A, N268W, A195T	900
GOh2044	F217A, N268W, A24H	1500
GOh2045	F217A, N268W, I28R	1200
GOh2081	F217A, N268W, A195V	1100
GOh2082	F217A, N268W, E218F	2000
GOh3001	F217A, N268W, A195T, Y352W	1000
GOh3013	F217A, N268W, I28R, A195T, N259T, K389I	2000
GOh3038	F217A, N268W, I28R, A195T, N259T, N341W, K389I	2100

[0160] The activity values for 13 galactose oxidase mutants against 60 substrates are shown in **Fig. 5** (colour comparisons are done horizontally per substrate). **Fig. 5** shows that the 13 galactose oxidase mutants had generally higher activity values compared to the M3-5 variant. The "Averaged Activity Fold" was obtained by sequentially: (1) taking the colorimetric activity fold change of each substrate by the selected galactose oxidase variant (e.g., GOh1052) over benchmark M3-5; and (2) taking the average of all the fold changes of a given galactose oxidase variant (e.g. GOh1052) for all 60 substrates in **Fig. 5**.

[0161] Analysis of the thermostability of galactose oxidase mutants

[0162] The thermostability profile of 55 purified galactose oxidase mutants were compared against the thermostability profile of GOh1052 (F217A, N268W from M3-5) backbone. As shown in **Fig. 6**, the purified galactose oxidase enzymes were heated at 50°C or at 55°C for 30 minutes, and the enzymatic activities of the resulting heat-treated enzymes were measured and compared with the GOh1052 control. Table 11 shows higher residual activity of the heat-treated galactose oxidase mutants compared to GOh1052 control.

[0163] Table 11 - Table of 55 thermostable mutants compared to GOh1052 (F217A, N268W from M3-5) backbone.

Mutant No.	Mutations (on GOh1052)	Residual Activity (50°C 30 min)
GOh1052	backbone	56%

GOh3006	I28R, K389I	90%
GOh2008	N259T	84%
GOh2091	A24N	82%
GOh2104	N69H	82%
GOh2045	I28R	79%
GOh2105	N69L	79%
GOh2017	A198I	79%
GOh3015	I28R, N259T, N341W	78%
GOh2082	E218F	78%
GOh2070	D239E	78%
GOh2089	D239Q	76%
GOh3003	A198I, N259T	75%
GOh2041	F313R	75%
GOh2084	I224W	75%
GOh2021	T202I	74%
GOh2044	A24H	74%
GOh2106	N69M	74%
GOh3008	I28R, T153R, A198I, N341W	74%
GOh2086	I28F	73%
GOh2038	T429W	72%
GOh2093	Y599M	72%
GOh2097	Q45D	72%
GOh2100	E49K	72%
GOh2046	I28M	70%
GOh2087	E218Y	70%
GOh2109	N69Y	70%
GOh2114	T175E	70%
GOh3032	I28R, A195S, N259T, N341W	69%
GOh3049	T153R, N431W	69%
GOh2083	L226Q	68%

GOh2014	N341W	68%
GOh2092	A26H	67%
GOh2085	A26R	67%
GOh3002	N341W, Y352T	66%
GOh2055	A197G	66%
GOh2115	T175H	66%
GOh2116	T175I	66%
GOh2043	I284Y	65%
GOh2103	N69F	65%
GOh2108	N69W	65%
GOh3018	I28R, A195S, K389I	65%
GOh2064	N214R	63%
GOh2048	I284S	62%
GOh2107	N69T	62%
GOh2117	T175K	62%
GOh3038	I28R, A195T, N259T, N341W, K389I	62%
GOh2050	F65P	61%
GOh2098	Q45E	61%
GOh2023	P194C	60%
GOh2094	G157N	60%
GOh3026	I28R, A195T, N259T, T447A	58%
GOh2053	T153R	58%
GOh2056	T265S	57%
GOh2111	W104N	57%
GOh3013	I28R, A195T, N259T, K389I	57%

[0164] Table 12 thermostable mutants compared to M3-5 control backbone for substrate 128

Mutant No.	Mutations (on M3-5)	Residual Activity (55°C 30 min)
M3-5	Backbone	36%

GOh1036	F217A	58%
GOh1020	F217S	55%
GOh1006	M353F	55%

[0165] Analysis of the protein expression profile of galactose oxidase mutants

[0166] The protein expression profiles of purified galactose oxidase mutants were compared against the protein expression profile of GOh1052 (F217A, N268W from M3-5) backbone.

- 5 Tables 13 and 14 show higher protein expression level of purified galactose oxidase mutants compared to the protein expression level of GOh1052 control and M3-5 control, respectively.

[0167] Table 13 - Table showing improved protein expression profile of 46 purified galactose oxidase mutants versus GOh1052 (F217A, N268W from M3-5) backbone.

Mutant No.	Mutations (on GOh1052)	Relative Expression
GOh1052	backbone	1.00
GOh3002	N341W, Y352T	10.09
GOh2119	A401D	6.34
GOh2117	T175K	4.29
GOh2115	T175H	3.46
GOh3004	A195S, N341W	3.36
GOh2102	N69E	2.96
GOh2116	T175I	2.58
GOh2114	T175E	2.47
GOh2101	N69D	2.06
GOh2110	W104G	2.04
GOh2041	F313R	2.00
GOh2105	N69L	1.67
GOh2021	T202I	1.64
GOh2029	C538R	1.62
GOh2109	N69Y	1.58
GOh2022	T202K	1.52
GOh2098	Q45E	1.47

GOh2094	G157N	1.38
GOh2099	Q45N	1.35
GOh2038	T429W	1.34
GOh2028	C538K	1.34
GOh2020	T202Q	1.33
GOh2066	D269N	1.32
GOh3019	A195T, N341W	1.32
GOh2025	A346L	1.31
GOh2034	N356W	1.25
GOh3005	T153K, A195S	1.22
GOh3032	I28R, A195S, N259T, N341W	1.21
GOh2111	W104N	1.19
GOh2067	I485R	1.17
GOh3015	I28R, N259T, N341W	1.17
GOh2033	N356R	1.17
GOh2081	A195V	1.15
GOh2078	S172E	1.14
GOh2026	K389I	1.14
GOh2070	D239E	1.11
GOh2072	S114R	1.11
GOh2093	Y599M	1.08
GOh2079	Q662D	1.05
GOh2023	P194C	1.05
GOh2073	S559P	1.03
GOh2083	L226Q	1.03
GOh2082	E218F	1.03
GOh2027	Y352W	1.02
GOh2014	N341W	1.01
GOh3009	A195T, N259T, N341W	1.01

[0168] Table 14 - Table showing improved protein expression profile of 10 purified galactose oxidase mutants versus M3-5 control backbone.

Mutant No.	Mutations (on M3-5)	Relative Expression
M3-5	Backbone	1.00
GOh1006	M353F	1.73
GOh1008	S314C	1.51
GOh1013	L537G	1.64
GOh1017	F217Q	1.06
GOh1018	F217N	1.16
GOh1020	F217S	1.41
GOh1025	E218P	1.36
GOh1035	F217Y	1.10
GOh1039	F217G	1.25
GOh1040	F217H	1.19

[0169] *Analysis of the protein solubility of galactose oxidase mutants*

[0170] The protein solubilities of purified galactose oxidase mutants were compared against the protein solubility of GOh1052 (F217A, N268W from M3-5) backbone. Tables 15 and 16 show increased protein solubility of purified galactose oxidase mutants compared to the protein solubility of GOh1052 control, and M3-5 control, respectively.

[0171] Table 15 - Table showing increased protein solubility of 58 purified galactose oxidase mutants versus GOh1052 (F217A, N268W from M3-5) backbone.

Mutant No.	Mutations (on GOh1052)	Soluble/Insoluble Ratio
GOh1052	backbone	0.44
GOh3023	I28R, A195T, N341W, K389I	2.01
GOh2082	E218F	1.24
GOh2056	T265S	1.12
GOh2079	Q662D	1.03
GOh3018	I28R, A195S, K389I	0.99

GOh3013	I28R, A195T, N259T, K389I	0.99
GOh2041	F313R	0.95
GOh2084	I224W	0.84
GOh2081	A195V	0.80
GOh2068	I485K	0.79
GOh2033	N356R	0.76
GOh2119	A401D	0.74
GOh2080	S173K	0.74
GOh2047	S576D	0.73
GOh2038	T429W	0.72
GOh2075	Q662P	0.71
GOh2067	I485R	0.71
GOh3032	I28R, A195S, N259T, N341W	0.71
GOh2083	L226Q	0.70
GOh2073	S559P	0.68
GOh2074	S114N	0.67
GOh2048	I284S	0.66
GOh2089	D239Q	0.65
GOh2030	F250E	0.64
GOh3019	A195T, N341W	0.64
GOh2046	I28M	0.63
GOh3001	A195T, Y352W	0.62
GOh3015	I28R, N259T, N341W	0.61
GOh2088	L226V	0.61
GOh3026	I28R, A195T, N259T, T447A	0.61
GOh3005	T153K, A195S	0.60
GOh2050	F65P	0.60
GOh2045	I28R	0.59
GOh2091	A24N	0.58
GOh2098	Q45E	0.58
GOh2101	N69D	0.57

GOh2064	N214R	0.57
GOh2094	G157N	0.55
GOh2032	N356K	0.53
GOh2058	N214S	0.53
GOh2087	E218Y	0.52
GOh2061	I485A	0.52
GOh2102	N69E	0.51
GOh2078	S172E	0.51
GOh2031	F250Y	0.50
GOh2012	A195T	0.50
GOh2117	T175K	0.49
GOh2097	Q45D	0.48
GOh2072	S114R	0.47
GOh2055	A197G	0.47
GOh2034	N356W	0.46
GOh2029	C538R	0.46
GOh2090	F546M	0.46
GOh2077	D239P	0.46
GOh2066	D269N	0.45
GOh2026	K389I	0.45
GOh2057	S220T	0.45
GOh2001	A195S	0.45

[0172] Table 16 - Table showing increased protein solubility of 11 purified galactose oxidase mutants versus M3-5 control backbone.

Mutant No.	Mutations (on M3-5)	Soluble/Insoluble Ratio
M3-5	Backbone	0.58
GOh1038	F217D	0.97
GOh1013	L537G	0.94
GOh1008	S314C	0.78
GOh1032	F217L	0.78

GOh1031	F217T	0.78
GOh1006	M353F	0.77
GOh1036	F217A	0.77
GOh1021	N268W	0.76
GOh1041	F217K	0.73
GOh1035	F217Y	0.69
GOh1034	F217E	0.66

[0173] *Analysis of relaxed enantioselectivity profile of galactose oxidase mutants*

[0174] Table 17 - Table showing relaxed enantioselectivity profile of five purified enzymes (for substrate 152) versus GOh1052 (F217A, N268W from M3-5) backbone.

Mutant No.	Mutations (on GOh1052)	R/S Ratio
GOh1052	backbone	1.67
GOh2001	A195S	1.05
GOh2025	A346L	1.25
GOh2019	T202D	1.27
GOh2014	N341W	1.35
GOh2027	Y352W	1.45

[0175] Table 18 - Table showing relaxed enantioselectivity profile of 15 purified enzymes at

5 F217 position (for substrate 128) versus M3-5 backbone.

Mutant No.	Mutations (on M3-5)	R/S Ratio
M3-5	Backbone	20.6
GOh1036	F217A	1.6
GOh1039	F217G	3.4
GOh1016	F217P	4.1
GOh1041	F217K	4.1
GOh1042	F217M	4.7
GOh1015	F217V	4.9
GOh1038	F217D	6.0
GOh1032	F217L	6.4
GOh1030	F217I	6.7
GOh1043	F217R	6.9
GOh1020	F217S	7.0
GOh1031	F217T	7.1
GOh1037	F217C	8.6

GOh1034	F217E	13.5
GOh1040	F217H	19.8

[0176] The fold change ratios can be calculated as the benchmark R/S ratio divided by the mutant R/S ratio, which gives the fold decrease in enantioselectivity. For example, for GOh1036 benchmarked to M3-5, calculation is: 20.6 (M3-5 R/S ratio) / 1.6 (GOh1036 R/S ratio) = 12.875 (round up to 12.9).

- 5 **[0177]** *Construction of the combinatorial library targeting generalist activity and stability of galactose oxidase mutants.*

[0178] Combinatorial library targeting generalist activity and stability was constructed from the following eight mutations (six amino acid mutation positions)

- Generalist Activity: A195S, A195T, N259T, K389I
- 10 ○ Stability: I28R, T153R, T153K, N341W

[0179] Purified galactose oxidase proteins from the combinatorial library have been found to surpass single mutants in the characteristics shown in Table 19.

[0180] Table 19

Characteristic	Single Mutant (mutations on GOh1052)	Fold vs GOh1052 backbone	Combinatorial (mutations on GOh1052)	Fold vs GOh1052 backbone
40°C Activity	GOh2045 (I28R)	1.85	GOh3006 (I28R, K389I)	2.18
Thermal Stability	GOh2008 (N259T)	1.50	GOh3006 (I28R, K389I)	1.61
Protein Expression	GOh2041 (F313R)	2.00	GOh3002 (N341W, Y352T)	10.09
Solubility	GOh2082 (E218F)	2.82	GOh3023 (I28R, A195T, N341W, K389I)	4.57

[0181] Synergistic mutations I28R and K389I (GOh3006) have been found to combine the desirable traits of both generalist activity and thermostability.

[0182] The present disclosure describes for the first time, galactose oxidase variants that convey superior enhancement in enzymatic activity towards bulky secondary alcohols and unactivated secondary alcohols.

[0183] The galactose oxidase variants of the present disclosure have the following advantages:

1. The galactose oxidase variants disclosed herein are capable of oxidising secondary alcohols and oxidising unactivated secondary alcohols.
2. The galactose oxidase variants disclosed herein has reduced enantioselectivity compared to modified galactose oxidase known in the art.
3. The galactose oxidase variants disclosed herein has improved enzyme solubility.
4. The galactose oxidase variants disclosed herein has improved protein expression.
5. The galactose oxidase variants disclosed herein has improved enzyme thermal stability.
6. The galactose oxidase variants disclosed herein possess overall improvement in enzyme properties such as activity, selectivity, expression, thermal stability and/or solubility.
7. The galactose oxidase variants disclosed herein can be used as a part of/all of the process for the manufacturing of APIs.
8. The galactose oxidase variants disclosed herein are useful in applications requiring the use of biocatalysts, e.g., bioremediation, cleaning, food production.

SEQUENCE LISTING

SEQ ID NO	Sequence Name	Sequence
1	GO01 = Wildtype galactose oxidase from <i>Fusarium graminearum</i> ; has additional His-tag at the C-terminal	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcagccatatgggtaccgcttctgctccaattgggtctgctatttccagaaacaattgggctgttacttctgattctgctcaatctggaatgaatgaacaaggctattgatggaacaaggatacttttggcatactttctacgggtgctaacggagatccaaaccacctcacacttacctatcgatatgaagactactcaaaacgtaattggtttgctatgttgcctagacaagatggaaccaaaatggttggattggtagacatgaagtttacttctgcttctgatggtactaattgggggtctcctgttgcctccggttcttgggttgcgtgattctactactaaactctaacttcgagactagaccagctagatatgttagattgggtgctgttactgaagctaaltggtcaaccttggacttctattgctgagattaacgttttccaggcttcttcttacctgctccacaacctggtttgggtagatggggccaactattgattgccaattgttctgctgctgctgctattgagcctacttctgtagagttttagatgggtcttcttatagaaatgatgctttgggtggttctccagggtggtattacttctgacttcttctgggaccatctactgggtattgttctgatagaactgttactgttactaagc atgatatgttctgctcagggtatttctatggatggtaatggccaattgttactggtgtaacgatgctaagaaaactcttctgacgattcttctgattcttggattccagggtcctgatatgcaagtgctagagggttatcaatcttctgctactatgctgatggtagagttttactattgttgggttcttgggtggtggttctcgaaaagaacggagaggtttactctccatctctaagacttggacttcttggccaaatgctaaagttaaccctatgttgcctgctgataagcaaggttgtatagatctgataatcacgcttgggttgggttgggaagaaaggttctgtttccaagctgttccttctactgctatgaactggactatacttctggttctggagatgttaagtctgctggtaa aagacaatcataatagagggtgtgctccagatgctatgttggtaacgctgttatgtacgatgctgttaagggttaaaatttgacttccgttctcctgattatcaagattctgatgctactactaacgcctcatatcatcactttgggtgaaccagggtacttctcctaatactgttttgccttaacgggttgtactttgctagaacttccacacttctgttgtttgccagatgtgttactttcat tactgtgtggtcaagaaagagggtattcttttgaggatttctaccagtttccactcctgaaa tctacgttccagagcaagatacttctacaagcaaaaccctaattctatcgtagagtttac cattctatttcttgttgttgcagatggtagagtttcaacgggtggtggtggttgtgtgga gattgtactactaaccacttcgatgctcaatttccactccaaactactgtacaacttaac cggtlaacttggctactagacctaaagatcactagaacttctactcaactctgtlaaggttgggtgtagaatcactatttctactgatttctactactaagccttcttctgcatagatggtactgctactcacactgttaatactgatcaagaagaatccattgacttggactaaccaatgggtggttaactcttactctttcaagttccatctgattctgggttgccttggattggatgttgcgttatgaaactctgctggtgttcttctgttgccttactattagagtactcaagcggccgcactcgagcaccaccaccaccactga
2	GO01 = Wildtype galactose oxidase from <i>Fusarium graminearum</i> ; same protein sequence as GO01b but has additional His-tag at the C-terminal	MGSSHHHHHHSSGLVPRGSHMG TASAPIGSAISRNNW AVTCD SAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSMLPRQDGNQNGWIGRHE VYLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARY VRLVAVTEANGQPWTSIAEINVFQASSYTAPQPGLGR WGPTIDLPIVPA AAAIEPTSGRVL MWSSYRND AFGGSP GGITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGN GQIVVTGGNDAKKTSLYDSSSDSWIPGPD MQVARGYQ SSATMSDGRVFTIGGSWSGGVFEKNGEVYSPSSKTWT SLPNAKVNPMLTADKQGLYRSDNHAWLFGWKKGVSF OAGPSTAMN WYYTSGSGDVKSAGKROSNRGVAPDA

		MCGNAVMYDAVKGKILTFGGSPDYQDSDATTNAHIIT LGEPTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRVYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY NSNGNLATRPKITRTSTQSVKVGGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAALEHHHH HH
3	GO01b = <i>E. coli</i> optimized version of GO01; no C- terminal His-tag	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgctctgccctatcggtcagccatctcacgcaataactgggcc gtaacgtgcgacagcgcgagcggcaacgagtgcaataagccatcgacggca ataaagacaccttctggcacacgtttatggcgcaaatggcgacccgaagccaccga tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccatgtgcgcg gccagcagggcaatcagaacggatggatcgccgtcacgaggtatattaaactccg acggcaccaactggggatccccggtcgcgtcggcagctggttcggcgacagcacc accaagtattccaattttgaaaccgctctgcacgtacgtgcgttagtgccgtgaca gaggcgaacggccagccatggacctcaatcgccgaaatcaatgtattccaagccagc tctataccgcgcgcagccaggacttggcggttggggcccaccatcgacctgctt atcgtaaccgcagccgcggcgaltgaaccaacgtcagccgcgtactgatgtggagc agctaccgtaacgacgcgttcggcgagcccgggcgcatcactctgacgtcaggt tgggatccatccacggcatcgtctccgaccgcaccgtgaccgtcacgaaacacgac atgttttggccgggatcagcatggacggcaacggccagatcgtcgtcacggcgccg aatgacgccaagaagacgagcctctatgacagtagcagcgacagttggatcccg ggcgacatgcaggtggcagcgggtaccagtcagcgcgaccatgtcagacggc cgtgtctttacaatcgccggtcatggagtgccggagtggttgagaagaatggcgag tctatagccctcatcaaaacgtggacgtcacttccgaacggaagtgaaatccatg ttaaccgccaacagggcctgtaccgcagcgacaacctgcgtggctgttcggc tggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtattaca cgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggcgt ggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgggtcaaaaggcaaga tctgacatttggcgggagtcgggactaccaggacagtgacgcgacaaccaatgcc acattattaccttggggagccggggacgagccgaaacacggcttcgcgtccaatg gcctctatttcgcgtacctttcatactcggtggtgctgccggacggatcaacctttat caccggcgacagcgccgtggcatcccccttgaagactcgacccccgctttacacc ggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgtac gcgtgtatcactccatcagccttcttctccggacggacgtgtctttaatggcgaggga ggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttacccgaatta tctgtataattcaaatgggaatctcgcgacccgtccgaaaattaccgtaaccca gtccgtcaaaagtggcgggccgcattacgatcagtagcagcagcattaccaaaagc gtcactgattcgttacggcaccgcaaccatacagtcacacggaccagcgccgtatt ccgttaaccctgaccaataacgggtggcaatcgtatagcttccaggtaccgtcggactc ggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctccc gagcgtagcgagcacgatccgtgtgaccaggccgcagcttgataa
4	GO01b = <i>E. coli</i> optimized version of GO01; no C- terminal His-tag	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAISRNNW AVTCDASQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSMLPRQDGNQNGWIGRHE VYLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARY VRLVAVTEANGQPWTSIAEINVFQASSYTAPQPGLGR

		WGPTIDLPIVPA AAAIEPTSGRVLMWSSYRND AFGGSP GGITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGN GQIVVTGGNDAKKTSLYDSSSDSWIPGPD MQVARGYQ SSATMSDGRVFTIGGSWSGGVFEKNGEVYSPSSKTWT SLPNAKVNPMLTADKQGLYRSDNHAWLFGWKKGVSF QAGPSTAMNWYYTSGSGDVKSAGKRQSNRQVAPDA MCGNAV MYDAVKGKILTFGGSPDYQDSDATTNAHIIT LGEPGTSPNTVFASNGLYFARTFHTSVVLPD GSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRVYH SISLLLPDGRVFN GGGGLCGDCTTNHFDAQIFTPNYLY NSNGNLATRPKITRTSTQSVKVGGGRITISTDSSITKASLI RYGTATHTVNTDQRRIP LTLNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
5	GOh1001b = GO01b + 8 mutations from Turner's ChemBiochem 2008 paper to change substrate specificity more towards secondary alcohols; backbone for Round 1; termed as M3-5 variant for comparison to Turner's paper	atgggcagcagccatcatcatcatcacagcagcgccctgggtccgcgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgccaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgtcagcagggtatatttaagctcc gacggcaccaactggggatccccggtcgctcgggcagctgggtcgccgacagcac caccaagtattccaattttgaaacccgtctgcacgctacgtgcgttagtggccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctctataccgcgcgcagccagcacttggcggtggggcccgaccatgacctgcc tategtaccgcgagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcgttcgaaggcagcccgggcgccatcactctgacgtcga gttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacacg acatgttttggccggggatcagcatggacggcaacggccagatcgctgcacggcg gcaatgacgccaagaagacgagcctctatgacagtagcagcgacagttggatccccg gggccggacatgcaggtggcagcgggtaccagtcagcgccacatgtcagacg gccgtgtctttacaatcgggcgctcatttagtggcgagtggttgagaagaatggcgaa gtctatagccctcatcaaaacgtggacgtcacttccgaacgcgaaggtgaatccat gftaacgccgacaaaacagggcctgtacatgagcgacaacctgcgtggctgttcgg ctggaagaaggggagcgtcttcaggcgggcccgctgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtcaaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtccaat ggcccttatttcgcggtacctttcatacgtcgggtgctcctgccggacggatcaaccttt atcaccggcgacagcgccgtggcatcccttcgaagactcgacccccgtctttacac cggagatttatgtgccggaacaggacacgtttataaacagaatccgaactcgattgta cgcgcgatcactccatcagccttcttctccggacggacgtgtctttaatggcgagg aggactgtgcggggactgcacgaccaatcatttgacgcgcagatcttaccgccaaft atctgtatgattcaaatgggaatctcgcgacccgtccgaaaattaccgtacatcaacc agtccgtcaaagtggcgggccgcaattacgatcagtagcagcagcattaccaag cgctactgattcgttacggcaccgcaaccatacagtcacacggaccagcgccgtat tccgttaacctgaccaataacggtggcaattcgtatagcttcaggtagcgtcggactc gggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctccc gagcgtagcggagcacgatccgtgtgaccagggcgcgagcttgataa

6	GOh1001b = GO01b + 8 mutations from Turner's ChemBiochem 2008 paper to change substrate specificity more towards secondary alcohols; backbone for Round 1; termed as M3-5 variant for comparison to Turner's paper	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAFEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGNDAKKTSLYDSSSDSWIPGPD MQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWY YTS GSGDVKSAGKRQSNRGVAPDAM CGNAV MYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPD GSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLL PDGRVFN GGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIP LTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
7	GOh1006	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgccccatcggtcagccatcccgcgaataactggcc gtaacgtgcgacagcgcgagcggaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgtttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctccg cgccagcagggcaatcagaacggatggatcgccgacgaggtatatttaagctcc gacggcaccgaactgggatccccggcgctcgccgagctggctcgccgacagcagc caccaagtattccaattttgaaacccgctcgcacgctacgtgcgcttagtgccgtagc agaggcgaacggccagccatggacctcaatcgccgaaatcaatgtattccaagccag ctcctataccgcgcccagccagcacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcagccgcgtactgatgtggag cagctaccgtaacgacgcgttcgaaggcagccggcgccatcactctgacgtcga gttgggatccatccacgggcatcgtctccgaccgcaccgtgacgtcagaaacacg acatgttttggccggggatcagcatggacggcaacggccagatcgtcgtcagggcg gcaatgacgccaagaagacgagcctctatgacagtagcagcgacagttggatcccg gggcccggacatgcaggtggcagcggttaccagtcagcgcgaccatgtcagacg gccgtgtctttacaatcgggcggtcatttagtggcgagtggttgagaagaatggcgaa gtctatagcccctcatcaaaacgtggacgtcacttcgaacgcgaaggtgaatccat gttaaccgcccgaacacaggcctgtacttttagcgacaacatgcgtggctgttcggc tggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattgtattaca cgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggcgt ggcgccggacgcaatgtcggcaatgccgtgatgtatgacgcggtcaaaaggcaaga tcctgacatttggcgggagtcgggactacaccgacagtgacgcgacaacaaatgccc acattattacccttggggagccggggacgagcccgaacacggcttcgcgtccaatg gcctctatttcgcgctacatttcatacgtcggtggtcctgccggacggatcaacctttat caccggcgacagcgccgtggcatccccctcgaagactcgacccccgtctttacacc ggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgtac gcgcgtatcactccatcagccttctctccggacggagctgtctttaatggcgaggga ggactgtcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaatta tctgtatgattcaaatgggaatctcgcgaccggtccgaaaattacccgtacatcaacca

		gtccgtcaaagtggcgggccgcattacgatcagtagccgacagcagcattaccaaacg gtcactgattcggttacggcaccgcaaccatacagtaaacacggaccagcgccgtatt ccgttaacctgaccaataacgggtggcaatcgatatagcttcaggtagccgtcggactc ggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctcc gagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
8	GOh1006	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAFEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGNDAKKTSLYDSSSDSWIPGPDMPVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYFSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTNTNNGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
9	GOh1008	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcgcgcag ccatatgggtaccgcctctgccctatcggtctagccatcccgcgcaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactgggatccccggtcgcgtcgggcagctggttcgccgacgacac caccaagtattccaattttgaaacccgtcctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctcctataccgcgccgcagccagcacttggcggttggggcccgaccatgcacctgcc tactgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcgttcgaaggcagcccggcgccatcactctgacgtcga gttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacacg acatgttttggccggggtacgcatggacggcaacggccagatcgctgcacggggcg gcaatgacccaagaagacgagcctctatgacagtagcagcgacaggttgatcccg ggggccggacatgcaggtggcacgcgggtaccagtccagcgccacatgtcagacg gccgtgtctttacaatcgccgggtcattttggcgagggtttgagaagaatggcgaa

		gtctatagcccctcatccaaaacgtggacgtcacttccgaacgcgaagggtgaatccat gttaaccgccgacaaacagggcctgtacatgagcgacaaccatgcgtggctgttcgg ctggaagaaggggagcgtcttfcaggcggggcccgctcgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtcaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgcgcgacaaccaatgc ccacattattacccttggggagccgggacgagcccgaacacggcttccgctccaat ggcctctatttcgcgcgtaccttccatacgtcgggtgctcctgccggacggatcaacctt atcacccggcgacagcgccgtggcatccccctcgaagactcgacccccgtctttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgta cgcgcgtatcactccatcagccttcttcccggacggacgtgtctttaatggcgagg aggactgtgcgggactgcacgaccaatcattttgacgcgcagatctttacccgaatt atctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaacc agtccgtcaaagtggcgccgcattacgatcagtagcagcagcattaccaag cgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccgtat tccgttaaccctgaccaataacggtggcaattcgtatagcttcaggtagcgcggcgactc gggcgtggcgctccaggatactggatgctgtttgtgatgaatagcgcggcgctccc gagcgtagcgcgacgatccgtgtgaccaggccgcagcttgataa
10	GOh1008	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAFEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGNDAKKTSLYDSSSDSWIPGPDMPQVARGYQS SATMSDGRVFTIGGSFCGGVFEKNGEVYSPSSKTWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

11	GOh1013	atgggcagcagccatcatcatcatcacagcagcggcctggcgccgcggcag ccatatgggtaccgcctctgcccctatcggtcagccatccccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggcgcgcgcggcagctggctgccgacagcac caccaagtattccaatttgaaccggcctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaatcaatgtattccaagccag ctcctataccgcggcgagccaggacttggcggtggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcagccgcgtactgatgtggag cagctaccgtaacgacgcgttcgaaggcagccggcggcacactctgacgtcga gttgggatccatccacgggcacgtctccgaccgaccgtgacctcacgaaacacg acatgtttgccggggatcagcatggacggcaacggccagatcgtcgtcacggcg gcaatgacccaagaagacgagcctctatgacagtagcagcgacagttggatcccg gggcccggacatgcaggtggcacgcgggtaccagtcagcgacatgtcagacg gccgtgtctttacaatcgccggctcatttagtggcgaggtgttgagaagaatggcgaa gtctatagcccctcatccaaaacgtggacgtcacttccgaacggaaggtgaatccat gttaaccggcgacaaacagggcctgtacatgagcgacaacctgcgtggctgtccg ctggaagaaggggagcgtcttcaggcggggcccgtcgaccgcaatgaattggtattac acgtcagggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccggcg gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggcgaaggcaa gatcctgacatttggcgggagtcgggactacaccgacagtgacgcgacaaccaatgc ccacattattacccttggggagccggggacgagccccgaacacggtcttcgctcaat ggcctctatttcgcgctacctttcatactcggtgtgctcctccggacggatcaacctt atcaccggcgacagcgcgtggcatcccttcgaagactcgacccccgtctttacac cggagatttatgtccggaaacaggacacgtttataaacagaatccgaactcgattga cgcggtatcactccatcagccttcttctccggacggacgtgtctttaatggcgagg aggaggttcgggggactgcacgaccaatcatttgcgcgcagatcttacccegaatt atctgtatgattcaaatgggaatctcgcgacccgtccgaaaattaccgtacatcaacc agtccgtcaaagtggcgggcgccgacattacgatcagtagcagcagcattacaaag cgtcactgattcgttacggcaccgcaaccatacagtcacacggaccagcgccgtat tccgttaacctgaccaataacggtggcaattcgtatagcttcaggtagcgtcggactc ggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcggcggtccc gagcgtagcggagcagatccgtgtgaccaggccgcagcttgataa
12	GOh1013	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRND AFEGSPG GITLTSSWD PSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGND AKKTSLYDSSSDSWIPGPD MQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS L PNAKVNPMLTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMN WYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAV MYDA VKGKILTFGGSPDYTDS DATTN AHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPD GSTFITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGGCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
13	GOh1015	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgcataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgcgtcgggcagctggttcgccgacagcac caccaagtattccaatttgaaccggctctgcacgtacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaatcaatgtattcaagccag ctctataccgcggcgagccaggacttggcggtggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggttgaaggcagccggcgccatcactctgacgtcga gttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacacg acatgtttgcccgggagtcagcatggacggcaacggccagatcgtcgtcacggcg gcaatgacccaagaagacgagcctctatgacagtagcagcgacagttggatcccg gggcccggacatgcaggtggcacgcgggtaccagtcagcgaccatgtcagacg gccgtgtctttacaatcgccggctcatttagtggcgagtggttgagaagaatggcgaa gtctatagcccctcatccaaacgtggacgtcacttccgaacggaaggtgaatcccat gttaaccgccgacaaacaggcctgtacatgagcgacaacctgcgtggtgttcgg ctggaagaaggggagcgtcttccagcgggcccgctgaccgcaatgaattggtattac acgtcagggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtcaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattaccttggggagccggggacgagcccgaacacggcttcgcgtccaat ggcctctatttcgcgctacatttcatacgtcggtggtcctgccggacggatcaacctt atcacccggcgacagcgcggtggcatcccttcgaagactcgacccccgtctttacac cggagatttatgtccggaaacaggacacgtttataaacagaatccgaactcgattga cgcgctatcactccatcagccttcttccggacggagctgtctttaatggcgagg aggactgtgcggggactgcacgaccaatcatttgcgcgcagatctttacccgaatt atctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaacc agtccgtcaaagtggcgggcgccgattacgatcagtagcagcagcattaccaag cgctactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccgtat tccgttaacctgaccaataacggtggcaattcgtatagcttcaggtaccgtcggactc ggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctccc gagcgtagcgagcacgatccgtgtgaccagggccgcagcttgataa
14	GOh1015	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRND AVEGSPG GITLTSSWD PSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGND AKKTSLYDSSSDSWIPGPD MQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPLMTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLDPGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGLLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
15	GOh1016	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgacagcggcaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgtttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggaatcagaacggatggatcgccgctcacgaggtatatttaagctcc gacggcaccaactggggatccccggcgctggcgagctggctgccgacagcac caccaagtattccaattttgaaacccgctctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgattccaagccag ctctataccgcgcccagccagcacttggcggtggggcccgaccatcgacctgcc tategtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcgcgggaaggcagccggggcgcatcactctgacgtcga gttgggatccatccacgggcatcgtctccgaccgcaccgtgacctcacgaaacacg acatgtttgcccggggatcagcatggacggcaacggccagatcgtcgtcacggcg gcaatgacccaagaagacgagcctctatgacagtagcagcgacagttggatccccg gggccggacatgcaggtggcacgcgggtaccagtcagcgaccatgtcagacg gccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcgaa gtctatagcccctcatcaaaacgtggacgtcacttccgaacgcgaaggtgaatccat gftaacgccgacaaacagggcctgtacatgagcgacaacatgcgtggctgttcgg ctggaagaaggggagcgtcttcaggcgggcccgctgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgatgacgcggtcaaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgcgcgacaaccaatgc ccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtccaat ggctctatttcgcggtacctttcatacgtcgggtgctcctgccggacggatcaaccttt atcaccggcgacagcgccgtggcatcccctcgaagactgacccccgtctttacac cggagatttatgtccggaaacaggacacgtttataaacagaatccgaactcgattgta cgcgcgtatcactccatcagccttcttctccggacggacgtgtctttaatggcggagg aggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaatt atctgtatgattcaaatgggaatctcgcgacccgtccgaaaattaccgtacatcaaccc agtccgtcaaagtggcgggccgcaattacgatcagtagcagcagcattaccaag cgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccgtat tccgttaaccctgaccaataacggtggcaattcgtatagcttcaggtaccgtcggactc gggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcggggcgctccc gagcgtagcagcagcagatccgtgtgaccagggcgagcgttgataa

16	GOh1016	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAPEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGNDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPGDRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
17	GOh1017	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcgcag ccatatgggtaccgctctgccccatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagcggcaacgagtcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cggcagcagcgaatcagaacggatggatcgccgctcagcaggtatatttaagctcc gacggcaccaactgggatccccggctcgcgtcgggcagctggttcgccgacagcag caccaagtattccaattttgaaacccgctcctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctctataccgcgcgcagccagcacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcgcgcgcggtgattgaaccaacgtcagccgcgtactgatgtggag cagctaccgtaacgacgcgcaggaaggcagccggcgccatcactctgacgtcga gttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacacg acatgttttggccggggatcagcatggacggcaacggccagatcgtcgtcacggcg gcaatgacgccaagaagacgagcctctatgacagtagcagcagattggatccccg gggccggacatgcaggtggcacgcgggtaccagtcagcgcgacctatgcagacg gccgtgtctttacaatcgggcggtcatttagtggcgagtggttgagaagaatggcgaa gtctatagccctcatcaaaaacgtggacgtcacttccgaacgcgaaggtgaatcccat gttaacgccgacaaaacaggcctgtacatgagcgacaacctgcgtggctgttcgg ctggaagaaggggagcgtcttcaggcgggcccgctgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgatgacgcggtcaaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtccaat ggctctatttcgcgctacctttcatatcgtcgggtgtcctgccggacggatcaacctt atcaccggcgacagcgccgtggcatcccttcgaagactcgacccccgtctttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgta cgcgctatcactccatcagccttcttcccggacggacgtgtctttaatggcgagg aggactgtcggggactgcacgaccaatcatttgacgcgcagatcttaacccgaatt atctgtatgattcaaatgggaatctcgcgacccgtccgaaaattacccgtacatcaacc

		agtcggtcaaagtggcgggccgacattacgatcagtagccgacagcagcattaccaag cgtcactgattcggttacggcaccgcaaccatacagtaacacggaccagcgccgtat tccgttaaccctgaccaataacgggtggcaattcgtagcttcagggtaccgtcggactc gggcgtggcgctgccaggatactggatgctgtttgatgaatagcgcgggcgctccc gagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
18	GOh1017	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAQEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGNDAKKTSLYDSSSDSWIPGPDQMVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
19	GOh1018	atgggcagcagccatcatcatcatcacagcagcgccctgggtccgcgcggcag ccatatgggtaccgcctctgccctatcggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactgggatccccggtcgctcgggcagctgttcgccgacgacac caccaagtattccaatttgaacccgtcctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctcctataccgcgccgcagccaggacttggcggttggggcccgaccatgcacctgcc tactgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcgaatgaaggcagccggggcgcatcactctgacgtcga gttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacacg acatgttttggccgggatcagcatggacggcaacggccagatcgctgcacggggcg gcaatgacccaagaagacgagcctctatgacagtagcagcgacagttggatcccg gggcccggacatgcaggtggcacgcgggtaccagtcagcgcgaccatgtcagacg gccgtgtctttacaatcgccggctcatttagtggcgagtggttgagaagaatggcgaa

		gtctatagcccctcatccaaaacgtggacgtcacttccgaacgcgaagggtgaatcccat gttaaccgccgacaaacagggcctgtacatgagcgacaaccatgcgtggctgttcgg ctggaagaaggggagcgtcttfcaggcggggcccgctcgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtcaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgcgcgacaaccaatgc ccacattattacccttggggagccgggacgagcccgaacacggtcttcgcgtccaat ggcctctatttcgcgcgtaccttccatacgtcggtggtcctgccggacggatcaacctt atcaccggcgacagcgccgtggcatccccctcgaagactcgacccccgtctttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgta cgcgcgtatcactccatcagccttcttcccggacggacgtgtctttaatggcggagg aggactgtgcgggactgcacgaccaatcatttgcgcgcagatctttaccccgaatt atctgtatgattcaaatgggaatctcgcgaccggtccgaaaattaccgtacatcaacc agtccgtcaaagtggcgccgcattacgatcagtagcagcagcattaccaag cgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccgtat tccgttaaccctgaccaataacggtggcaattcgtatagcttcaggtagcgcggcgactc gggcgtggcgctccaggatactggatgctgtttgtgatgaatagcgcggcgctccc gagcgtagcgcgacgatccgtgtgacccaggccgcagcttgataa
20	GOh1018	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDANEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGNDAKKTSLYDSSSDSWIPGPDMPQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

21	GOh1020	atgggcagcagccatcatcatcatcacagcagcggcctggcgccgcggcag ccatatgggtaccgcctctgcccctatcggtcagccatccccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatattaaagtcc gacggcaccaactggggatccccggcgctcgctgggcagctggttcgccacagcac caccaagtattccaatttgaaccggctctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctctataccgcggcgagccagacttggcggttggggcccgaccatgcacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcgtctgaaggcagccggcggcacactctgacgtcga gttgggatccatccacgggcatcgtctccgaccgcaccgtgacctcacgaaacag acatgtttgccggggatcagcatggacggcaacggccagatcgtcgtcacggcg gcaatgacccaagaagacgagcctctatgacagtagcagcgacagttggatcccg gggcccggacatgcaggtggcacgcgggtaccagtcagcgacatgtcagacg gccgtgtcttacaatcgccggctcatttagtggcgaggtttgagaagaatggcgaa gtctatagcccctcatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccat gttaaccggcgacaaacagggcctgtacatgagcgacaacctgcgtggtgttcgg ctggaagaaggggagcgtcttcaggcgggcccgctgaccgcaatgaattggtattac acgtcagggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccggcg gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgggtcaaaggcaa gatcctgacatttggcgggagtcgggactacaccgacagtgacgcgacaaccaatgc ccacattattacccttggggagccggggacgagccccgaacacggtcttcggtccaat ggcctctatttcgcggtacctttcatactcggtgtgctcctccggacggatcaacctt atcaccggcgacagcggcgtggcatcccttcgaagactcgacccccgtctttacac cggagatttatgtccggaaacaggacacgtttataaacagaatccgaactcgattga cgcggtatcactccatcagccttcttctccggacggagctgtcttaaltggcgagg aggactgtgcggggactgcacgaccaatcatttgacgcgcagatctttacccgaatt atctgtatgattcaaatgggaatctcgcgacccgtccgaaaattaccgtacatcaacc agtccgtcaaagtggcgggcgccgacattacgatcagtagccgacgacgacattacaaag cgtcactgattcgttacggcaccgcaaccatacagtcacacggaccagcgccgtat tccgttaacctgaccaataacggtggcaattcgtatagcttcaggtagcgtcggactc ggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctccc gagcgtlagcgagcacgatccgtgtgaccaggccgcagcttgataa
22	GOh1020	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDASEGSPG GITLTSSWDPTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGNDAAKKTSLYDSSSDSWIPGPDMPQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS L PNAKVNPMLTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGTFTITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
23	GOh1021	atgggcagcagccatcatcatcatcacagcagcggcctggcgccgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctccg cgccaggacggcaatcagaacggatggatcgccggtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgcgtcgggcagctggttcggcgacagcac caccaagtattccaattttgaaaccgctctgcacgtacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattcaagccag ctctataccgcggcgagccaggacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgctactgatgtggag cagctaccgtaacgacgcgttcgaaggcagccggcgccatcactctgacgtcga gttgggatccatccacgggcatcgtcgcgaccgcaccgtgacctcacgaaacacg acatgtttgcccggggtacgcatggacggcaacggccagatcgtcgtcacggcg gctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc gggcccggacatgcaggtggcacgcgggtaccagtcagcgacccatgtcagacg gccgtgtctttacaatcgccggtcatttagtgccggagtgtttgagaagaatggcgaa gtctatagcccctcatccaaaacgtggacgtcacttccgaacggaaggtgaatcccat gttaaccgcccacaaacaggcctgtacatgagcgacaacctgcgtggtgttcgg ctggaagaaggggagcgtctttcaggcggggcccgctgaccgcaatgaattggtattac acgtcagggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtcaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattaccttggggagccggggacgagcccgaacacggcttcgcgtccaat ggcctctatttcgcgctacatttcatacgtcgtggtcctgccggacggatcaaccttt atcacccggcgacagcgcgtggcatcccttcgaagactcgacccccgtctttacac cggagatttatgtccggaaacaggacacgtttataaacagaatccgaactcgattga cgcgctatcactccatcagccttcttctccggacggagctgtcttaatggcgagg aggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaaft atctgtatgattcaaatgggaatctcgcgaccgctccgaaaftaccggtacatcaacc agtccgtcaaagtggcgggcgccgattacgatcagtagcagcagcattaccaag cgctactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccgtat tccgttaacctgaccaataacggtggcaattcgtatagcttcaggtaccgtcggactc gggctgtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctccc gagcgtagcgagcacgatccgtgtgaccagggccgcagcttgataa
24	GOh1021	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDASQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAFEGSPG GITLTSSWDPTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPLMTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
25	GOh1025	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcgcgcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggaacgagtgcaataaagccatcgacggca ataaagacacctctctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgctcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgctcgggcagctggctcgccgacagcac caccaagtattccaattttgaaacccgctctgcacgctacgtgcttagtggccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgtattccaagccag ctcctataccgcgcgcagccagcacttggcgcttggggcccgaccatcgacctgcc tatcgtaccgcgagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcgttccctggcagcccgggcggaatcactctgacgtcgag ttgggatccatccacgggcacgtctccgaccgcaccgtgaccgtcacgaaacacga catgttttggccgggagcagcatggacggcaacggccagatcgtcgtcacggcgcg caatgacgccaagaagacgagcctctatgacagtagcagcgacagttggatccccg ggccggacatgcaggtggcagcggggtaccagtccagcgcgaccatgtcagacgg ccgtgtctttacaatcgggcgctcatttagtggcgagtggttgagaagaatggcgag tctatagccctcatccaaaacgtggacgtcacttccgaacgcgaagtgaaatccatg ttaaccgccgacaaaacagggcctgtacatgagcgacaacatcggtggtgttcggct ggaagaaggggagcgtctttcaggcgggcccgctcgaccgcaatgaattggtattaca cgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggcgt ggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcgggtcaaaaggcaaga tctgacatttggcgggagtcgggactacaccgacagtgcgcgacaaccaatgccc acattattacccttggggagccggggacgagcccgaacacggcttctcgctccaatg gcctctatttcgcgctacctttcatatcggtggtcctgccggacggatcaacctttat caccggcgacagcgccgtggcatccccttgaagactcgacccccgtctttacacc ggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgtac gcgcgtatcactccatcagccttctctccggacggcgtgtctttaatggcgaggga ggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaatta tctgtatgattcaaatgggaatctcgcgacccgtccgaaaattacccgtacatcaaccca gtccgtcaaatgtggcgggccgcattacgatcagtaccgacagcagcattaccaaaagc gtcactgattcgttacggcaccgcaacccatacagtcaacacggaccagcgccgtatt ccgttaaccctgaccaataacgggtggcaattcgtatagcttccaggtaccgtcggactc ggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctccc gagcgtagcgagcacgatccgtgtgaccaggccgcagcttgataa

26	GOh1025	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAFPSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGNDAKKTSLYDSSSDSWIPGPDMPQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
27	GOh1030	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcgcag ccatatgggtaccgctctgccccatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagcggaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgtttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cggcagcagcgaatcagaacggatggatcgccgctcagcaggtatatttaagctcc gacggcaccgaactgggatccccggctcgcgtcggcgagctggttcgcgcagcagc caccaagtattccaattttgaaaccgctcctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctctataccgcgcgcagccagcacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcgcgcgcggtgattgaaccaacgtcagccgcgtactgatgtggag cagctaccgtaacgacgcgattgaaggcagccggcgccgcatcactctgacgtcga gttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacacg acatgttttggccggggatcagcatggacggcaacggccagatcgtcgtcacggcg gcaatgacgccaagaagacgagcctctatgacagtagcagcgacagttggatccccg gggccggacatgcaggtggcacgcgggtaccagtcagcgcgaccatgtcagacg gccgtgtctttacaatcgggcggtcatttagtggcgagtggttgagaagaatggcgaa gtctatagcccctcatcaaaacgtggacgtcacttccgaacgcgaaggtgaatcccat gttaacgccgacaaaacaggcctgtacatgagcgacaacctgcgtggctgttcgg ctggaagaaggggagcgtcttcaggcgggcccgctcagccgaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtcaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtccaat ggcccttatttcgcgctacctttcatatcgtcgggtgtcctgccggacggatcaacctt atcaccggcgacagcgccgtggcatcccttcgaagactcgacccccgtctttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattga cgcgcgtatcactccatcagccttcttcccggacggacgtgtctttaatggcgagg aggactgtgcgggactgcacgaccaatcatttgacgcgcagatcttaacccgaatt atctgtatgattcaaatgggaatctcgcgacccgtccgaaaattacccgtacatcaacc

		agtcggtcaaagtggcgggccgacattacgatcagtagccgacagcagcattaccaag cgtcactgattcggttacggcaccgcaaccatacagtaacacggaccagcgccgtat tccgttaaccctgaccaataacgggtggcaattcgtatagcttcagggtaccgtcggactc gggcgtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctccc gagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
28	GOh1030	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRND AIEGSPGG ITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNGQ IVVTGGND AKKTSLYDSSSDSWIPGPD MQVARGYQSS ATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS LP NAKVNPM LTA DKQGLYMSDNHAWLFGWKKGSVFQA GPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAMC GNAV MYDAVKGKILTFGGSPDYTDSDATTNAHIITLG EPGTSPNTVFASNGLYFARTFHTSVVLPD GSTFITGGQR RGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYHSIS LLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLYDS NGNLATRPKITRTSTQSVKVGGGRITISTDSSITKASLIRY GTATHTVNTDQRRIP LTLTNNGGNSYSFQVPSDSGVAL PGYWMLFVMNSAGVPSVASTIRVTQAAA
29	GOh1031	atgggcagcagccatcatcatcatcacagcagcgccctgggtccgcgcggcag ccatatgggtaccgcctctgccctatcggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatattaa gctcc gacggcaccaactgggatccccggtcgcgtcgggcagctgttcgccgacgacac caccaagtattccaatttga aaccgctcctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaatcaatgtattccaagccag ctcctataccgcgccgcagccaggacttggcggttggggcccgaccatcgacctgcc tactgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcgacggaaggcagccccggcgccatcactctgacgtcga gttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacag acatgttttggccggggtacgcatggacggcaacggccagatcgctgcacggcg gcaatgacccaagaagacgagcctctatgacagtagcagcgacagttggatccc gggcccggacatgcaggtggcacgcgggtaccagtcagcgccacatgacagc gccgtgtctttacaatcgccggctcatttagtggcgagtggttgagaagaatggcgaa

		gtctatagcccctcatccaaaacgtggacgtcacttccgaacgcgaaggtgaatcccat gttaaccgccgacaaacagggcctgtacatgagcgacaaccatgcgtggctgttcgg ctggaagaaggggagcgtcttfcaggcggggcccgctcgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtcaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgcgcgacaaccaatgc ccacattattacccttggggagccgggacgagcccgaacacggcttctgcgtccaat ggcctctatttcgcgcgtaccttccatacgtcggtgtcctgccggacggatcaacctt atcacccggcgacagcgccgtggcatccccctcgaagactcgacccccgtctttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgta cgcgcgtatcactccatcagccttcttcccggacggacgtgtctttaatggcggagg aggactgtgcgggactgcacgaccaatcatttgcgcgcagatctttaccccgaatt atctgtatgattcaaatgggaatctcgcgaccggtccgaaaattaccgtacatcaacc agtccgtcaaagtggcgccgcattacgatcagtagcagcagcattaccaag cgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccgtat tccgttaaccctgaccaataacgggtggcaattcgtatagcttcaggtagcgcggcgactc gggcgtggcgctccaggatactggatgctgtttgtgatgaatagcgcggcgctccc gagcgtagcgcgacgatccgtgtgaccaggccgcagcttgataa
30	GOh1031	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDATEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGNDAKKTSLYDSSSDSWIPGPDMPQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

31	GOh1032	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgcctctgcccctatcggtcagccatccccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgctcgggcagctggttcgccacagcac caccaagtattccaatttgaaccctgctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctcctataccgcggcgagccaggacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcgttgaaggcagcccgggcgcatcactctgacgtcga gttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacag acatgtttgccggggatcagcatggacggcaacggccagatcgtcgtcacggcg gcaatgacccaagaagacgagcctctatgacagtagcagcgacagttggatcccg gggcccggacatgcaggtggcacgcgggtaccagtcagcgaccatgtcagacg gccgtgtctttacaatcgccggctcatttagtggcgagtggttgagaagaatggcgaa gtctatagcccctcatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccat gttaaccggcgacaaacagggcctgtacatgagcgacaacctgcgtggtgttcgg ctggaagaaggggagcgtcttcaggcggggcccgtcgaccgcaatgaattggtattac acgtcagggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgggtcaaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattacccttggggagccggggacgagccccgaacacggtcttccgctcaat ggcctctatttcgcgctacctttcatacgtcgggtgtcctgccggacggatcaaccttt atcaccggcgagacgcggcgtggcatcccttcgaagactcgacccccgtctttacac cggagatttatgtccggaaacaggacacgttttataaacagaatccgaactcgattga cgcggtatcactccatcagccttcttctccggacggacgtgtctttaatggcgagg aggactgtgcggggactgcacgaccaatcatttgacgcgcagatctttacccgaatt atctgtatgattcaaatgggaatctcgcgacccgtccgaaaattaccgtacatcaacc agtccgtcaaagtggcgggcgccgacattacgatcagtagccgacagcagcattacaaag cgtcactgattcgttacggcaccgcaaccatacagtcacacggaccagcgccgtat tccgttaacctgaccaataacggtggcaattcgtatagcttcaggtagcgtcggactc ggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcggggcgctccc gagcgtlagcgagcacgatccgtgtgaccaggccgcagcttgataa
32	GOh1032	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDALGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGNDAAKKTSLYDSSSDSWIPGPDMPQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
33	GOh1034	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtcaataaagccatcgacggca ataaagacacctctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtcctgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgcgtcgggcagctggttcggcgacagcac caccaagtattccaatttgaaccggctcgtcacgctacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaatcaatgtattcaagccag ctctataccgcggcgagccaggacttggcggtggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgctactgatgtggag cagctaccgtaacgacgcggagggaaggcagccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacac gacatgttttggcgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggcaatgacgccaagaagacgagcctctatgacagtagcagcgacagttgatccc ggggccggacatgcaggtggcgacgcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcgcggtcatttagtgccggagtgttgagaagaatggcga agtctatagccccatccaaaacgtggacgtcacttccgaacggaaggtaatccc atgttaaccgcgacaaacaggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtagaccgaatgaattgtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcgg cgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtccggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaaacacgggtcttcgcgtcca atggcctctatttcgcggtacctttcatacgtcgggtgctcctccggacggatcaacct ttatcacggcgagacgcgcgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttccggacggacgtgtctttaatggcgag gaggactgtgcggggactgcacgaccaatcattttacgcgcagatctttacccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctgcaaatggcgccgcattacgatcagtagcagcagcattaccaa agcgtcactgattctgtacggcaccgcaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaaltcgtatagcttccaggtaccgtcgga ctcggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcggcgctc ccgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
34	GOh1034	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDASQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRND AEEGSPG GITLTSSWD PSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGND AKKTSLYDSSSDSWIPGPD MQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPLMTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGLLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
35	GOh1035	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgacagcggcaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgtttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccggtcacgaggtatatttaagctcc gacggcaccaactggggatccccggcgctcggtcggtcgccgacagcac caccaagtattccaattttgaaacccgctctgcacgtacgtcgcttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgattccaagccag ctctataccgcgcccagccagcacttggcggttggggcccgaccatcgacctgcc tategtaccgcagccgcggcgattgaaccaacgtcagggcggtactgatgtggag cagctaccgtaacgacgcgtatgaaggcagcccggcggtcactctgacgtcga gttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacacg acatgttttggccggggatcagcatggacggcaacggccagatcgctgcacggcg gcaatgacgccaagaagacgagcctctatgacagtagcagcgacagttggatccccg gggccggacatgcaggtggcacgcgggtaccagtcagcgccacatgacagacg gccgtgtctttacaatcgcggtcatttagtggcgaggtgtttgagaagaatggcgaa gtctatagcccctcatcaaaacgtggacgtcacttccgaacgcgaaggtgaatccat gftaacggccgacaaacagggcctgtacatgagcgacaacatcgctggctgttcgg ctggaagaaggggagcgctttcagcggggcccgtcgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgatgacgcggtcaaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtccaat ggctctatttcgcggtacctttcatactcggtggtcctgccggacggatcaaccttt atcaccggcgacagcgccgtggcatcccctcgaaagactgacccccgtctttacac cggagatttatgtccggaaacaggacacgtttataaacagaatccgaactcgattgta cgcgctatcactccatcagccttcttctccggacggacgtgtctttaatggcgagg aggactgtgcggggactgcacgaccaatcattttgacgcgcagatcttaccgccgaatt atctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaaccc agtccgtcaaagtggcgggccgcaattacgatcagtagcagcagcattaccaag cgctactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccgtat tccgttaaccctgaccaataacggtggcaattcgtatagcttcaggtaccgtcggactc gggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctccc gacgtagcagcagcagatccgtgtgaccagggcgagcgttgataa

36	GOh1035	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAYEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGNDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
37	GOh1036	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactggcc gtaacgtgcgacagcgcgagcggaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccga tactataccattgacatgaaaaccaccagaatgtgaacgggctgctcgctgccc cggcagagcgcaatcagaacggatggatcgccgctcagaggatatttaagctcc gacggcaccgaactggggatccccggcgctcgggcagctggttcggcagacgac caccaagtattccaattttgaaacccgctctgcacgctacgtgcttagtgccgtag agaggcggaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctctataccggcgccgagccagacttggcggttggggcccgaccatcgacctgcc tatctaccggcagccggcggttgaaccaacgtcagggcgctactgatgtggag cagctaccgtaacgacggcggaaggcagccccggcgccatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgacctcagaaacac gacatgtttgccccgggatcagcatggacggcaacggccagatcgctgcacgggc ggcaatgacgccaagaagacgagcctctatgacagtagcagcgacgttgatccc ggggcccggacatgcaggtggcagcggggtaccagtcagcgacccatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagcccccatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaacagggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggggagcgtctttcaggcggggccgctcgaccgaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgagg cgtggcgccggacgcaatgtcgggcaatgccgtgatgtatgacgggtcaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcgcgtcca atggcctctatttcgcgctacctttcatatcggtggtcctgcggacggatcaacct ttatcaccggcgacagcgccgtggcatccccctcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccccggacggagctgtcttaattggcggag gaggactgtcggggactgcacgaccaatcattttgacgcgcagatcttaccggaa ttatctgtatgatcaaatgggaatctcgcgaccgctccgaaaattaccgtagatcaac

		ccagtcctgcaaaagtgggcgccgcattacgatcagtagccgacagcagcattacca agcgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccg tattccgtfaaccctgaccaataacgggtggcaattcgtatagcttccaggtaccgtcgg ctcgggctggcgctgccaggatactggatgctgttggatgaatagcgcgggctc ccgagcgtagcagcacgatccgtgtgacccaggccgcagcttgataa
38	GOh1036	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGND AKKTSLYDSSSDSWIPGPD MQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS L PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAV MYDAVKGKILTFGGSPDYTDS DATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPD GSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFN GGGGLCGDCTTNHFD AQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTN TDQRRIP LTLNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
39	GOh1037	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcgcag ccatatgggtaccgcctctgccctatcggctcagccatcccgcgcaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgtttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatattaaagctcc gacggcaccaactgggatccccggtcgcgtcgggcagctggttcgccgacgacac caccaagtattccaatttgaaacccgtcctgcacgtacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaatcaatgtattccaagccag ctcctataccgcgccgagccaggacttggcggttggggcccgaccatgcacctgcc tactgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcgtgtgaaggcagccggggcgcatcactctgacgtcga gttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacacg acatgtttgccccgggatcagcatggacggcaacggccagatcgctgcacgggcg gcaatgacccaagaagacgagcctctatgacagtagcagcgacagttggatcccg gggcccggacatgcaggtggcacgcgggtaccagtcagcgcgaccatgtcagacg gccgtgtctttacaatcgccggctcatttagtggcgagtggttgagaagaatggcgaa

		gtctatagcccctcatccaaaacgtggacgtcacttccgaacgcgaagggtgaatcccat gttaaccgccgacaaacagggcctgtacatgagcgacaaccatgcgtggctgttcgg ctggaagaaggggagcgtcttfcaggcggggcccgctcgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgggtcaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgcgcgacaaccaatgc ccacattattacccttggggagccgggacgagcccgaacacggcttctgcgtccaat ggcctctatttcgcgcgtaccttccatacgtcgggtgtcctgccggacggatcaacctt atcacccggcgacagcgccgtggcatccccctcgaagactcgacccccgtctttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgta cgcgcgtatcactccatcagccttcttcccggacggacgtgtctttaatggcggagg aggactgtgcgggactgcacgaccaatcatttgcgcgcgacgtctttaccccgaatt atctgtatgattcaaatgggaatctcgcgaccggtccgaaaattaccgtacatcaacc agtccgtcaaagtggcgccgcattacgatcagaccgacagcagcattacaaag cgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccgtat tccgttaaccctgaccaataacgggtggcaattcgtatagcttcagggtaccgtcggactc gggcgtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgtccc gagcgtagcgcgacgatccgtgtgaccaggccgcgacttgataa
40	GOh1037	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDACEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGNDAKKTSLYDSSSDSWIPGPDMPQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

41	GOh1038	atgggcagcagccatcatcatcatcacagcagcggcctggcgccgcggcag ccatatgggtaccgcctctgcccctatcggctcagccatccccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacaccttctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggcgctcggcgagctggctcgccgacagcac caccaagtattccaatttgaaccggcctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaatcaatgtattccaagccag ctcctataccgcggcgagccaggacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggatgaaggcagccggcgccatcactctgacgtcga gttgggatccatccacgggcatcgtcggcaccgacccgtgacctcacgaaacag acatgtttgccggggatcagcatggacggcaacggccagatcgtcgtcacggcg gcaatgacccaagaagacgagcctctatgacagtagcagcgacagttggatccccg gggcccggacatgcaggtggcacgcgggtaccagtcagcgacatgtcagacg gccgtgtctttacaatcgccggctcatttagtggcgaggtttgagaagaatggcgaa gtctatagcccctcatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccat gttaaccggcgacaaacaggcctgtacatgagcgacaacctgcgtggctgttcgg ctggaagaaggggagcgtcttccagcgggcccgctgaccgcaatgaattggtattac acgtcagggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccggcg gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgggtcaaaaggcaa gatcctgacatttggcgggagtcgggactacaccgacagtgacgcgacaaccaatgc ccacattattacccttggggagccggggacgagccccgaacacggctcttcgctcaat ggcctctatttcgcgctacctttcatacgtcgggtgtcctgccggacggatcaacctt atcaccggcgacagcggcgtggcatcccttcgaagactcgacccccgtctttacac cggagatttatgtccggaaacaggacacgtttataaacagaatccgaactcgattga cgcggtatcactccatcagccttcttctccggacggagctgtcttaaltggcgagg aggactgtgcggggactgcacgaccaatcatttgacgcgcagatctttacccgaatt atctgtatgattcaaatgggaatctcgcgacccgtccgaaaattaccgtacatcaacc agtccgtaaaagtggcgggcgccgacattacgatcagtagccgacagcagcattacaaag cgtcactgattcgttacggcaccgcaaccatacagtcacacggaccagcgccgtat tccgttaaccttgaccaataacggtggcaattcgtatagcttcaggtagcgtcggactc ggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctccc gagcgtlagcgagcacgatccgtgtgaccagggccgagcttgataa
42	GOh1038	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDADGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGNDAAKKTSLYDSSSDSWIPGPDMPQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS L PNAKVNPMLTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGTFTITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
43	GOh1039	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgcataaagccatcgacggca ataaagacacctctctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgcgtcgggcagctggttcgccgacagcac caccaagtattccaattttgaaaccgctctgcacgtacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaatcaatgtattcaagccag ctctataccgcggcgagccaggacttggcggtggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcgggtgaaggcagccggggcgcatcactctgacgtcga gttgggatccatccacgggcatcgtcaccgaccgtgacctcacgaaacacg acatgtttgcccggggtacagcatggacggcaacggccagatcgtcgcacgggcg gcaatgacccaagaagacgagcctctatgacagtagcagcgacagttggatcccg gggcccggacatgcaggtggcacgcgggtaccagtcagcgacccatgtcagacg gccgtgtctttacaatcgccggctcatttagtggcgagtggttgagaagaatggcgaa gtctatagcccctcatccaaacgtggacgtcacttccgaacggaaggtgaatcccat gttaaccgcccacaaacaggcctgtacatgagcgacaacctgcgtggtgttcgg ctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtattac acgtcaggaaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacggcgtaaggcaa gatcctgacatttggcgggagtccggactacaccgacgtgacgcgacaaccaatgc ccacattattaccttggggagccggggacgagcccgaacacggcttcgcgtccaat ggcctctatttcgcgctacatttcatacgtcgtggtcctgccggacggatcaaccttt atcacccggcgacagcgcggtggcatccccctgaagactcgacccccgtctttacac cggagatttatgtccggaaacaggacacgtttataaacagaatccgaactcgattgta cgcgcgtatcactccatcagccttcttctccggacggagctgtctttaatggcgagg aggactgtgcggggactgcacgaccaatcattttacggcgagatctttaccccgaaft atctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaacc agtccgtcaaagtggcgggcgccgattacgatcagtagcagcagcattaccaag cgctactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccgtat tccgttaacctgaccaataacggtggcaattcgtatagcttcaggtagcgtcggactc ggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctccc gagcgtagcgagcacgatccgtgtgaccagggccgcagcttgataa
44	GOh1039	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAGEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGNDAKKTSLYDSSSDSWIPGPD MQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPLMTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGLLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
45	GOh1040	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcgcgcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgacagcggcaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgtttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacggcgctgctcgtgctgccg cgccaggacggaatcagaacggatggatcgccgctcacgaggtatatttaagctcc gacggcaccaactggggatccccggcgctcgccgagctggctgcgcgacagcac caccaagtattccaattttgaaacccgctctgcacgctacgtgcttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgattccaagccag ctctataccgcgcgcagccagcacttggcggttggggcccgaccatcgacctgcc tatcgtaaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcgcgatgaaggcagcccgggcgccatcactctgacgtcga gttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacacg acatgttttggccggggatcagcatggacggcaacggccagatcgctgcacggcg gcaatgacgccaagaagacgagcctctatgacagtagcagcgacagttggatccccg gggccggacatgcaggtggcacgcgggtaccagtcagcgaccatgtcagacg gccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcgaa gtctatagccctcatcaaaacgtggacgtcacttccgaacgcgaaggtgaatccat gftaacgccgacaaacagggcctgtacatgagcgacaacctgcgtggctgttcgg ctggaagaaggggagcgtcttcaggcgggcccgctgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgatgacgcggtcaaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtccaat ggctctatttcgcggtacctttcatacgtcgggtgctcctgccggacggatcaaccttt atcaccggcgacagcgccgtggcatcccttcgaagactcgaaccccgcttttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgta cgcgctatcactccatcagccttcttctccggacggacgtgtctttaatggcgagg aggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaaft atctgtatgattcaaatgggaatctcgcgacccgtccgaaaattacccgtacatcaaccc agtccgtcaaagtggcgggccgcaattacgatcagtagcagcagcattaccaaag cgctactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccgtat tccgttaaccctgaccaataacggtggcaattcgtatagcttcaggtaccgtcggactc gggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctccc gaggctagcagcagcagatccgtgtgaccaggcgccgagcttgataa

46	GOh1040	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAHEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGNDAKKTSLYDSSSDSWIPGPDMPQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
47	GOh1041	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcgcag ccatatgggtaccgctctgccccatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagcggaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgtttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaccaccagaatgtgaacgggctgtccgtgtccg cggcagcagcgaatcagaacggatggatcgccgtcagcaggtatatttaagctcc gacggcaccaactgggatccccggctcgcgtcggcgagctggttcgcgcagcagc caccaagtattccaattttgaaaccgctcctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctctataccgcgcgcagccagcacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcgcgcgcggtgattgaaccaacgtcagccgcgtactgatgtggag cagctaccgtaacgacgcgaaagaaggcagccccggcgccatcactctgacgtcga gttgggatccatccacgggcatcgtctccgaccgcaccgtgacctgcagaaacacg acatgttttggccggggatcagcatggacggcaacggccagatcgtcgtcacggcg gcaatgacgccaagaagacgagcctctatgacagtagcagcagattggatccccg gggccggacatgcaggtggcacgcgggtaccagtcagcgcgacctatgcagacg gccgtgtctttacaatcggcggtcatttagtggcgagtggttgagaagaatggcgaa gtctatagcccctcatcaaaacgtggacgtcacttccgaacgcgaaggtgaatccat gttaacgccgacaaaacaggcctgtacatgagcgacaacctgcgtggctgttcgg ctggaagaaggggagcgtcttcaggcgggcccgctgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcgaagcggcagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgatgacgcggtcaaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgcgcgacaaccaatgc ccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtccaat ggctctatttcgcgctacctttcatatcgtcgggtgtcctgccggacggatcaaccttt atcaccggcgacagcgccgtggcatcccttcgaagactcgacccccgtctttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgta cgcgcgtatcactccatcagccttcttcccggacggacgtgtctttaatggcgagg aggactgtgcgggactgcacgaccaatcatttgacgcgcagatcttaacccgaatt atctgtatgattcaaatgggaatctcgcgacccgtccgaaaattaccgtacatcaaccc

		agtcggtcaaagtggcgggccgacattacgatcagtagccgacagcagcattaccaag cgtcactgattcggttacggcaccgcaaccatacagtaacacggaccagcgccgtat tccgttaaccctgaccaataacgggtggcaattcgtagcttccaggtagccgtcgactc ggcggtggcgctgccaggatactggatgctgtttgatgaatagcgcgggcgctccc gagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
48	GOh1041	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAKEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGNDAKKTSLYDSSSDSWIPGPDMPVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
49	GOh1042	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcgcgcag ccatatgggtaccgcctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatattaaagtcc gacggcaccaactgggatccccggtcgcgtcgggcagctggttcgccgacgacac caccaagtattccaatttgaaccggcctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctctataccgcgccgcagccaggacttggcggttggggcccgaccatgcacctgcc tactgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcgatggaaggcagccggggcgcatcactctgacgtcga gttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacacg acatgttttggccggggatcagcatggacggcaacggccagatcgctgcacggggcg gcaatgacccaagaagacgagcctctatgacagtagcagcgacagttggatcccg ggggccggacatgcaggtggcacgcgggtaccagtcagcgacccatgacagcag gccgtgtctttacaatcgccgggtcatttagtggcgagtggttgagaagaatggcgaa

		gtctatagcccctcatccaaaacgtggacgtcacttccgaacgcgaagggtgaatcccat gttaaccgccgacaaacagggcctgtacatgagcgacaaccatgcgtggctgttcgg ctggaagaaggggagcgtcttfcaggcggggcccgctcgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtcaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgcgcgacaaccaatgc ccacattattacccttggggagccgggacgagcccgaacacggtcttcgcgtccaat ggcctctatttcgcgctaccttfcatacgtcgggtgtcctgccggacggatcaaccttt atcacccggcgacagcgccgtggcatccccctcgaagactcgacccccgtctttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgta cgcgcgtatcactccatcagccttcttcccggacggacgtgtctttaatggcggagg aggactgtgcgggactgcacgaccaatcattttgacgcgcagatctttaccccgaaft atctgtatgattcaaatgggaatctcgcgaccggtccgaaaattaccgtaacaaacc agtccgtcaaagtggcgccgcattacgatcagtagcagcagcattaccaag cgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccgtat tccgttaaccctgaccaataacggtggcaattcgtatagcttcaggtagcgcggcgactc ggcgctggcgctccaggatactggatgctgtttgtgatgaatagcgcggcgctccc gagcgtagcgcgacgatccgtgtgaccaggccgcagcttgataa
50	GOh1042	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAMEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGNDAKKTSLYDSSSDSWIPGPDMPQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

51	GOh1043	atgggcagcagccatcatcatcatcacagcagcggcctggcgccgcggcag ccatatgggtaccgcctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgctcgggcagctggttcgccacagcac caccaagtattccaatttgaaccctcctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctcctataccgcggcgagccagacttggcggttggggcccgaccatgcacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcgctgaaggcagccggcgccatcactctgacgtcga gttgggatccatccacgggcacgtctccgaccgaccgtgacctcacgaaacag acatgtttgccggggatcagcatggacggcaacggccagatcgtcgtcacggcg gcaatgacccaagaagacgagcctctatgacagtagcagcgacagttggatcccg gggcccggacatgcaggtggcacgcgggtaccagtcagcgaccatgtcacagc gccgtgtctttacaatcgccggctcatttagtggcgaggtttgagaagaatggcgaa gtctatagcccctcatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccat gttaaccggcgacaaacagggcctgtacatgagcgacaacctgcgtggtgttcgg ctggaagaaggggagcgtcttcaggcgggcccgtcgaccgcaatgaattggtattac acgtcagggaagcgggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgggtcaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattacccttggggagccggggacgagcccgaacacggtcttccgctcaat ggcctctatttcgcgctaccttccatagtcgggtgtcctgccggacggatcaacctt atcaccggcgacagcgcgtggcatcccttcgaagactcgacccccgtctttacac cggagatttatgtccggaaacaggacacgtttataaacagaatccgaactcgattga cgcggtatcactccatcagccttcttctccggacggagctgtctttaatggcgagg aggactgtgcggggactgcacgaccaatcatttgacgcgcagatctttacccgaatt atctgtatgattcaaatgggaatctcgcgacccgtccgaaaattaccgtacatcaacc agtccgtcaaagtggcgggcgccgacattacgatcagtagccgacgacgacattacaaag cgtcactgattcgttacggcaccgcaaccatacagtcacacggaccagcgccgtat tccgttaacctgaccaataacggtggcaattcgtatagcttcaggtagcgtcggactc ggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctccc gagcgtlagcgagcacgatccgtgtgaccagggccgagcttgataa
52	GOh1043	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAREGSPG GITLTSSWDPTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGNDAAKKTSLYDSSSDSWIPGPDMPQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGTFTITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
53	GOh1045	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgcgtcgggcagctggttcgccgacagcac caccaagtattccaattttgaaaccgctctgcacgtacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctaatcgccgaaatcaatgtattcaagccag ctctataccgcgcgcagccaggacttggcggtggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcgccacctggcagcccggcgccatcactctgacgtcga gttgggatccatccacgggcatcgtccgaccgcaccgtgacctcacgaaacacg acatgtttgcccggggtacgcatggacggcaacggccagatcgtcgtcacggcg gcaatgacccaagaagacgagcctctatgacagtagcagcgacagttggatcccg gggcccggacatgcaggtggcacgcgggtaccagtcagcgccatgtcagacg gccgtgtctttacaatcgccggctcatttagtggcgagtggttgagaagaatggcgaa gtctatagcccctcatccaaacgtggacgtcacttccgaacggaaggtgaatcccat gttaaccgccgacaaacaggcctgtacatgagcgacaacctgcgtggtgttcgg ctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtattac acgtcagggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtcaaggcaa gatcctgacatttggcgggagtccggactacaccgacagtgacgcgacaaccaatgc ccacattattaccttggggagccggggacgagcccgaacacggcttcgcgtccaat ggcctctatttcgcgctacatttcatacgtcggtggtcctgccggacggatcaaccttt atcacccggcgacagcgcgtggcatccccctgaagactcgacccccgtctttacac cggagatttatgtccggaaacaggacacgtttataaacagaatccgaactcgattgta cgcgcgtatcactccatcagccttcttctccggacggagctgtctttaatggcgagg aggactgtgcggggactgcacgaccaatcattttacgcgcagatctttaccccgaaft atctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaacc agtccgtcaaagtggcgggcgccgattacgatcagtagcagcagcattaccaaag cgctactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccgtat tccgttaacctgaccaataacggtggcaattcgtatagcttcaggtaccgtcggactc ggggtggcgctgccaggatactggatgctgtttgtgatgaatagcggcggtccc gagcgtagcgagcacgatccgtgtgaccagggccgcagcttgataa
54	GOh1045	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAPPGSPG GITLTSSWDPTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGNDAKKTSLYDSSSDSWIPGPDMPQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPLMTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLDPGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGLLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
55	GOh1046	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcgcgcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgtttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggaatcagaacggatggatcgccgctcacgaggtatatttaagctcc gacggcaccaactggggatccccggcgctcgccgagctggctgccgacagcac caccaagtattccaattttgaaaccgctctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgattccaagccag ctctataccgcgcgcagccaggaacttggcggtggggcccgaccatcgacctgcc tategtaccgcgagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcgcgggaaggcagccggggcgcatcactctgacgtcga gttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacacg acatgttttggccggggatcagcatggacggcaacggccagatcgctgcacggcg gcaatgacgccaagaagacgagcctctatgacagtagcagcgacagttggatcccg gggccggacatgcaggtggcacgcgggtaccagtcagcgaccatgacagacg gccgtgtctttacaatcgcggtcatttagtggcgaggtgtttgagaagaatggcgaa gtctatagccctcatcaaaacgtggacgtcacttccgaacgcgaaggtgaatccat gftaacgccgacaaacagggcctgtacatgagcgacaacatcgctggctgttcgg ctggaagaaggggagcgctttcagcggggccgctcgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgatgacgcggtcaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtccaat ggctctatttcgcggtacctttcatacgtcggtgtgtcctgccggacggatcaaccttt atcaccggcgacagcgccgtggcatcccttcgaagactcgaacccgcttttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgta cgcgctatcactccatcagccttcttctccggacggacgtgtctttaatggcggagg aggagggtgcgggactgcacgaccaatcattttgacgcgcagatctttacccgaat tatctgtatgattcaaatgggaatctcgcgacccgtccgaaaattacccgtacatcaacc cagtcctgcaaagtggcgggccgattacgatcagtagcagcagcattacaaa gcgtcactgattcgttacggcaccgcaaccatacagtcacacggaccagcgccgt attccgttaaccctgaccaataacgggtggcaattcgtatagctccaggtaccgtcggac tcggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctcc cgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa

56	GOh1046	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAPEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGNDAKKTSLYDSSSDSWIPGPDMPQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGGGCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
57	GOh1047	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcgcag ccatatgggtaccgctctgccccatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagcggaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgtttatggcgcaaatggcgacccgaagccaccga tactataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtccg cggcagcagcgaatcagaacggatggatcgccgtcagcaggtatatttaagctcc gacggcaccaactgggatccccggtcgctcgggcagctggttcggcagcagc caccaagtattccaattttgaaaccgctctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctctataccgcgcgcagccagcacttggcggttggggcccgaccatcgacctgcc tctgtaccgcgcgcgcgcgattgaaccaacgtcagccgcgtactgatgtggag cagctaccgtaacgacgcgcgcgcagcagccggggcgcatcactctgacgtcga gttgggatccatccacgggcatcgtctccgaccgcaccgtgacctgcagaaacacg acatgttttggccggggatcagcatggacggcaacggccagatcgtcgtcacggcg gcaatgacgccaagaagacgagcctctatgacagtagcagcagattggatccccg gggccggacatgcaggtggcacgcgggtaccagtccagcgcgacctatgcagacg gccgtgtctttacaatcgggcggtcatttagtggcgagtggttgagaagaatggcgaa gtctatagcccctcatccaaaacgtggacgtcacttccgaacggaaggtgaatccat gttaacgccgacaaaacaggcctgtacatgagcgacaacctgcgtggctgttcgg ctggaagaaggggagcgtcttcaggcggggcccgctgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcgaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgatgacgcggtcaaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgcgcgacaaccaatgc ccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtccaat ggctctatttcgcgctacctttcatatcgtcgggtgtcctgccggacggatcaaccttt atcaccggcgacagcgccgtggcatcccttcgaagactcgacccccgtctttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgta cgcgcgtatcactccatcagccttcttccccggacggacgtgtctttaatggcgagg aggagggtgcggggactgcacgaccaatcatttgacgcgcagatctttacccgaat tatctgtatgattcaaatgggaatctcgcgacccgtccgaaaattacccgtacatcaacc

		cagtcggtcaaagtggcgccgcattacgatcagtagccagacagcagcattacaaa gcgtcactgattcggtacggcaccgcaaccatacagtaacacggaccagcgccgt attccgftaacctgaccaataacgggtggcaattcgtagcttccaggtaccgtcggac tcggcggtggcgctgccaggatactggatgctgttggatgaatagcgcggcgctcc cgagcgtagcgagcacgatccgtgtgaccaggccgcagcttgataa
58	GOh1047	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAPPGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGND AKKTSLYDSSSDSWIPGPD MQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAV MYDAVKGKILTFGGSPDYTDS DATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPD GSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGGCGDC TTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTN TDQRRIP LTLNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
59	GOh1048	atgggcagcagccatcatcatcatcacagcagcgccctgggtccgcgcgcgcag ccatatgggtaccgcctctgccctatcggtcagccatcccgcgcaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatattaaagctcc gacggcaccaactgggatccccggtcgcgtcgggcagctggttcgccgacgacac caccaagtattccaatttgaaacccgtcctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctctataccgcgcgcagccaggaactgggcgttggggcccgaccatgcacctgcc tactgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggttccaggcagcccgggcgccatcactctgacgtcga gttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacacg acatgtttgccccgggatcagcatggacggcaacggccagatcgctgcacggggcg gcaatgacccaagaagacgagcctctatgacagtagcagcgacagttggatcccg gggcccggacatgcaggtggcacgcgggtaccagtcagcgacccatgtcagacg gccgtgtctttacaatcgccggctcatttagtggcgagtggttgagaagaatggcgaa

		gtctatagcccctcatccaaaacgtggacgtcacttccgaacgcgaagggtgaatcccat gttaaccgccgacaaacagggcctgtacatgagcgacaaccatgcgtggctgttcgg ctggaagaaggggagcgtcttfcaggcggggcccgctcgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtcaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgcgcgacaaccaatgc ccacattattacccttggggagccgggacgagcccgaacacggcttctgcgtccaat ggcctctatttcgcgctaccttccatacgtcggtggtcctgccggacggatcaacctt atcacccggcgacagcgccgtggcatccccctcgaagactcgacccccgtctttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgta cgcgcgtatcactccatcagccttcttcccggacggacgtgtctttaatggcggagg aggactgtgcgggactgcacgaccaatcatttgcgcgcgacgtctttaccccgaatt atctgtatgattcaaatgggaatctcgcgaccggtccgaaaattaccgtacatcaacc agtccgtcaaagtggcgccgcattacgatcagtagcagcagcattaccaag cgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccgtat tccgttaaccctgaccaataacgggtggcaattcgtatagcttcaggtagcgcggcgactc gggcgtggcgctccaggatactggatgctgttggatgaatagcgcggcgctccc gagcgtagcgcgacgatccgtgtgaccaggccgcagcttgataa
60	GOh1048	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAPVPGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGNDAKKTSLYDSSSDSWIPGPDMPQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

61	GOh1049	atgggcagcagccatcatcatcatcacagcagcggcctggcgccgcggcag ccatatgggtaccgcctctgcccctatcggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgctcgggcagctggttcgccacagcac caccaagtattccaatttgaaccggctcctgcacgctacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctcctataccgcggcgagccaggaactggggcgttggggcccgaccatgcacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcagccgcgtactgatgtggag cagctaccgtaacgacgcggttgaaggcagccggcgccatcactctgacgtcga gttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacacg acatgtttgccggggatcagcatggacggcaacggccagatcgtcgtcacggcg gcaatgacccaagaagacgagcctctatgacagtagcagcgacagttggatcccg gggcccggacatgcaggtggcacgcgggtaccagtcagcgacatgtcagacg gccgtgtctttacaatcgccggctcatttagtggcgagtggttgagaagaatggcgaa gtctatagcccctcatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccat gttaaccggcgacaaacagggcctgtacatgagcgacaacctgcgtggctgtccg ctggaagaaggggagcgtctttcaggcggggcccgtcgaccgcaatgaattggtattac acgtcagggaagcgggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgggtcaaaggcaa gatcctgacatttggcgaggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattacccttggggagccgggacgagcccgaaacaggtcttccgctcaat ggcctctatttcgcggtacctttcatacgtcgggtgctcctgccggacggatcaacctt atcaccggcgacagcggcgtggcatcccttcgaagactcgacccccgtctttacac cggagatttatgtccggaaacaggacacgttttataaacagaatccgaactcgattga cgcggtatcactccatcagccttcttctccggacggagctgtctttaatggcgagg aggaggtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgat tatctgtatgattcaaatgggaatcgcgacccgctcgaaaattacccgtacatcaacc cagtcctcaaaagtggcgggccgattacgatcagtagcagcagcattacaaaa gcgtcactgatctgtacggcaccgcaaccatacagtcacacggaccagcgccgt attccglttaacctgaccaataacgggtggcaattcgtatagcttccaggtaccgtcggac tcggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcggggcgctcc cgagcgtagcggagcacgatccgtgtgacccaggccgcagcttgataa
62	GOh1049	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRND AVEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGNDAKKTSLYDSSSDSWIPGPD MQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAV MYDA VKGKILTFGGSPDYTDS DATTN AHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPD GSTFITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGGCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
63	GOh1050	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtcaataaagccatcgacggca ataaagacaccttctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgctcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgcgtcgggcagctggttcgccgacagcac caccaagtattccaattttgaaacccgtcctgcacgtacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaatcaatgtattccaagccag ctctataccgcggcgagccaggacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgctactgatgtggag cagctaccgtaacgacgcgggtccaggcagccggcgccatcactctgacgtcga gttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacacg acatgtttgcccggggtacagcatggacggcaacggccagatcgtcgtcacggcg gcaatgacccaagaagacgagcctctatgacagtagcagcgacagttggatcccg gggcccggacatgcaggtggcacgcgggtaccagtcagcgacccatgtcagacg gccgtgtctttacaatcgccggctcatttagtggcgagtggttgagaagaatggcgaa gtctatagcccctcatccaaaacgtggacgtcacttccgaacggaaggtgaatcccat gttaaccgccgacaaacagggcctgtacatgagcgacaacctgcgtggtgttcgg ctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtattac acgtcagggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggcgaaggcaa gatcctgacatttggcgggagtccggactacaccgacagtgacgcgacaaccaatgc ccacattattaccttggggagccggggacgagcccgaacacggcttcgcgtccaat ggcctctatttcgcgctacatttcatacgtcgggtgctcctccggacggatcaaccttt atcacccggcgacagcgcgggtggcatccccctgaagactcgacccccgtctttacac cggagatttatgtccggaaacaggacacgtttataaacagaatccgaactcgattgta cgcgcgtatcactccatcagccttcttctccggacggacgtgtctttaatggcgagg aggagggtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaat tatctgtatgattcaaatgggaatctcgcgacccgtccgaaaattacccgtacatcaacc cagtcctgcaaatggcgggccgattacgatcagtagcagcagcattacaaa gcgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccgt attccgttaacctgaccaataacgggtggcaattcgtatagctccaggtaccgtcggac tcggcggtggcgtgccaggatactggatgctgtttgtgatgaatagcggggcgctcc cgagcgtagcgcgacgatccgtgtgacccaggccgcagcttgataa
64	GOh1050	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRND AVPGSPG GITLTSSWD PSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGNDAKKTSLYDSSSDSWIPGPD MQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPLMTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLDPGRVFNNGGGGCGDCTTNHFDAQIFTPNYLY DSNGLLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
65	GOh1051	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcgcgcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgacagcggaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgtttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggaatcagaacggatggatcgccgctcacgaggtatatttaagctcc gacggcaccaactgggatccccggcgctcgccgagctggctgcgcgacagcac caccaagtattccaattttgaaacccgctctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgattccaagccag ctctataccgcgcgcagccaggaactggcggtggggcccgaccatcgacctgcc tategtaccgcgagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcgttcccaggcagccccggcgcgcatcactctgacgtcga gttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacacg acatgttttggccggggatcagcatggacggcaacggccagatcgctgcacggcg gcaatgacgccaagaagacgagcctctatgacagtagcagcgacagttggatccccg gggccggacatgcaggtggcacgcgggtaccagtcagcgacatgacagacg gccgtgtctttacaatcgcggtcatttagtgcgaggagtgttgagaagaatggcgaa gtctatagccctcatcaaaacgtggacgtcacttccgaacgcgaaggtgaatccat gftaacgccgacaaacagggcctgtacatgagcgacaacatcgctggctgttcgg ctggaagaaggggagcgctttcaggcgggcccgctcgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgatgacgcggtcaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtccaat ggctctatttcgcggtacctttcatacgtcggtgtcctgccggacggatcaaccttt atcaccggcgacagcgccgtggcatcccttcgaagactgacccccgtctttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgta cgcgcgtatcactccatcagccttcttctccggacggacgtgtctttaatggcggagg aggagggtgcgggactgcagaccaatcattttgacgcgagatctttacccgaat tatctgtatgattcaaatgggaatctcgcgacccgtccgaaaattacccgtacatcaacc cagtcctgcaaagtggcgggccgattacgatcagtagcagcagcattacaaa gcgtcactgattcgttacggcaccgcaaccatacagtcacacggaccagcgccgt attccgttaacctgaccaataacgggtggcaattcgtatagctccaggtaccgtcggac tcggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctcc cgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa

66	GOh1051	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAFPGPSG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGNDAKKTSLYDSSSDSWIPGPDMPQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGGGCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
67	GOh1052	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagcggaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgtttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgctcgctgcg cggcagcagcgaatcagaacggatggatcgccgctcagcaggtatatttaagctcc gacggcaccaactgggatccccggcgctcgggcagctggctcgccgacagcagc caccaagtattccaattttgaaaccgctctgcacgctacgtgcgcttagtgccgctgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctctataccgcgcccagccagcacttggcggttggggcccagaccatgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcagccgcgctactgatgtggag cagctaccgtaacgacgcggcggaaggcagccccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgacctcagcaaacac gacatgtttgccccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggcccggacatgcaggtggcacgcgggtaccagtcacgcgacccatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagcccccatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaacagggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggaggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtatt acacgtcagggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcgccggacgcaatgtcgggcaatgccgtgatgtatgacgcggcgaagga agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcggtggtcctgcggacggatcaacct ttatcaccggcgacagcgccgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtgccgaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccccggacggagctgtctttaatggcggag gaggactgtgcggggactgcacgaccaatcatfttgacgcgcagatcttaccgccaa ttatctgtatgatcaaatgggaatctcgcgaccgctccgaaaattaccgcatatcaac

		ccagtcctgcaaaagtgggcgccgcattacgatcagtagccgacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacaggaccagcgccg tattccgtfaaccctgaccaataacgggtggcaattcgtatagcttcaggtagcgcgga ctcggcgctggcgctgccaggatactggatgctgtttgtgatgaatagcgcggcgctc ccgagcgtagcagcacgatccgtgtgacccaggccgcagcttgataa
68	GOh1052	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPGDRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
69	GOh1053	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcgcag ccatatgggtaccgcctctgccctatcggctcagccatcccgcgcaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgtttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatattaaagctcc gacggcaccaactgggatccccggtcgcgtcggcgagctggttcgccgacagcac caccaagtattccaattttgaaacccgtcctgcacgtacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctcctataccgcgccgagccaggacttggcggttggggcccgaccatgcacctgcc tactgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgcatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgacctcacgaaacac gacatgttttccccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggccggacatgcaggtggcacgcgggtaccagtccagcgccacctgacagac ggccgtgtctttacaatcggcggtcatttagtggcgagggtgttgagaagaatggcga

		agtcctatagcccctcatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaaacagggcctgtacttttagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcggccggacgcaatgtgcggcaatgccgtgatgtatgacgcggcgaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtcca atggcctctatttgcgcgtacctttcatacgtcgggtgctcctgccggacggatcaacct ttatcacgcggcgacgcgcgtggcatcccccttgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttcccggacggacgtgtctttaatggcggag gaggactgtgcgggactgcacgaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtaacaaac ccagtcctgcaaatggggcgccgacattacgacgtaccgacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacaggaccagcgcgg tattccgttaaccctgaccaataacgggtggcaattcgtatagcttccagtgaccgtcgga ctcgggctgtggcgtgccaggatactggatgctgtttgtgatgaatagcgcgggctgc ccgagcgtagcggagcacgatccgtgtgaccaggccgcagcttgataa
70	GOh1053	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYFSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

71	GOh1054	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgcctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgctcacgaggtatattaaagtcc gacggcaccaactggggatccccggctcgcgcggcagctggttcgccgacagcac caccaagtattccaatttgaaccggctcctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaatcaatgtattccaagccag ctcctataccgcggcgagccagacttggcggttggggcccgaccatgcacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcagccgcgtactgattgggag cagctaccgtaacgacgcggcggaaggcagcccgggcgcatcactctgacgtcg agttgggatccatccacgggcatcgtcctccgaccgcaccgtgacctcacgaaacac gacatgttttggcgggatcagatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggtccc ggggccggacatgaggtggcacgcgggtaccagtcacgcgacatgtcagac ggccgtgtcttacaatcggcggctcattttgtggcgagtggttgagaagaatggcg agtctatagccccatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgtaaccgcccgaacaggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattgtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcgg cgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgggtcaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagccccgaacacgggtcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgccgacggatcaacct ttatcacggcgagacgcgcgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgttttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttctccggacggacgtgtctttaatggcgag gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtagatcaac ccagtcctcaaatggggcgccgcattacgatcagtagcagacagcattaccaa agcgtcactgattcgttacggcacgcgaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaattcgtagcttccaggtaccgtcgga ctcgggctgtggcgctgccaggatactggatgctgtttgtatgaatagcggggcgctc ccgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
72	GOh1054	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDA AEGSPG GITLTSSWD PSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPD MQVARGYQS SATMSDGRVFTIGGSFCGGVF EKNGEVYSPSSKTWTS L PNAKVNPMLTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAV MYDAVKGKILTFGGSPDYTDS DATTN AHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPD GSTFITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
73	GOh1055	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgcataaagccatcgacggca ataaagacacctctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgcgtcgggcagctggttcgccgacagcac caccaagtattccaatttgaaccggctctgcacgtacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaatcaatgtattcaagccag ctctataccgcggcgagccaggacttggcggtggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgctactgatgtggag cagctaccgtaacgacgcgggtgaaggcagccggggcgcatcactctgacgtcga gttgggatccatccacgggcatcgtcgcgaccgcaccgtgacctcacgaaacacg acatgtttgccggggatcagcatggacggcaacggccagatcgtcgtcacggcg gctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc gggcccggacatgcaggtggcagcgggtaccagtcagcgacccatgtcagacg gccgtgtctttacaatcgccggctcatttagtggcgagtggttgagaagaatggcgaa gtctatagcccctcatccaaacgtggacgtcacttccgaacggaaggtgaatcccat gttaaccgcccacaaacaggcctgtacatgagcgacaacctgcgtggtgttcgg ctggaagaaggggagcgtcttccagcggggcccgtcgaccgcaatgaattggtattac acgtcagggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacggcgtaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattaccttggggagccggggacgagcccgaacacggcttcgcgtccaat ggcctctatttcgcggtaccttccatagtcgggtgctctgccggacggatcaaccttt atcacccggcgacagcggcgtggcatccccctgaagactcgacccccgtctttacac cggagatttatgtccgggaacaggacacgtttataaacagaatccgaactcgattga cgcgctatcactccatcagccttcttcccgacggagctgtctttaatggcgagg aggactgtgcggggactgcacgaccaatcatttgacggcgagatctttacccgaatt atctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaacc agtccgtcaaagtggcgggcgccgattacgatcagtagcagcagcattaccaag cgctactgattcgttacggcaccgcaaccatacagtaaacaggaccagcgccgtat tccgttaacctgaccaataacggtggcaattcgtatagcttcaggtaccgtcggactc ggcggtggcgctgccagatactggatgctgtttgtgatgaatagcggcggtccc gagcgtagcgagcacgatccgtgtgaccagggccgcagcttgataa
74	GOh1055	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAGEGSPG GITLTSSWDPTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPLMTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLDPGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGLLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
75	GOh1056	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgacagcggaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggaatcagaacggatggatcgccgctcacgaggtatatttaagctcc gacggcaccaactggggatccccggcgctcgccgagctggctgcgcgacagcac caccaagtattccaattttgaaacccgctctgcacgctacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgattccaagccag ctctataccgcgcccagccagcacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcgggtgaaggcagccggcgccatcactctgacgtcga gttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacacg acatgttttggccggggatcagcatggacggcaacggccagatcgctgcacggcg gctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc gggccggacatgcaggtggcacgcgggtaccagtcagcgccacatgacagacg gccgtgtctttacaatcgcggtcatttagtggcgaggtgtttgagaagaatggcgaa gtctatagcccctcatcaaaacgtggacgtcacttccgaacgcgaaggtgaatccat gftaacgccgacaaaacaggcgctgtacttttagcgacaacatgcgtggctgttcggc tggagaagggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtattaca cgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggcgt ggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcgggtcaaaaggcaaga tcctgacatttggcgggagtcgggactacaccgacagtgacgcgacaacatgccc acattattacccttggggagccggggacgagcccgaacacggcttctcgctccaatg gcctctatttcgcgctacctttcatatcggtggctctgccggacggatcaacctttat caccggcgacagcgccgtggcatccccttcgaagactcgacccccgtctttacacc ggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgtac gcgcgtatcactccatcagccttctctccggacggcgtgtcttaattggcgaggga ggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttacccgaatta tctgtatgattcaaatgggaatctcgcgacccgtccgaaaattacccgtacatcaaccca gtcctgcaaaagtggcgggccgcattacgatcagtagcagcagcattaccaaaagc gtcactgattcgttacggcaccgcaacccatcacgtcaacacggaccagcgccgtatt ccgttaaccctgaccaataacgggtggcaattcgtatagctccaggtaccgtcggactc gggcgtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctccc gagcgtagcgagcacgatccgtgtgaccaggccgcagcttgataa

76	GOh1056	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAGEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYFSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
77	GOh2001	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgccccatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagcggaacgagtgcaataaagccatcgacggca ataaagacacctctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgctcgctgccg cggcagcagcgaatcagaacggatggatcgccgctcagcaggatatttaagctcc gacggcaccaactgggatccccggcgctcgggcagctggctcgccgacagcagc caccaagtattccaattttgaaacccgctctgcacgctcagtgccgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctctataccgcgcccagccagcacttggcggttggggcccagaccatgacctgcc tatcgtaccagcggcgggcgattgaaccaacgtcagccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagccccggcgggcatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttggccgggatcagcatggacggcaacggccagatcgctgcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggcccggacatgcaggtggcacgcgggtaccagtcacgcgacccatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagccctcatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaacagggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtatt acacgtcagggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcgccggacgcaatgtcgggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcggtggctctgccggacggatcaacct ttatcaccggcgacagcgccgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtgccgaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccccggacggagctgtctttaatggcggag gaggactgtcggggactgcacgaccaatcattttgacgcgcagatcttaccgccaa ttatctgtatgatcaaatgggaatctcgcgaccgctccgaaaattaccgcatatcaac

		ccagtcctgcaaaagtgggcgccgcattacgatcagtagccgacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccg tattccgtfaaccctgaccaataacgggtggcaattcgtatagcttccaggtagcgtcgga ctcggcgctggcgctgccaggatactggatgctgtttgtgatgaatagcgcggcgctc ccgagcgtagcagcacgatccgtgtgacccaggccgcagcttgataa
78	GOh2001	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPSAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
79	GOh2002	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcgcag ccatatgggtaccgcctctgccctatcggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatattagctcc gacggcaccaactgggatccccggtcgcgtcgggcagctggttcgccgacagcac caccaagtattccaattttgaaacccgtcctgcacgtacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctcctataccgcgccgagccaggaactggcggttggggcccgaccatgcacctgcc tatccccccgagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttccccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttgatccc ggggccggacatgcaggtggcacgcgggtaccagtccagcgcgacatgtcagac ggccgtgtctttacaatcggcggtcatttagtggcgagggtgttgagaagaatggcga

		agtcctatagcccctcatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcggccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtcca atggcctctatttcgcggtacctttcatacgtcgggtgctcctgccggacggatcaacct ttatcacggcggacagcgcgtggcatcccccttgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttcccggacggacgtgtctttaatggcggag gaggactgtgcgggactgcacaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtaacaaac ccagtcctgcaaatggggcggccgacattacgacgtaccgacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgcgg tattccgttaaccctgaccaataacgtggcaattcgtatagcttccagtgaccgtcgga ctcgggcgtggcgtgccaggatactggatgctgtttgtgatgaatagcgcgggcgtc ccgagcgtagcggagcacgatccgtgtgaccaggccgcagcttgataa
80	GOh2002	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPITPAAAIEPTSGRVLWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

81	GOh2008	atgggcagcagccatcatcatcatcacagcagcggcctgggtgccgcgcggcag ccatatgggtaccgcctctgcccctatcggtcagccatccccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgctcgggcagctggttcgccacagcac caccaagtattccaatttgaaccggctctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaatcaatgtattccaagccag ctctataccgcgccgagccaggacttggcggttggggcccgaccatgcacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtacggccgctactgattgggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttccggggatcagatggacggcaccggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttgatccc ggggccggacatgaggtggcacgcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcggcggctcatttagtggcgagtggttgagaagaatggcga agtctatagcccccatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgtaaccgcccgaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattgtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcgg cgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagccccgaacacgggtcttcggtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgccgacggatcaacct ttatcacggcgcgacagcgcggtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtgccggaacaggacacgttttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttctccggacggacgtgtctttaatggcggag gaggactgtgcggggactgcacgaccaatcatttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtagatcaac ccagtcctcaaatggggcgccgcattacgatcagtagcagacagcattaccaa agcgtcactgattcgttacggcacgcgaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaattcgtagcttccaggtaccgtcgga ctcgggctgtggcgctgccaggatactggatgctgtttgtatgaatagcgcgggctc ccgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
82	GOh2008	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDA AEGSPG GITLTSSWD PSTGIVSDRTVTVTKHDMFCPGISM DGTG QIVVTGGWDAKKTSLYDSSSDSWIPGPD MQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS L PNAKVNPMLTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAV MYDAVKGKILTFGGSPDYTDS DATTN AHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPD GSTFITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
83	GOh2010	atgggcagcagccatcatcatcatcacagcagcggcctggcgccgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtcgacagcgcgcagagcggcaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtcctgtgcgcg cgccaggacggcaatcagaacggatggatcgccggtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgcgtcgggcagctggttcggcgacagcac caccaagtattccaatttgaaccggctcgcacgctacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaatcaatgtattcaagccag ctctataccgcccgcagccaggacttggcggtggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgctactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacac gacatgtttgcccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacgttgatccc ggggccggacatgcaggtggcgacgcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcgggcgctcatttagtggcgagtggttgagaagaatggcga agtcttcagcccccatccaaaacgtggacgtcacttccgaacggaagtgatccc atgttaaccgcccgaacaacaggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtagaccgaatgaattgttatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcgg cgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacggcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctccggacggatcaacct ttatcacggcgacagcgcgggtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttccggacggacgtgtctttaatggcgag gaggactgtgcggggactgcacgaccaatcatttgacgcgcagatctttacccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctgcaaatggcgccgcattacgatcagtagcagcagcattaccaa agcgtcactgattctgtacggcaccgcaaccatacagtcacacggaccagcgccg tattccgttaaccctgaccaataacggtggcaaltcgtatagctccaggtaccgtcgga ctcgggcgtggcgctgccaggatactggatgctgtttgtgatgaatagcggggcgtc ccgagcgtagcgagcacgatccgtgtgaccaggccgcagcttgataa
84	GOh2010	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDASQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVFSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
85	GOh2011	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgacagcggcaacgagtgcaataaagccatcgacggca ataaagacacctctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tactatatacattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgcccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggcgctggcgagctggctgcccacagcac caccaagtattccaattttgaaacccgctctgcacgctacgtgccttagtggccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgattccaagccag ctctataccgcgcccagccaggaacttggcggtggggcccgaccatcgacctgcc tatcgtaccgcgagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttggccgggacagcatggacggcaacggccagatcgtcgtcagggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggcccggacatgcaggtggcagcgcgtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcgcgcgctcatttagtggcgagtggttgagaagaatggcga agtctatagcccctcatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaacaggcgctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcg cgtggcgccggacgcaatgtcgcgcaatgccgtgatgtatgacgggtcaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcggtcca atggcctctatttcgcgctacctttcatactcggtggctctgcggacggatcaacct ttatcaccggcgacagcgcggtggcatcccctcgaagactcgacccccgtctttac accggagatttatgtgccggaacaggacacgttttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttctccggacggcgtgtctttaatggcgag gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctcaaatggggcgccgcatcagatcagtagcagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtcacaacacggaccagcgccg tattccgttaacctgaccaataacggtggcaattcgtatagctccaggtaccgtcgga ctcgggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgggcgctc ccgagcgtagcgagcacgatccgtgtgaccaggccgcagcttgataa

86	GOh2011	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARAYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
87	GOh2012	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagcggaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctcgcg cggcagcagggcaatcagaacggatggatcgccgctcagcaggtatatttaagctcc gacggcaccaactgggatccccggtcgctcgggcagctggctcggcagcagc caccaagtattccaattttgaaacccgctctgcacgctacgtgcgcttagtgccgctgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctctataccgcgcccagccagcacttggcggttggggcccagaccatgacctgcc tatcgtaccaccgcgcggcgatgaaccaacgtcagggcgctactgatgtggag cagctaccgtaacgacgcggcggaaggcagccccggcgggcatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacac gacatgtttgcccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggcccggacatgcaggtggcacgcgggtaccagtcacgcgacccatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagcccctcatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaacagggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtatt acacgtcagggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcgccggacgcaatgtcgggcaatgccgtgatgtatgacgcgggtcaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcggtggtcctcgccgacggatcaacct ttatcaccggcgacagcgccgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtgccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccccggacggagctgtctttaatggcgga gaggactgtcggggactgcacgaccaatcatfttgacgcgagatcttaccgccaa ttatctgtatgatcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac

		ccagtcctgcaaaagtgggcgccgcattacgatcagtagccagacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccg tattccgtfaaccctgaccaataacgggtggcaattcgtatagcttcaggtagcgtcgga ctcgggctggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggctc ccgagcgtagcagcacgatccgtgtgacccaggccgcagcttgataa
88	GOh2012	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPTAAAEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
89	GOh2013	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcgcag ccatatgggtaccgcctctgccctatcggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgtttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccagcagcgcaatcagaacggatggatcgccgtcacgaggtatattagctcc gacggcaccaactgggatccccggtcgcgtcggcgagctggttcgccgacagcac caccaagtattccaattttgaaacccgtcctgcacgtacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctcctataccgcgccgcagccaggacttggcggttggggcccgaccatgcacctgcc tactgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttccccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggccggacatgcaggtggcacgcgggtaccagtccagcgccacctgacagac ggcgtgtctttacaatcggcggtcatttagtggcgagtggttgagaagaatggcga

		agtctatagcccctcatccaaaacgtggacgtcacttccgaacggaaggtgaatccc atgttaaccgcccagacaaacagggcctgacctgagcgacaacctgctggctgttc ggctggaagaaggggagcgtcttcaggcgggcccgtcgaccgcaatgaattggtat tacacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcg gcgtggcggccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtcaaggc aagatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaat gcccacattattacccttggggagccggggacgagccccaacacggcttcgcgtcc aatggcctctatttcgcgcgtaccttcatacgtcgggtgtcctgccggacggatcaacc tttatcaccggcggacagcggcgtggcatccccctcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttcccggacggacgtgtctttaatggcggag gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttacccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctgcaaatggggcggccgacattacgacgtaccgacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacaggaccagcggcg tattccgttaaccctgaccaataacggtggcaattcgtatagcttccaggtagcgtcgga ctcgggctggcgtgccaggatactggatgctgttggatgaatagcgcgggctc ccgagcgtagcggagcacgatccgtgtgacccaggccgcagcttgataa
90	GOh2013	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS L PNAKVNPMILTADKQGLTMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

91	GOh2014	atgggcagcagccatcatcatcatcacagcagcggcctggcgccgcggcag ccatatgggtaccgcctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgctcagagggtatattaaagtcc gacggcaccaactggggatccccggctcgctcggcagctggttcgccgacagcac caccaagtattccaatttgaaccggctctgcacgctacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaatcaatgtattccaagccag ctctataccgcggcgagccaggacttggcggttggggcccgaccatgcacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtacggccgctactgattgggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttggcgggatcagatggagcgcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggtccc ggggccggacatgaggtggcagcggggtaccagtcagcgccagcatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagcccccatccaaaacgtggacgtcacttccgaacgcgaaggtgtggccc atgtaaccgcccgaacaacaggcctgtacatgagcgacaacatgcgtggtgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcgg cgtggcgccggacgcaatgtcgcgcaatgccgtgatgtatgacgggtcaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagccccgaacacgggtcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgccgacggatcaacct ttatcacggcgcgacagcgccgtggcatccccctcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgttttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttctccggacggacgtgtctttaatggcggag gaggactgtgcggggactgcacgaccaatcatttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtagatcaac ccagtcctcaaatggggcgccgcattacgatcagtagccagacagcattacca agcgtcactgattcgttacggcacgcgaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaattcgtagcttccaggtaccgtcgga ctcgggctgtggcgctgccaggatactggatgctgtttgtgatgaatagcggggcgtc ccgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
92	GOh2014	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDA AEGSPG GITLTSSWD PSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPD MQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS L PNAKVWPM L TADKQGLYMSDNHAWLFGWKKG SVFQ AGPSTAMN WYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAV MYDA VKGKILTFGGSPDYTDS DATTN AHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPD GSTFITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
93	GOh2015	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgcgtcgggcagctggttcggcgacagcac caccaagtattccaatttgaaccggctctgcacgtacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaatcaatgtattcaagccag ctctataccgcggcgagccaggacttggcggtggggcccgaccatcgacctgcc tatcgtaccgcagcctgtgcgattgaaccaacgtcaggccgctactgatgtggagc agctaccgtaacgacgcggcggaaggcagccggggcgcatcactctgacgtcga gttgggatccatccacgggcatcgtcgcgaccgcaccgtgacctcacgaaacacg acatgtttgcccggggtacgcatggacggcaacggccagatcgtcgtcacggcg gctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc gggcccggacatgcaggtggcagcgggtaccagtcagcgacccatgtcagacg gccgtgtctttacaatcgccggctcatttagtggcgagtggttgagaagaatggcgaa gtctatagcccctcatccaaacgtggacgtcacttccgaacggaaggtgaatcccat gttaaccgcccacaaacaggcctgtacatgagcgacaacctgcgtggtgttcgg ctggaagaaggggagcgtcttcaggcggggcccgctgaccgcaatgaattggtattac acgtcagggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgccc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacggcgtaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattaccttggggagccggggacgagcccgaacacggcttcgcgtccaat ggcctctatttcgcgctacatttcatacgtcgtggtcctgccggacggatcaacctt atcacccggcgacagcggcgtggcatcccttcgaagactcgacccccgtctttacac cggagatttatgtccggaaacaggacacgtttataaacagaatccgaactcgattga cgcgcgtatcactccatcagccttcttcccgacggagctgtctttaatggcgagg aggactgtgcggggactgcacgaccaatcatttgcgcgcagatctttacccgaatt atctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaacc agtccgtcaaagtggcgggcgccgattacgatcagtagcagcagcattaccaag cgctactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccgtat tccgttaaccctgaccaataacggtggcaattcgtatagcttcaggtagcgtcgactc ggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctccc gagcgtagcgagcacgatccgtgtgaccagggccgcagcttgataa
94	GOh2015	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAACAIPTSGRVLWSSYRNDAAEGSPG GITLTSSWDPTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
95	GOh2016	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgacagcggcaacgagtgcaataaagccatcgacggca ataaagacacctctggcacacgtttatggcgcaaatggcgacccgaagccaccgca tactatatacattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgcccgctcacgaggtatatttaagctcc gacggcaccaactggggatccccggcgctggcgagctggctgccgacagcac caccaagtattccaattttgaaacccgctctgcacgctacgtgcttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgattccaagccag ctctataccgcgcgcagccaggaacttggcggtggggcccgaccatcgacctgcc tatcgtaccgcgagccgcggcgattgaaccaacgtcagggcgctactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttggatccatccacgggcacgtctccgacggtagcgtgacgtcacgaaacac gacatgttttggcgggatcagcatggacggcaacggccagatcgctgacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggcccggacatgcaggtggcagcgggtaccagtcacgcgcgacatgtcagac ggccgtgtctttacaatcgcgcgctcatttagtggcgagtggttgagaagaatggcga agtctatagcccctcatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccgaacaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattgtgatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcg cgtggcgccggacgcaatgtcgcgcaatgccgtgatgtatgacgggtcaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcggtcca atggcctctatttcgcgcgtacctttcatactcggtggctctgcggacggatcaacct ttatcaccggcgacagcgcggtggcatcccctcgaagactcgacccccgtctttac accggagatttatgtgccggaacagacagcttttataacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttctccggacggcgtgtctttaatggcgga gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctcaaatggggcgccgattacgatcagtagcagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtcacaacggaccagcgccg tattccgttaacctgaccaataacggtggcaattcgtatagctccaggtaccgtcgga ctcgggcggtggcgctgccaggatactggatgctgttggatgaatagcgcgggcgctc ccgagcgtagcgagcacgatccgtgtgaccaggccgcagcttgataa

96	GOh2016	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDGTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
97	GOh2017	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcgcag ccatatgggtaccgctctgccccatcggtcagccatcccgcgaataactggcc gtaacgtgcgacagcgcgagcggaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgtttatggcgcaaatggcgacccgaagccaccga tactataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cggcagcagcgaatcagaacggatggatcgccgctcagcaggtatatttaagctcc gacggcaccgaactgggatccccggctcgcgtcggcgagctggttcgcgcagcagc caccaagtattccaattttgaaaccgctcctgcacgctacgtgcgcttagtgccgtgac agaggcgaacggccagccatggacccaatcgccgaaatcaatgtattccaagccag ctctataccgcgcgcagccagcacttggcggttggggcccgaccatcgacctgcc tctgtaccgcgcgcgacttattgaaccaacgtcagcccgctactgatgtggagc agctaccgtaacgacgcggcggaaggcagccggcgccatcactctgacgtcga gttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacacg acatgttttgccggggatcagcatggacggcaacggccagatcgtcgtcacggcg gctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc gggccggacatgcaggtggcacgcgggtaccagtcagcgccagcatgcagacg gccgtgtctttacaatcgggcgctcatttagtggcgagtggttgagaagaatggcgaa gtctatagcccctcatcaaaacgtggacgtcacttcgaacgcgaaggtgaatccat gttaacgccgacaaaacaggcctgtacatgagcgacaacctgcgtggctgttcgg ctggaagaaggggagcgtcttcaggcgggcccgctcagccgaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcgaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgatgacgcggtcaaaggcaa gatcctgacatttgccgggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattacccttggggagccgggacgagcccgaacacggctcttcgcgtccaat ggccctctatttcgcgctacctttcatatcgtcgggtgtcctgccggacggatcaacctt atcaccggcgacagcgccgtggcatcccttcgaagactcgacccccgtctttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattga cgcgcgtatcactccatcagccttcttcccggacggacgtgtctttaatggcgagg aggactgtgcgggactgcacgaccaatcatttgacgcgcagatcttaaccgaatt atctgtatgattcaaatgggaatctcgcgacccgtccgaaaattaccgtacatcaacc

		agtcggtcaaagtggcgggccgcaattacgatcagtagccgacagcagcattaccaag cgtcactgattcggttacggcaccgcaaccatacagtaacacggaccagcgccgtat tccgttaaccctgaccaataacgggtggcaattcgtatagcttcagggtaccgtcggactc ggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctccc gagcgtagcgagcacgatccgtgtgaccagggccgcagcttgataa
98	GOh2017	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFQASSYTAPQPGLGRW GPTIDLPIVPAAAIIPTSGRVLMWSSYRNDAAEGSPGG ITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNGQ IVVTGGWDAKKTSLYDSSSDSWIPGPDQMVARGYQSS ATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSLP NAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQA GPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAMC GNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITLG EPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGGQR RGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYHSIS LLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLYDS NGNLATRPKITRTSTQSVKVGGITISTDSSITKASLIRY GTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGVAL PGYWMLFVMNSAGVPSVASTIRVTQAAA
99	GOh2018	atgggcagcagccatcatcatcatcacagcagcgccctgggtccgcgcggcag ccatatgggtaccgcctctgccctatcggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgttttatggcgcaaatggcgaccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactgggatccccggtcgctcggcgagctggttcgccgacgacac caccaagtattccaattttgaaacccgtcctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctcctataccgcgccgcagccaggacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttccccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggccggacatgcaggtggcacgcgggtaccagtccagcgccacctgtcagac ggcgtgtctttacaatcggcggtcatttagtggcggagtgtttgagaagaatggcga

		agtcctatagcccctcatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgacagccagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcggcggacgcaatgtgcggcaatgccgtgatgtatgacgcggcaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacggcttccgctcca atggcctctatttgcgcgtacctttcatacgtcgggtgctcctgccggacggatcaacct ttatcacggcggacagcgcgtggcatcccccttgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttcccggacggacgtgtctttaatggcggag gaggactgtgcgggactgcacaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgacatcaac ccagtcctgcaaatggggcggccgacattacgacgtaccgacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacaggaccagcgcgg tattccgttaaccctgaccaataacgggtggcaattcgtatagcttccaggctaccgtcggg ctcgggctggcgtgccaggatactggatgctgtttgtgatgaatagcgcgggctgc ccgagcgtagcggagcacgatccgtgtgaccaggccgcagcttgataa
100	GOh2018	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADSQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

101	GOh2019	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgcctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgctcgggcagctggttcgccgacgacac caccaagtattccaatttgaaccggcctcgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaatcaatgtattccaagccag ctcctataccgcgccgagccaggacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccagattcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgacctcacgaaacac gacatgttttggcgggatcagatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggtccc ggggccggacatgaggtggcacgcgggtaccagtcagcgccatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagcccccatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgtaaccgcccgaacagggcctgtacatgagcgacaacctgcgtggtgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattgtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcgg cgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagccccgaacagggtcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgccgacggatcaacct ttatcacggcgcgacagcgccgtggcatccccctcgaagactcgacccccgtctttac accggagatttatgtgccggaacaggacacgttttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttctccggacggacgtgtctttaatggcgag gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgcatcaaac ccagtcctcaaatggggcgccgcattacgatcagtagcagacagcattaccaaa agcgtcactgattcgttacggcacgcgaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaattcgtagcttccaggtaccgtcgga ctcgggctgtggcgctgccaggatactggatgctgtttgtgatgaatagcggggcgtc ccgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
102	GOh2019	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAAAAIEPDSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
103	GOh2020	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgcataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgcgtcgggcagctggttcgccgacagcac caccaagtattccaatttgaaccggctctgcacgtacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaatcaatgtattccaagccag ctctataccgcgccgagccaggaactggggcttggggcccgaccatcgacctgcc tatctacccgcagccgcggcgattgaaccacagtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacac gacatgttttggcgccggtacgcatggacggcaacggccagatcgctgcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacgttgatccc ggggccggacatgcaggtggcagcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcgggcgtcatttagtggcggagtgttgagaagaatggcga agtctatagccccatccaaaacgtggacgtcacttccgaacggaaggtaatccc atgttaaccgcccgaacaacaggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgaatgaattgttatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcgg cgtggcggcgacgcaatgtgcggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtcacgcgacaaccaatg cccacattattacccttggggagccggggacgagccccgaacacggcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgccgacggatcaacct ttatcacggcgacagcgcgggtggcatccccctgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttccggacggacgtgtctttaatggcggag gaggactgtgcggggactgcacgaccaatcattttacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctgcaaatggcgccgcattacgatcagtcacgacgacgattaccaa agcgtcactgattctgtacggcaccgcaaccatacagtcacacggaccagcgccg tattccgttaaccctgaccaataacggtggcaaltcgtatagcttccaggtaccgtcgga ctcgggcgtggcgtgccaggatactggatgctgtttgtgatgaatagcgcggcgctc ccgagcgtagcagcacgatccgtgtgacccaggccgcagcttgataa
104	GOh2020	MGSSHHHHHSSGLVPRGSHMGTSAPIGSAIPRNNW AVTCDASQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAAAAIEPQSGRVLMWSSYRNDAAEGSPG GITLTSSWDPTSGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPLMTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPGDRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGLLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
105	GOh2021	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgacagcggcaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgtttatggcgcaaatggcgacccgaagccaccgca tactatatacattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggaatcagaacggatggatcgccgctcacgaggtatatttaagctcc gacggcaccaactggggatccccggcgctcggtcggtcgccgacagcac caccaagtattccaattttgaaaccgctctgcacgctacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgattccaagccag ctctataccgcgccgagccagacttggcggtggggcccgaccatcgacctgcc tategtaccgcgagccgcggcgattgaaccaattcaggccgcgtactgatgtggagc agctaccgtaacgacgcggcggaaggcagccccggcgccatcactctgacgtcga gttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacacg acatgttttggccggggatcagcatggacggcaacggccagatcgtcgtcacggcg gctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc gggccggacatgcaggtggcacgcgggtaccagtcagcgccacatgacagacg gccgtgtctttacaatcgccggtcatttagtggcgaggtgtttgagaagaatggcgaa gtctatagcccctcatcaaaacgtggacgtcacttccgaacgcgaaggtgaatccat gftaacgccgacaaaacagggctgtacatgagcgacaacatcgctggctgttcgg ctggaagaaggggagcgctttcagcggggcccgtcgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgatgacgcggtcaaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtccaat ggctctatttcgcggtacctttcatactcggtggtcctgccggacggatcaaccttt atcaccggcgacagcgccgtggcatcccttcgaagactgacccccgtctttacac cggagatttatgtccggaaacaggacacgtttataaacagaatccgaactcgattgta cgcgctatcactccatcagccttcttctccggacggacgtgtctttaatggcgagg aggactgtgcggggactgcacgaccaatcattttgacgcgcagatcttaccgccgaatt atctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaaccc agtccgtcaaagtggcgggccgcaattacgatcagtagcagcagcattaccaag cgctactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccgtat tccgttaaccctgaccaataacggtggcaattcgtatagcttcaggtaccgtcggactc gggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctccc gagcgtagcagcagcagatccgtgtgaccaggccgcagcttgataa

106	GOh2021	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAAAAIEPISGRVLMWSSYRNDAAEGSPGG ITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNGQ IVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQSS ATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSLP NAKVNPMLTADKQGLYMSDNHAWLFGWKKGSVFQA GPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAMC GNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITLG EPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFTITGGQR RGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYHSIS LLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLYDS NGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLIRY GTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGVAL PGYWMLFVMNSAGVPSVASTIRVTQAAA
107	GOh2022	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagcggaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cggcagcagcgaatcagaacggatggatcgccgtcagcaggtatatttaagctcc gacggcaccgaactgggatccccggctcgctcgggcagctggttcggcagcagc caccaagtattccaattttgaaacccgctctgcacgctacgtgcgcttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctctataccgcggccagccagcacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaacaaaaatcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagccccggcgggcatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacac gacatgtttgccccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggcccggacatgcaggtggcacgcgggtaccagtcacgcgacccatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagccctcatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaacagggcctgtacatgagcgcacaacctgcgtggctgttcg gctggaagaaggaggagcgtctttcaggcgggcccgctcgaccgaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcgccggacgcaatgtcgggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcggtggtcctgcggacgcatcaacct ttatcaccggcgacagcgccgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccccgacggagcgtgtctttaatggcggag gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatcttaccgccaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgcatatcaac

		ccagtcctcaaaagtgggcgccgcattacgatcagtagccagacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccg tattccgtfaaccctgaccaataacgggtggcaattcgtatagcttccaggtaccgtcgga ctcgggctggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggctc ccgagcgtagcagcacgatccgtgtgacccaggccgcagcttgataa
108	GOh2022	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPKSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
109	GOh2023	atgggcagcagccatcatcatcatcacagcagcgccctgggtccgcgcgcgcag ccatatgggtaccgcctctgccctatcggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatattaaagctcc gacggcaccaactgggatccccggtcgcgtcgggcagctgttcgccgacagcac caccaagtattccaatttgaaacccgtcctgcacgtacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaatcaatgtattccaagccag ctcctataccgcgccgagccaggaactgggcgttggggcccgaccatgcacctgcc tactgtatgtgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggagc agctaccgtaacgacgcggcggaaggcagccccggcgccatcactctgacgtcga gttgggatccatccacgggcatcgtctccaccgcaccgtgaccgtcacgaaacacg acatgtttgccccgggatcagcatggacggcaacggccagatcgtcgtcacgggcg gctgggacgccaagaagacagcctctatgacagtagcagcgacagttggatcccg gggcccggacatgcaggtggcacgcgggtaccagtccagcgccaccatgtcagacg gccgtgtctttacaatcgccggctcatttagtggcgagtggttgagaagaatggcgaa

		gtctatagcccctcatccaaaacgtggacgtcacttccgaacgcgaagggtgaatcccat gttaaccgccgacaaacagggcctgtacatgagcgacaaccatgcgtggctgttcgg ctggaagaaggggagcgtcttfcaggcggggcccgctcgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtcaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgcgcgacaaccaatgc ccacattattacccttggggagccgggacgagcccgaacacggcttctgcgtccaat ggcctctatttcgcgctaccttccatacgtcggtgtcctgccggacggatcaacctt atcacccggcgacagcgccgtggcatccccctcgaagactcgacccccgtctttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgta cgcgcgtatcactccatcagccttcttcccggacggacgtgtctttaatggcggagg aggactgtgcgggactgcacgaccaatcatttgcgcgcgacatctttaccccgaatt atctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaacc agtccgtcaaagtggcgccgcattacgatcagaccgacagcagcattacaaag cgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccgtat tccgttaaccctgaccaataacgggtggcaattcgtatagcttcaggtaaccgtcggactc gggcgtggcgctccaggatactggatgctgttggatgaatagcgcgggcgtccc gagcgtagcgcgacgatccgtgtgaccaggccgcagcttgataa
110	GOh2023	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVCAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

111	GOh2025	atgggcagcagccatcatcatcatcacagcagcggcctgggtgccgcgcggcag ccatatgggtaccgcctctgcccctatcggtcagccatccccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggctcgcgcggcagctggttcgccgacagcac caccaagtattccaatttgaaccggctctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaatcaatgtattccaagccag ctctataccgcgcgcagccaggacttggcggttggggcccgaccatgcacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcagccgcgtactgattgggag cagctaccgtaacgacgcggcggaaggcagcccgggcgcatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgacctcacgaaacac gacatgttttggcgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttgatccc ggggccggacatgaggtggcacgcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagcccccatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgtaacctggacaaacagggcctgtacatgagcgacaacctgcgtggtgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattgtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcgg cgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagccccgaacacgggtcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgccgacggatcaacct ttatcacggcgcgacagcgcggtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtgccggaacaggacacgttttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttctccggacggacgtgtctttaatggcggag gaggactgtgcgggactgcacgaccaatcatttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtagatcaac ccagtcctcaaatggggcgccgacattacgatcagtagcagacgacattaccaa agcgtcactgattcgttacggcacgcgaaccatacagtaaacaggaccagcgccg tattccgttaacctgaccaataacggtggcaattcgtagcttccaggtaccgtcgga ctcgggctgtggcgctgccaggatactggatgctgtttgtatgaatagcggggcgctc ccgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
112	GOh2025	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDA AEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS L PNAKVNPM LTL DKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAV MYDA VKGKILTFGGSPDYTDS DATTN AHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPD GSTFITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
113	GOH2026	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgcataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtcctgtgcgcg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgcgtcgggcagctggttcgccgacagcac caccaagtattccaatttgaaccggctcgtcacgctacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaatcaatgtattcaagccag ctctataccgcggcgagccaggacttggcggtggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgctactgatgtggag cagctaccgtaacgacgcggcggaaggcagccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacac gacatgtttgcccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacgttgatccc ggggccggacatgcaggtggcacgcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcggcggctcatttagtggcgagtggttgagaagaatggcga agtctatagccctcatccaaaacgtggacgtcacttccgaacggaagtgatccc atgttaaccgcccgaacaacaggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgaatgaattgtatt acacgtcaggaagcggggacgtgatctcagccggcaagcggcagtcgaaccgcgg cgtggcggcgacgcaatgtgcggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacggcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgcgacggatcaacct ttatcacggcgagacgcgcgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttccggacggacgtgtctttaatggcggag gaggactgtgcggggactgcacgaccaatcattttacgcgcagatctttacccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctcgaaaattaccgtacatcaac ccagtcctgcaaatgggcggccgacattacgatcagtagcagcagcattaccaa agcgtcactgattctgtacggcaccgcaaccatacagtcacacggaccagcgccg tattccgttaaccctgaccaataacggtggcaaltcgtatagcttccaggtaccgtcgga ctcgggcgtggcgctgccaggatactggatgctgtttgtgatgaatagcgcggcgctc ccgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
114	GOH2026	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDASQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPLMTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVISAGKRQSNRGVAPDAMC GNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITLG EPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGGQR RGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYHSIS LLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLYDS NGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLIRY GTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGVAL PGYWMLFVMNSAGVPSVASTIRVTQAAA
115	GOh2027	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgacagcggcaacgagtgcaataaagccatcgacggca ataaagacacctctggcacacgtttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgctcacgaggtatatttaagctcc gacggcaccaactggggatccccggcgctggcgagctggctgccgacagcac caccaagtattccaattttgaaacccgctctgcacgctacgtgcttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgattccaagccag ctctataccgcgcccagccagcacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcgagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccagggcatcgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttggccgggatcagcatggacggcaacggccagatcgctgacaggcc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggcccggacatgcaggtggcagcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcgcgcgctcatttagtggcgagtggttgagaagaatggcga agtctatagcccctcatccaaacgtggacgtcacttccgaacgcgaagtgatccc atgttaaccgcccagacaacaggcgctgtggatgagcgacaacctgcgtggctgttc ggctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtat tacacgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcg gcgtggcgccggacgcaatgtcgggcaatgccgtgatgtatgacgggtcaaaaggc aagatcctgacatttggcgggagtcgggactacaccgacagtgacgcgacaaccaat gcccacattattacccttggggagccggggacgagcccgaacacggcttccgctcc aatggcctctatttcgcggtacctttcatacgtcgggtgctcctgccggacggatcaacc ttatcacggcgggacagcggcggtggcatccccttgaagactcgacccccgtctttac accggagatttatgtgccggaacaggacacgttttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttctccggacggagctgtctttaatggcgag gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctcaaaagtggcgggccgcatcagatcagtagcagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtcacaacggaccagcgccg tattccgttaaccctgaccaataacgggtggcaattcgtatagctccaggtaccgtcgga ctcgggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctc ccgagcgtagcgagcacgatccgtgtgacccagggccgagcttgataa

116	GOh2027	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVNPMLTADKQGLWMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
117	GOh2028	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagcggaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctccg cgccagcagcgaatcagaacggatggatcgccgctcagcaggtatatttaagctcc gacggcaccgaactgggatccccggctcgctcgggcagctggttcggcagcagc caccaagtattccaattttgaaaccgctctgcacgctacgtgcgcttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctctataccgcgcccagccagcacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcagccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagccccggcgccatcactctgacgtcg agtgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttggccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggccggacatgcaggtggcacgcgggtaccagtcacgcgacccatgtcagac ggcctgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagcccccatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaacagggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcgccggacgcaatgtcgggcaatgccgtgatgtatgacgcggcgaagga agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcggtggtcctcgccgacggatcaacct ttatcaccggcgacagcgccgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccccggacggagctgtcttaattggcggag gaggactgaaaggggactgcacgaccaatcatttgacgcgcagatcttaccggaa ttatctgtatgatcaaatgggaatctcgcgaccgctccgaaaattaccgcatcaaac

		ccagtcctgcaaaagtgggcgccgcattacgatcagtagccgacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccg tattccgttaaccctgaccaataacggtggcaattcgtatagcttcaggtagcgtcgga ctcgggctggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggctgc ccgagcgtagcagcacgatccgtgtgacccaggccgcagcttgataa
118	GOh2028	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLKGDCCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
119	GOh2029	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcgcag ccatatgggtaccgcctctgccctatcggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatattagctcc gacggcaccaactgggatccccggtcgcgtcgggcagctggttcgccgacagcac caccaagtattccaattttgaaacccgtcctgcacgtacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctcctataccgcgccgcagccaggacttggcggttggggcccgaccatgcacctgcc tactgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacac gacatgttttccccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggccggacatgcaggtggcacgcgggtaccagtccagcgccacctgtcagac ggccgtgtctttacaatcggcggtcatttagtggcggagtgtttgagaagaatggcga

		agtcctatagcccctcatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcggccggacgcaatgtgcggcaatgccgtgatgtatgacgcggcgaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtcca atggcctctatttcgcggtacctttcatacgtcgtgtgctcctgccggacggatcaacct ttatcacgcggcgacgcgcgtggcatcccccttgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttcccggacggacgtgtctttaatggcggag gaggactgcgtggggactgcacaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgcatatcaac ccagtcctcaaatggggcgccgacattacgacgtaccgacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaattcgtatagcttccaggctaccgtcggg ctcgggctggcgctgccaggatactggatgctgtttgtgatgaatagcggggcgtc ccgagcgtagcgagcacgatccgtgtgaccaggccgcagcttgataa
120	GOh2029	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS L PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLRGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

121	GOh2030	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgcctctgcccctatcggtcagccatccccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacaccttctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcagaggtatatttaagctcc gacggcaccaactggggatccccggtcgctcgggcagctggttcgccacagcac caccaagtattccaatttgaaccggctctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaatcaatgtattccaagccag ctcctataccgcgccgagccaggaacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcagccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccgggcgcatcactctgacgtcg agttgggatccatccacgggcatcgtccgaccgcaccgtgacctcagaaaacac gacatggaatccccgggatcagcatggacggcaacggccagatcgtcgtcacggg cggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggtacc cggggccggacatgcaggtggcacgcgggtaccagtcagcgcgacctgtcaga cggccgtgtctttacaatcgcggtcatttagtgccggagtggttgagaagaatggcg aagctatagccccctatccaaacgtggacgtcacttccgaacgcgaaggtgaatcc catgttaaccgccgacaaacagggcctgtacatgagcgacaacctgcgtggtgttc ggctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtat tacacgtcagggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcg gcgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgggtcaaaggc aagatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaat gcccacattattacccttggggagccggggacgagcccgaaacacggctcttcgcgtcc aatggcctctatttcgcgctacctttcatacgtcgggtgctcctccggacggatcaacc tttatcaccggcgacagcgcctggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgttttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttctccggacggacgtgtctttaatggcggag gaggactgtgcggggactgcacgaccaatcatttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgcatcaac ccagtcctcaaatggggcgccgcattacgatcagtagcagacagcattacca agcgtcactgattcgttacggcacgcgaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacgggtggcaattcgtagcttccaggtaccgtcgga ctcgggctgtggcgtgccaggatactggatgctgttgtgatgaatagcggggcgctc ccgagcgtagcggagcacgatccgtgtgacccaggccgcagcttgataa
122	GOh2030	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPTGIVSDRTVTVTKHDMCECPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGTSTFITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
123	GOh2031	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgcaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgcgtcgggcagctggttcgccgacagcac caccaagtattccaattttgaaacccgtctgcacgtacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgtattccaagccag ctctataccgcgccgagccaggaacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgctactgatgtggag cagctaccgtaacgacgcggcggaaggcagccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacac gacatgtattgccccgggatcagcatggacggcaacggccagatcgtcgcacggg cggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggtacc cggggccggacatgcaggtggcacgcgggtaccagtccagcgcgacctgtcaga cggccgtgtctttacaatcgccggctcatttagtggcgagtggttgagaagaatggcg aagctatagccccctatccaaaacgtggacgtcacttccgaacgcgaaggtgaatcc catgttaaccgccgacaaacagggcctgtacatgagcgacaacctgcgtggctgttc ggctggaagaaggggagcgtcttcaggcgggcccgtcgaccgcaatgaattggtat tacacgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcg gcgtggcgccggacgcaatgtcggcaatgccgtgatgtatgacgggtcaaaggc aagatcctgacatttggcgggagtcggactacaccgacagtacgcgcgacaaccaat gcccacattattaccttggggagccggggacgagcccgaaacacggcttccgcgtcc aatggcctctatttcgcgctacctttcatacgtcgggtgctcctccggacggatcaacc tttataccggcgacagcgcgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccggacggacgtgtctttaatggcgag gaggactgtcggggactgcacgaccaatcattttacgcgcagatctttacccgaa ttatctgtatgattcaaatgggaatctcgcgaccgtccgaaaattaccgtacatcaac ccagtcctgcaaatggcgccgcattacgatcagtagcagcagcattaccaa agcgtcactgattctgtacggcaccgcaaccatacagtcacacggaccagcgccg tattccgttaaccctgaccaataacgggtggcaaltcgtatagctccaggtaccgtcgga ctcgggcgtggcgctgccagatactggatgctgtttgtgatgaatagcgcggcgctc ccgagcgtagcgagcacgatccgtgtgaccaggccgcagcttgataa
124	GOh2031	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDASQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPTGIVSDRTVTVTKHDMYCPCGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPLMTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
125	GOh2032	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgacagcggcaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tactatatacattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggaatcagaacggatggatcgccgctcacgaggtatatttaagctcc gacggcaccactggggatccccggcgctggcgagctggctgccgacagcac caccaagtattccaattttgaaacccgctctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgattccaagccag ctctataccgcgcccagccagcacttggcggtggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttggccgggacagcatggacggcaacggccagatcgctgacaggcc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggcccggacatgcaggtggcagcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcgcgcgctcatttagtggcgagtggttgagaagaatggcga agtctatagcccctcatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaacaggcgctgtacatgagcgacaagcatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgcaatgaattgtgatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcg cgtggcgccggacgcaatgtcgcgcaatgccgtgatgtatgacgggtcaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcggtcca atggcctctatttcgcgctacctttcatacgtcggtggtctgcggacggatcaacct ttatcaccggcgacagcgcggtggcatccccctcgaagactcgacccccgtctttac accggagatttatgtgccggaacaggacacgttttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttccccggacggcgtgtctttaatggcgga gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctcaaatggggcgccgcatcagatcagtagcagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtcacaacggaccagcgccg tattccgttaaccctgaccaataacggtggcaattcgtatagctccaggtaccgtcgga ctcgggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgggcgctc ccgagcgtagcgagcacgatccgtgtgaccaggccgcagcttgataa

126	GOh2032	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVNPMILTADKQGLYMSDKHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
127	GOh2033	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagcggaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctcgg cggcagcagggcaatcagaacggatggatcgccgctcagcaggatatttaagctcc gacggcaccgaactggggatccccggctcgcgtcggcgagctggttcggcagcagc caccaagtattccaattttgaaaccgctctgcacgctacgtgcgcttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctctataccgcggccagccagcacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcagccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagccccggcgcgcatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttggccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggcccggacatgcaggtggcacgcgggtaccagtcacgcgacccatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagcccccatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaacagggcctgtacatgagcgaccgtcatcggtgctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattggtatt acacgtcagggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcgccggacgcaatgtcgggcaatgccgtgatgtatgacgcgggtcaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgcgacggatcaacct ttatcaccggcgacagcgccgtggcatccccctcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccccggacggagctgtctttaatggcgga gaggactgtcggggactgcacgaccaatcatfttgacgcgcagatcttaccggaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgcatcaaac

		ccagtcctgcaaaagtgggcgccgcattacgatcagtagccagacagcagcattacca agcgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccg tattccgtfaaccctgaccaataacggtggcaattcgtatagcttccaggtagcgcgga ctcggcgctggcgctgccaggatactggatgctgtttgtgatgaatagcgcggcgctc ccgagcgtagcagcacgatccgtgtgacccaggccgcagcttgataa
128	GOh2033	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDRHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
129	GOh2034	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcgcag ccatatgggtaccgcctctgccctatcggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgtttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatattagctcc gacggcaccaactgggatccccggtcgcgtcggcgagctggttcgccgacagcac caccaagtattccaattttgaaacccgtcctgcacgtacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctcctataccgcgccgagccaggacttggcggttggggcccgaccatgcacctgcc tactgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacac gacatgttttccccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacccaagaagacgagcctctatgacagtagcagcgacagttgatccc ggggccggacatgcaggtggcacgcgggtaccagtccagcgccacctgacgac ggccgtgtctttacaatcggcggtcatttagtggcgagggtgttgagaagaatggcga

		agtcctatagcccctcatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaaacagggcctgtacatgagcgactggcatgctggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcggccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtcaaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacggcttccgctcca atggcctctatttgcgcgtacctttcatacgtcgtgtgctcctgccggacggatcaacct ttatcacggcggacagcgcctgtggcatcccccttgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttcccggacggacgtgtctttaatggcggag gaggactgtgcgggactgcacaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgacatcaac ccagtcctcaaatggggcggccgacattacgacgtaccgacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacaggaccagcgcgg tattccgttaaccctgaccaataacgtggcaattcgtatagcttccaggctaccgtcgg ctcgggctgtggcgtgccaggatactggatgctgtttgtgatgaatagcgcgggctc ccgagcgtagcggagcacgatccgtgtgaccaggccgcagcttgataa
130	GOh2034	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS L PNAKVNPMILTADKQGLYMSDWHAWLFGWKKGSVFQ AGPSTAMNWWYYSYSGSDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

131	GOh2037	atgggcagcagccatcatcatcatcacagcagcggcctggcgccgcggcag ccatatgggtaccgcctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatattaaagtcc gacggcaccaactggggatccccggtcgctcgggcagctggttcgccacagcac caccaagtattccaatttgaaccggctctgcacgctacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaatcaatgtattccaagccag ctctataccgcgccgagccagacttggcggttggggcccgaccatgcacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtacggccgctactgattgggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacac gacatgttttggcgggatcagatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttgatccc ggggccggacatgaggtggcacgcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagcccccatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgtaaccgcccgaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattgtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcgg cgtggcgccggacgcaatgtcgcgcaatgccgtgatgtatgacgggtcaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagccccgaacacgggtcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgccgacggatcaacct ttatcacggcgcgacagcgcggtggcatccccgtgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgttttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttctccggacggacgtgtctttaatggcggag gaggactgtcggggactgcacgaccaatcatttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtagatcaac ccagtcctcaaatggggcgccgcattacgatcagtagcagacagcattaccaa agcgtcactgattcgttacggcacgcgaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaattcgtagcttccaggtaccgtcgga ctcgggctgtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgtc ccgagcgtagcggagcacgatccgtgtgacccaggccgcagcttgataa
132	GOh2037	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDA AEGSPG GITLTSSWD PSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPD MQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAV MYDA VKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPD GSTFITGG

		QRRGIPREDSTPVFTPEIYVPEQDTFYKQNPNSIVRA YH SISLLLPDGRVFNNGGGLCGDCTTNHFDQAIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
133	GOh2038	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtcaataaagccatcgacggca ataaagacacctctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtcctgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgcgtcgggcagctggttcgccgacagcac caccaagtattccaatttgaaccggctcgtcacgctacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaatcaatgtattcaagccag ctctataccgcggcgagccaggacttggcggtggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgctactgatgtggag cagctaccgtaacgacgcggcggaaggcagccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacac gacatgtttgcccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacgttgatccc ggggccggacatgcaggtggcacgcgggtaccagtcagcgccatgtcagac ggccgtgtctttacaatcggcggctcatttagtggcgagtggttgagaagaatggcga agtctatagccccatccaaaacgtggacgtcacttccgaacggaagtgatccc atgttaaccgcccgaacaacaggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtagccgaatgaattgttatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcgg cgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactactgggacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaaacacggcttcgcgtcca atggcctctatttcgcgctacatttcatacgtcgtgtgctcctccggacggatcaacct ttatcacggcgagacgcgcgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccggacggacgtgtctttaatggcgag gaggactgtgcggggactgcacgaccaatcattttacgcgcagatctttacccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctgcaaatggcgccgcattacgatcagtagcagcagcattaccaa agcgtcactgattctgtacggcaccgcaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaaltcgtatagcttccaggtaccgtcgga ctcgggcgtggcgctgccaggatactggatgctgttgtgatgaatagcgcggcgctc ccgagcgtagcgagcacgatccgtgtgaccaggccgcagcttgataa
134	GOh2038	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPLMTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYWDSDATNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
135	GOh2039	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgacagcggcaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggaatcagaacggatggatcgccggtcacgaggtatatttaagctcc gacggcaccaactggggatccccggcgctggcgagctggctgcggacagcac caccaagtattccaattttgaaacccgctctgcacgtacgtgcttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaatcaatgattccaagccag ctctataccgcgcccagccagcacttggcggtggggcccgaccatcgacctgcc tategtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcgaaaggcagccggcgccatcactctgacgtcga gttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacacg acatgttttggccggggatcagcatggacggcaacggccagatcgctgcacggcg gctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc gggccggacatgcaggtggcacgcgggtaccagtcagcgaccatgacagacg gccgtgtctttacaatcgcggtcatttagtggcgaggtgtttgagaagaatggcgaa gtctatagcccctcatcaaaacgtggacgtcacttccgaacgcgaaggtgaatccat gftaacgccgacaaaacaggcctgtacatgagcgacaacatcgctggctgttcgg ctggaagaaggggagcgctttcagcgggcccgctgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgatgacgcggtcaaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtccaat ggctctatttcgcggtacctttcatacgtcggtgtcctgccggacggatcaaccttt atcaccggcgacagcgccgtggcatcccctcgaagactgacccccgtctttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgta cgcgctatcactccatcagccttcttctccggacggacgtgtctttaatggcggagg aggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaaft atctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaaccc agtccgtcaaagtggcgggccgcaattacgatcagtagcagcagcattaccaag cgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccgtat tccgttaaccctgaccaataacggtggcaattcgtatagcttcaggtaccgtcggactc gggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcggcgctccc gagcgtagcagcagcagatccgtgtgaccagggcgagcttgataa

136	GOh2039	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAKGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGGLCGDCTTNHFDQAIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
137	GOh2041	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagcggaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctccg cggcagcagcgaatcagaacggatggatcgccgctcagcaggtatatttaagctcc gacggcaccgaactgggatccccggcgcgctggcgagctggttcggcgacagcagc caccaagtattccaattttgaaaccgctcctgcacgctacgtgcgcttagtgccgtgac agaggcgaacggccagccatggacccaatcgccgaaatcaatgtattccaagccag ctctataccgcgcccgagccagcacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcagcccgcggtgaaccaacgtcagcccgctactgatgtggag cagctaccgtaacgacggcggaaggcagccccggcgcgcatcactctgacgtcg agttgggatccatccacggcgatcgtctccgaccgcaccgtgaccgtcacgaaacac gacatgtttgccccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggcccggacatgcaggtggcagcggtaccagtcagcgacccatgtcagac ggccgtgtctttacaatcgcggtcacgtagtgccggagtggttgagaagaatggcg aagtctatagcccctatccaaaacgtggacgtcacttccgaacgcgaaggtgaatcc catgttaaccgccgacaaaacagggcctgtacatgagcgacaaccatcgctggctgttc ggctggaagaaggggagcgtcttcaggcgggcccgtcgaccgcaatgaattggtat tacacgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcg gcgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgggtcaaaaggc aagatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaat gccacattattacccttggggagccgggacgagccccaacacggcttcgcgtcc aatggcctctatttcgcgctaccttccatagtcgggtgctcctccggacggatcaacc ttatcacccggcgacagcgccgtggcatccccctcgaagactcgacccccgtcttac accggagatttatgtgccgaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccggacggagctgtcttaattggcggag gaggactgtgcggggactgcacgaccaatcatfttgacgcgcagatcttaccgccaa ttatctgtatgatcaaatgggaatctcgcgaccgctccgaaaattaccgcatcaaac

		ccagtcctgcaaaagtgggcgccgcattacgatcagtagccagacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacaggaccagcgccg tattccgtfaaccctgaccaataacgggtggcaattcgtatagcttccaggtagcgtcgga ctcggcgctggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctc ccgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
138	GOh2041	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSRSGGVFEKNGEVYSPSSKTWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
139	GOh2043	atgggcagcagccatcatcatcatcacagcagcgccctgggtccgcgcgcgcag ccatatgggtaccgcctctgccctatcggctcagccatcccgcgcaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgtttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatattaaagctcc gacggcaccaactgggatccccggtcgctcgggcagctggttcgccgacgacac caccaagtattccaattttgaaacccgtcctgcacgtacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctcctataccgcgccgagccaggaactgggcgttggggcccgaccatgcacctgcc tactgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttccccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggtatccg ggggccgacatgcaggtggcacgcgggtaccagtcagcgccaccatgtcagacg gccgtgtctttacaatcgccggctcatttagtggcgagtggttgagaagaatggcgaa

		gtctatagcccctcatccaaaacgtggacgtcactccgaacgcgaagggtgaatcccat gttaaccgccgacaaacagggcctgtacatgagcgacaaccatgcgtggctgttcgg ctggaagaaggggagcgtcttfcaggcggggcccgctcgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtcaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgcgcgacaaccaatgc ccacattattacccttggggagccgggacgagcccgaacacggcttccgctccaat ggcctctatttcgcgcgtaccttccatacgtcgggtgctctgccggacggatcaacctt atcacccggcgacagcgccgtggcatccccctcgaagactcgacccccgtctttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgta cgcgcgtatcactccatcagccttcttcccggacggacgtgtctttaatggcggagg aggactgtgcgggactgcacgaccaatcatttgacgcgcagatctttaccccgaaft atctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaacc agtccgtcaaagtggcgccgcattacgatcagtagcagcagcattaccaag cgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccgtat tccgttaaccctgaccaataacgggtggcaattcgtatagcttcaggtagcgtcggactc gggcgtggcgctccaggatactggatgctgtttgtgatgaatagcgcgggcgtccc gagcgtagcgcgacgatccgtgtgaccaggccgcagcttgataa
140	GOh2043	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWYPGPDQMVARGYQ SSATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS LPNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVF QAGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDA MCGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIIT LGEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

141	GOh2044	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccattctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacaccttctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagtcc gacggcaccaactggggatccccggtcgctcgggcagctggttcgccacagcac caccaagtattccaatttgaaccggcctcgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaatcaatgtattccaagccag ctctataccgcgccgagccaggacttggcggttggggcccgaccatgcacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtacggccgctactgattgggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgacctcacgaaacac gacatgttttcccggggtacgatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggtccc ggggccggacatgaggtggcacgcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagccccatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgtaaccgcccgaacaggcctgtacatgagcgacaacatgcgtggtgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattgtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcgg cgtggcgccggacgcaatgtcgcgcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagccccgaacagggtcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgccgacggatcaacct ttatcacggcgcgacagcgcggtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgttttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttctccggacggacgtgtctttaatggcggag gaggactgtcggggactgcacgaccaatcatttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtagatcaac ccagtcctcaaatggggcgccgcattacgatcagtagccagacagcattaccaa agcgtcactgattcgttacggcacgcgaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaattcgtagcttccaggtaccgtcgga ctcgggctgtggcgctgccaggatactggatgctgtttgtatgaatagcgcgggctc ccgagcgtagcggagcacgatccgtgtgacccaggccgcagcttgataa
142	GOh2044	MGSSHHHHHSSGLVPRGSHMGTHSAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDA AEGSPG GITLTSSWD PSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPD MQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS L PNAKVNPMLTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAV MYDAVKGKILTFGGSPDYTDS DATTN AHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPD GSTFITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
143	GOH2045	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgctctgcccctctggtgctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccggtcagaggtatatttaagctcc gacggcaccaactggggatccccggtcgcgtcgggcagctggttcgccgacagcac caccaagtattccaattttgaaaccgctctgcacgctacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaatcaatgtattcaagccag ctctataccgcgccgagccaggaacttggcggtggggcccgaccatcgacctgcc tatctaccgcagccgcggcgattgaaccaacgtcagccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacac gacatgttttggccgggatcagcatggacggcaacggccagatcgtcgtcagggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggccggacatgcaggtggcagcgggtaccagtcagcgccacatgtcagac ggccgtgtctttacaatcgggcgtcatttagtggcgagtggttgagaagaatggcga agtctatagccccatccaaaacgtggacgtcacttccgaacgcaagtgtaatccc atgttaaccgcccagacaacaggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgaatgaattgtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgagg cgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaaacacgggtcttcggtcca atggcctctatttcgcgctacctttcatacgtcgtgtgctcctcgccgacggatcaacct ttatcacggcgagacgcgcgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttccggacggacgtgtctttaatggcggag gaggactgtgcggggactgcacgaccaatcattttacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctgcaaatggcgccgcattacgatcagtagcagcagcattaccaa agcgtcactgattctgtacggcaccgcaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaaltcgtatagcttccaggtaccgtcgga ctcgggcgtggcgctgccagatactggatgctgtttgtgatgaatagcgcgggcgtc ccgagcgtagcgagcacgatccgtgtgaccaggccgcagcttgataa
144	GOH2045	MGSSHHHHHSSGLVPRGSHMGTASAPRGSaiprnnw AVTCDsAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAaaaIEPTSGRVLMWSSYRNDAaEGSPG GITLTSSWDpSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSlyDSSSDSWIPGpDMQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPLMTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNahiITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
145	GOh2046	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgcccctatgggtcagccatcccgccaataactgggcc gtaacgtgcgacagcgcgacagcggaacgagtgcaataagccatcgacggca ataaagacacctctggcacacgtttatggcgcaaatggcgacccgaagccaccgca tactatatacattgacatgaaaaccaccagaatgtgaacggcgctgcctgctgccg cgccaggacggaatcagaacggatggatggcgctcacgaggtatatttaagctcc gacggcaccaactggggatccccggcgctggcgagctggctgcggcacagcac caccaagtattccaattttgaaacccgctctgcacgctacgtgccttagtggccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgattccaagccag ctctataccgcgcccagccagcacttggcgctggggcccgaccatcgacctgcc tactgtaccgcgagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccgggcgcatcactctgacgtcg agttgggatccatccagggcatcgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttggcggggatcagcatggacggcaacggccagatcgctgcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggcccggacatgcaggtggcacgcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcgcgcgctcatttagtggcgagtggttgagaagaatggcga agtctatagcccctcatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaacaggcgctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgcaatgaattgttatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcg cgtggcgccggacgcaatgtcgcgcaatgccgtgatgtatgacgggtcaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcggtcca atggcctctatttcgcgctacctttcatactcggtggctctgcggacggatcaacct ttatcaccggcgacagcgccgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtgccggaacaggacacgttttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttctccggacggcgtgtctttaatggcgag gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctcaaatggcgggccgcatcagatcagtagcagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtcacacggaccagcgccg tattccgttaacctgaccaataacggtggcaattcgtatagctccaggtaccgtcgga ctcgggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctc ccgagcgtagcgagcacgatccgtgtgaccaggcccgagcttgataa

146	GOh2046	MGSSHHHHHSSGLVPRGSHMGTASAPMGSaiprnn WAVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDP KPPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHE VYLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARY VRLVAVTEANGQPWTSIAEINVQASSYTAPQPLGR WGPTIDLPIVPA AAAIEPTSGRVLmwssyrndaaegsp GGITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMdgn GQIVVTGGWDAKKTSlydsssdswipgpdmqvargy QSSATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWT SLPNAKVNpmlTADKQGLYMSDNHAWLFGWKKGSV FQAGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDA MCGNAVMyDAVKGKILTFGGSPDYTDSDATTNAHIIT LGEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLpDGRVFNgggGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRpkITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
147	GOh2047	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagcggaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctccg cgccagcagggcaatcagaacggatggatcgccgtcagcaggatatttaagctcc gacggcaccaactgggatccccggtcgctcgggcagctggtcgccgacagcagc caccaagtattccaattttgaaacccgctctgcacgctacgtgcgcttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctctataccgcgccgagccagcacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcgagccgcggcgattgaaccaacgtcagccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagccccggcggcacactctgacgtcg agtgggatccatccacgggcacgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttggccgggatcagcatggacggcaacggccagatcgctgcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggccggacatgcaggtggcacgcgggtaccagtcacgcgacccatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagccctcatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaacagggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgcaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcgccggacgcaatgtcgggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcgcgtcca atggcctctatttcgcgctacctttcatcgtcggtggtcctcgccgacgagatcaacct ttatcaccggcgacagcgccgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccccggacggacgtgtctttaatggcggag gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatcttaccgccaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtaacaaac

		ccaggatgtcaaaagtgggcgccgcattacgatcagtagccagacagcagcattacca agcgtcactgattcgttacggcaccgcaaccatacagtaacacggaccagcgccg tattccgttaaccctgaccaataacgggtggcaattcgtatagcttccaggtagcgcgga ctcgggctggcgctgccaggatactggatgctgttggatgaatagcgcgggctc ccgagcgtagcagcacgatccgtgtgacccaggccgcagcttgataa
148	GOh2047	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS L PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAV MYDAVKGKILTFGGSPDYTDS DATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPD GSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLL PDGRVFNGGGGLCGDCTTNHFD AQIFTPNYLY DSNGNLATRPKITRTSTQDVKVGGRITISTDSSITKASLI RYGTATHVTN TDQRRIP LTLNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
149	GOh2048	atgggcagcagccatcatcatcatcacagcagcgccctgggtccgcgcgcgag ccatatgggtaccgcctctgccctatcggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataagccatcgacggca ataaagacaccttctggcacacgtttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatattagctcc gacggcaccaactgggatccccggtcgcgtcgggcagctggttcgccgacagcac caccaagtattccaatttgaaccctcctgcacgtacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctcctataccgcgccgagccaggaactggcggttggggcccgaccatgcacctgcc tactgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacac gacatgttttccccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacccaagaagacgagcctctatgacagtagcagcgacagttggagccc ggggccggacatgcaggtggcacgcgggtaccagtccagcgcgacatgtcagac ggcgtgtctttacaatcggcggtcatttagtggcggagtgttgagaagaatggcgga

		agtctatagccctcatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgccgacaaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcagggcgcccgctgaccgcaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacggcttccgctcca atggcctctatttgcgcgtacctttcatacgtcgggtgctcctgccggacggatcaacct ttatcacggcgacagcgcctgtggcatcccccttgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccggacggacgtgtcttaattggcggag gaggactgtgcgggactgcacaccaatcatttgcgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtaacaa ccagtcctcaaatggggcgccgacattacgacgtaccgacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacgggtggcaattcgtatagcttccaggtaccgtcgga ctcggcgctggcgctgccaggatactggatgctgttggatgaatagcggggcgtc ccgagcgtagcgagcacgatccgtgtgaccaggccgcagcttgataa
150	GOh2048	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWSPGPDQMVARGYQ SSATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS LPNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVF QAGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDA MCGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIIT LGEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

151	GOh2050	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcggcgag ccatatgggtaccgcctctgcccctatcggtcagccatccccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacaccttctggcacacgccgtatggcgcaaatggcgacccgaagccaccg catacctataccattgacatgaaaaccaccagaatgtgaacgggctgccgtgctgcc gcgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagtc cgacggcaccaactggggatccccggctcgctcgggcagctggttcgccgacagca ccaccaagtattccaattttgaaacccgtctgcacgtacgtcgcttagtgccgtga cagaggcggaacggccagccatggacctcaatcgccgaaatcaatgtattccaagcca gtcctataccgcgccgacccaggacttggcggttggggcccaccatcgacctgc ctatcgtaccgcagccgcggcgattgaaccaacgtcagggcgctactgatgtgga gcagctaccgtaacgacgcggcggaaggcagccccggcgcatcactctgacgtc gagttgggatccatccacggcatcgtctccgaccgaccgtgacctacgaaaca cgacatgttttcccgggacagcatggacggcaacggccagatcgtcgtcacggg cggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttgatcc cggggccggacatgcaggtggcacgcgggtaccagtcagcgacacatgtcaga cggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcg aagtctatagccccctatccaaaacgtggacgtcacttccgaacgcgaaggtgaatcc catgttaaccgccgacaaacagggcctgtacatgagcgacaacctgcgtggctgttc ggctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtat tacacgtcagggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcg gcgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgggtcaaaggc aagatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaat gcccacattattacccttggggagccggggacgagccccgaacacggctcttcgcgtcc aatggcctctatttcgcgctacctttcatagctcgttggtcctgccgacggatcaacc tttatcaccggcgacagcgcctggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttctccggacggacgtgtctttaatggcgag gaggactgtgcggggactgcacgaccaatcatttgacgcgcagatctttacccgaa ttatctgtatgattcaaatgggaatctcgcgacccgtccgaaaattaccgtacatcaac ccagtcctgcaaatggggcgccgcattacgatcagtagcagcagcattaccaa agcgtcactgattcgttacggcacgcgaaccatacagtaaacaggaccagegcgg tattccgttaaccctgaccaataacggtggcaaltcgtagcttccaggtaccgtcgga ctcgggctgtggcgtgccaggatactggatgctgtttgtgatgaatagcgcgggctc ccgagcgtagcgagcacgatccgttgacccaggccgcagcttgataa
152	GOh2050	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTPYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGLSPG GITLTSSWDPTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGTFTITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
153	GOh2053	atgggcagcagccatcatcatcatcacagcagcggcctggcgccgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctatacattgacatgaaaaccaccagaatgtgaacgggctgtcctgtgctccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgcgtcgggcagctggttcgccgacagcac caccaagtattccaattttgaaacccgtctgcacgtacgtgccttagtgccgtgc gtgaggcgaacggccagccatggacctcaatgccgaataatgtattccaagcca gtcctataccgcggcgagccaggacttggcggtggggcccaccatcgacctgc ctatctatccgcagccgcggcgattgaaccaacgtcagggcgctactgatgtgga gcagctaccgtaacgacgcggcggaaggcagccccggcgccatcactctgacgtc gagttgggatccatccacgggcatcgtctccgaccgaccgtgaccgtcacgaaaca cgacatgttttcccgggatcagcatggacggcaacggccagatcgtcgtcacggg cggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggtacc cggggccggacatgcaggtggcacgcgggtaccagtccagcgcgaccatgtcaga cggccgtgtctttacaatcggcggtcatttagtgccggagtggttgagaagaatggcg aagctatagccccctatccaaaacgtggacgtcacttccgaacgcgaaggtgaatcc catgttaaccgccgacaaacagggcctgtacatgagcgacaacatcgctggctgttc ggctggaagaaggggagcgtctttcaggcgggcccgctgaccgcaatgaattggtat tacacgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcg gcgtggcgccggacgcaatgtcggcaatgccgtgatgtatgacgggtcaaaaggc aagatcctgacatttggcgggagtcggactacaccgacagtacgcgcgacaaccaat gcccacattattaccttggggagccggggacgagccccaacacggctcttcgcgtcc aatggcctctatttcgcgctacctttcatacgtcgggtgctcctccggacggatcaacc tttatcaccggcgacagcgcgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccggacggacgtgtctttaatggcgag gaggactgtcggggactgcacgaccaatcattttacgcgcagatctttacccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctgcaaaagtggcgccgcattacgatcagtagcagcagcattaccaa agcgtcactgattctgtacggcaccgcaaccatacagtcacacggaccagcgccg tattccgttaacctgaccaataacggtggcaaltcgtatagctccaggtaccgtcgga ctcgggctgtggcgtgccaggatactggatgctgtttgtgatgaatagcggggcgtc ccgagcgtagcgagcacgatccgtgtgacctaggccgcagcttgataa
154	GOh2053	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDASQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVREANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPLMTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
155	GOh2055	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgacagcggcaacgagtgaataaagccatcgacggca ataaagacacctctggcacacgtttatggcgcaaatggcgacccgaagccaccgca tactatatacattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatggccgctcacgaggtatatttaagctcc gacggcaccaactggggatccccggcgctggcgagctggctgccgacagcac caccaagtattccaattttgaaacccgctctgcacgctacgtgccttagtggccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgattccaagccag ctctataccgcgccgagccaggaacttggcgctggggcccgaccatcgacctgcc tatcgtaccgcagccgggtgcgattgaaccaacgtcaggcccgctactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgacctgcacgaaacac gacatgttttggccgggacagcatggacggcaacggccagatcgtcgtcagggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggcccggacatgcaggtggcagcgggtaccagtcacgcgcgacatgtcagac ggccgtgtctttacaatcgcgcgctcatttagtggcgagtggttgagaagaatggcga agtctatagcccctcatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattgtgatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcg cgtggcgccggacgcaatgtcgcgcaatgccgtgatgtatgacgggtcaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgcacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcggtcca atggcctctatttcgcgctacctttcatactcggtggctctgcggacggatcaacct ttatcaccggcgacagcgcggtggcatcccctcgaagactcgacccccgtctttac accggagatttatgtgccggaacaggacacgttttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttctccggacggcgtgtctttaatggcgagg gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctcaaatggggcgccgcatcagatcagtagcagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtcacaacggaccagcgccg tattccgttaacctgaccaataacggtggcaattcgtatagctccaggtaccgtcgga ctcgggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgggcgctc ccgagcgtagcgagcacgatccgtgtgaccaggccgcagcttgataa

156	GOh2055	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAAGAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
157	GOh2056	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagcggaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgtttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgctcgctgcg cggcagcagggcaatcagaacggatggatcgccgctcagcaggatatttaagctcc gacggcaccgaactgggatccccggcgctcgggcagctggctcgccgacagcagc caccaagtattccaattttgaaacccgctcctgcacgctcagtgcgcttagtgccgctgac agaggcgaacggccagccatggacccaatcgccgaaatcaatgtattccaagccag ctctataccgcgcccgagccagcacttggcggttggggcccgaccatcgacctgcc tatcgtaaccgcagcccgcggtgaaccaacgtagcccgctactgatgtggag cagctaccgtaacgacggcggaaggcagccccggcgccatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacac gacatgtttgccccgggatcagcatggacggcaacggccagatcgctgcagcggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggcccggacatgcaggtggcagcggggtaccagtcacgcgacccatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagcccccatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaacagggcctgtacatgagcgcacaacctgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattggtatt acacgtcagggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcgccggacgcaatgtcgggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcggtggctcctcgccgacggatcaacct ttatcaccggcgacagcgccgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtgccgaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccccggacggagctgtctttaatggcggag gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatcttaccggaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtaacaaac

		ccagtcctgcaaaagtgggcgccgcattacgatcagtagccagacagcagcattacca agcgtcactgattcgttacggcaccgcaaccatacagtaaacaggaccagcgccg tattccgtfaaccctgaccaataacgggtggcaattcgtatagcttccaggtagcgcgga ctcgggctggcgctgccagatactggatgctgtttgtgatgaatagcgcgggcgctc ccgagcgtagcagcacgatccgtgtgacccaggccgcagcttgataa
158	GOh2056	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVSGGWDAAKKTSLYDSSSDSWIPGPDMPVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS L PNAKVNPMLTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNTDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
159	GOh2057	atgggcagcagccatcatcatcatcacagcagcgccctgggtccgcgcggcag ccatatgggtaccgcctctgccctatcggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatattaaagctcc gacggcaccaactgggatccccggtcgctcgggcagctgttcgccgacagcac caccaagtattccaatttgaaacccgtcctgcacgtacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctcctataccgcgccgagccaggacttggcggttggggcccgaccatgcacctgcc tactgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcaccggggcgccatcactctgacgtcga gttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacag acatgtttgcccgggatcagcatggacggcaacggccagatcgtcgtcacggcg gctgggacgccaagaagacagcctctatgacagtagcagcgacagttggatccc ggggccggacatgcaggtggcacgcgggtaccagtcagcgccaccatgtcagacg gccgtgtctttacaatcgccggctcatttagtggcgagtggttgagaagaatggcgaa

		gtctatagcccctcatccaaaacgtggacgtcacttccgaacgcgaagggtgaatcccat gttaaccgccgacaaacagggcctgtacatgagcgacaaccatgcgtggctgttcgg ctggaagaaggggagcgtcttfcaggcggggcccgctcgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtcaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgcgcgacaaccaatgc ccacattattacccttggggagccgggacgagcccgaacacggcttctgcgtccaat ggcctctatttcgcgctaccttccatacgtcggtggtcctgccggacggatcaacctt atcacccggcgacagcgccgtggcatccccctcgaagactcgacccccgtctttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgta cgcgctatcactccatcagccttcttcccggacggacgtgtctttaatggcgagg aggactgtgcgggactgcacgaccaatcatttgcgcgcagatctttaccccgaatt atctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaacc agtccgtcaaagtggcgccgcattacgatcagtagcagcagcattaccaag cgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccgtat tccgttaaccctgaccaataacgggtggcaattcgtatagcttcaggtagcgcggcgactc ggcgctggcgctccaggatactggatgctgtttgtgatgaatagcgcggcgctccc gagcgtagcgcgacgatccgtgtgaccaggccgcagcttgataa
160	GOh2057	MGSSHHHHHHSSGLVPRGSHMGTA SAPIGSAIPRNNW AVTCD SAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINV FQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGTPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAV MYDAVKGILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTN TDQRRIP LTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

161	GOh2058	atgggcagcagccatcatcatcatcacagcagcggcctggcgccgcggcag ccatatgggtaccgcctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgctcacgaggtatatttaagctcc gacggcaccaactggggatccccggctcgcgcggcagctggctgccgacagcac caccaagtattccaatttgaaccggctcctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaatcaatgtattccaagccag ctcctataccgcggcagccagcacttggcggttggggcccgaccatgcacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcagccgcgtactgatgtggag cagctaccgtagcgacgcggcggaaggcagcccgggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttggcgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttgatccc ggggccggacatgacggtggcagcggggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagccccatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgtaaccgcccgaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcagcgggggcccgctgaccgcaatgaattgtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcgg cgtggcgccggacgcaatgtcgcgcaatgccgtgatgtatgacgggtcaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagccccgaacacgggtcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgccgacggatcaacct ttatcacggcgcgacagcgccgtggcacccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgttttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttctccggacggacgtgtctttaatggcggag gaggactgtcggggactgcacgaccaatcatttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtagatcaac ccagtcctcaaatggggcgccgcattacgatcagtagcagcagcattaccaa agcgtcactgattcgttacggcacgcgaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaattcgtagcttccaggtaccgtcgga ctcgggctgtggcgctgccaggatactggatgctgtttgtatgaatagcgcgggcgctc ccgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
162	GOh2058	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRSDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS L PNAKVNPMLTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
163	GOh2061	atgggcagcagccatcatcatcatcacagcagcggcctggcgccgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgcaataactgggcc gtaacgtcgacagcgcgcagagcggcaacgagtgcaataaagccatcgacggca ataaagacacctctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtcctgtgcgcg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgcgtcggcgagctggttcggcgacagcac caccaagtattccaattttgaaaccgctctgcacgtacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaatcaatgtattcaagccag ctctataccgcggcgagccaggacttggcggtggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgctactgatgtggag cagctaccgtaacgacgcggcggaaggcagccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacac gacatgtttgcccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacgttgatccc ggggccggacatgcaggtggcacgcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcggcggctcatttagtggcgagtggttgagaagaatggcga agtctatagccccatccaaaacgtggacgtcacttccgaacggaagtgatccc atgttaaccgcgacaaaacaggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtagaccgaatgaattgtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcg cgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaaacacggcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgcgacggatcaacct ttatcacggcgagcagcgcggtggcgacaccttcgaagactcgacccccgtcttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttccggacggacgtgtctttaatggcgag gaggactgtgcggggactgcacgaccaatcattttacgcgcagatctttacccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctcgaaaattaccgtagatcaac ccagtcctgcaaatggcgccgcattacgatcagtagcagcagcattaccaa agcgtcactgattctgtacggcaccgcaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaaltcgtatagcttccaggtaccgtcgga ctcggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcggggcgtc ccgagcgtagcgagcacgatccgtgtgacctaggccgcagcttgataa
164	GOh2061	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDASQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGAPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAY HSISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYL YDSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASL IRYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSG VALPGYWMLFVMNSAGVPSVASTIRVTQAAA
165	GOh2064	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcgcgcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgcaataaagccatcgacggca ataaagacacctctctggcacacgtttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacggcgctgcctgctgcgcg cgccaggacggaatcagaacggatggatcgccgctcacgaggtatatttaagctcc gacggcaccaactggggatccccggcgctcgccgagctggctgcgcgacagcac caccaagtattccaattttgaaacccgctctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgattccaagccag ctctataccgcgcgcagccagcacttggcgcttggggcccgaccatcgacctgcc tctgtaccgcgcgcgcggtgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtcgtgacgcggcggaaggcagccggcgccatcactctgacgtcga gttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacacg acatgttttggccggggatcagcatggacggcaacggccagatcgctgcacggcg gctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc gggccggacatgcaggtggcacgcgggtaccagtcagcgccatgacagacg gccgtgtctttacaatcggcggtcatttagtggcgaggtgtttgagaagaatggcgaa gtctatagcccctcatcaaaacgtggacgtcacttccgaacgcgaaggtgaatccat gftaacgccgacaaaacaggcctgtacatgagcgacaacatcgctggctgttcgg ctggaagaaggggagcgctttcagcgggcccgctgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgatgacgcggtcaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtccaat ggctctatttcgcggtacctttcatacgtcgggtgctcctgccggacggatcaaccttt atcaccggcgacagcgccgtggcatcccttcgaagactcgaacccgctctttacac cggagatttatgtccggaaacaggacacgtttataaacagaatccgaactcgattgta cgcgcgtatcactccatcagccttcttctccggacggacgtgtctttaaaggcggagg aggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaaft atctgtatgattcaaatgggaatctcgcgacccgtccgaaaattaccgtacatcaaccc agtccgtcaaagtggcgggccgcaattacgatcagtagcagcagcattaccaaag cgtcactgattcgttacggcaccgcaaccatagtcacacggaccagcgccgtat tccgttaaccctgaccaataacggtggcaattcgtatagcttcaggtaccgtcggactc gggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctccc gagcgtagcagcagcagatccgtgtgaccagggcgcgagcttgataa

166	GOh2064	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRRDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
167	GOh2066	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcgcag ccatatgggtaccgctctgccccatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagcggaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccagcagcgaatcagaacggatggatcgccgctcagcaggtatatttaagctcc gacggcaccaactgggatccccggtcgctcgggcagctggttcgccgacagcagc caccaagtattccaattttgaaaccgctcctgcacgctacgtgcgcttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctcctataccgcgccgagccagcacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcgagccgcggcgattgaaccaacgtcagccgcgctactgatgtggag cagctaccgtaacgacgcggcggaaggcagccccggcgccatcactctgacgtcg agtgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttggccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctggaatgccagaagacgagcctctatgacagtagcagcagcagttggatccccg gggcccggacatgcaggtggcacgcgggtaccagtccagcgcgaccatgtcagacg gccgtgtctttacaatcgggcgctcatttagtggcgagtggttgagaagaatggcgaa gtctatagcccctcatcaaaaacgtggacgtcacttccgaacgcgaaggtgaatccat gttaaccgccgacaaaacaggcctgtacatgagcgacaacctgcgtggctgttcgg ctggaagaaggggagcgtcttcaggcgggcccgctcgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcgaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtcaaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgcgcgacaaccaatgc ccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtccaat ggcctctatttcgcgctacctttcatacgtcgggtgtcctgccggacggatcaaccttt atcaccggcgacagcgccgtggcatcccttcgaagactcgacccccgtctttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgta cgcgctatcactccatcagccttcttcccggacggacgtgtctttaatggcgagg aggactgtcggggactgcacgaccaatcattttgacgcgcagatcttaccgccgaatt atctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaacc

		agtcggtcaaagtggcgggcgccgacattacgatcagtagccgacagcagcatcaccaaag cgtcactgattcggttacggcaccgcaaccatacagtaaacacggaccagcgccgtat tccgttaaccctgaccaataacgggtggcaattcgtatagcttcagggtaccgtcggactc gggcgtggcgctgccaggatactggatgctgtttgatgaatagcgcggcgctccc gagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
168	GOh2066	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMSWSSYRNDAAEGLPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWNAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
169	GOh2067	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcgcgcag ccatatgggtaccgcctctgccctatcggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatattaaagctcc gacggcaccaactgggatccccggtcgctcggcgagctggttcgccgacagcac caccaagttatccaatttgaacccgtcctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctcctataccgcgccgcagccaggaactggcggttggggcccgaccatgcacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttccccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggccggacatgcaggtggcacgcgggtaccagtccagcgccacctgtcagac ggccgtgtctttacaatcggcggtcatttagtggcggagtgtttgagaagaatggcga

		agtcctatagcccctcatccaaacgtggacgtcacttccgaacgcgaaggatcc atgttaaccgcccagacaaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcggccggacgcaatgtgcggcaatgccgtgatgtatgacgcggcaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacggcttccgctcca atggcctctatttgcgcgtacctttcatacgtcgggtgctcctgccggacggatcaacct ttatcacggcgacagcgcgtggccgtcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacagctttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttcccggacggacgtgtctttaatggcggag gaggactgtgcgggactgcacaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgacatcaac ccagtcctgcaaatggggcgccgacattacgacgtaccgacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacaggaccagcgcgg tattccgttaaccctgaccaataacgggtggcaattcgtatagcttccaggctaccgtcgg ctcgggctggcgtgccaggatactggatgctgtttgtgatgaatagcgcgggctgc ccgagcgtagcggagcagatccgtgtgaccaggccgcagcttgataa
170	GOh2067	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGLSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG QRRGRPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

171	GOh2068	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgcctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgctacgagggtatatttaagtcc gacggcaccaactggggatccccggctcgcgcggcagctggttcgccgacgacac caccagttatccaattttgaaacccgtcctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaatcaatgtattccaagccag ctcctataccgcgcgcagccaggacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcagccgcgtactgattgggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgacctcagaaaacac gacatgttttggcgggatcagatggacggcaacggccagatcgtcgtcagggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttgatccc ggggccggacatgaggtggcagcggggtaccagtcagcgacatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagcccccatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgtaaccgcccgaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcagcgggcccgctcgaccgaatgaattgtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcgg cgtggcgccggacgcaatgtcgcgcaatgccgtgatgtatgacgggtcaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagccccgaacacgggtcttcgcgtcca atggcctctatttcgcgcgtacctttcatacgtcgggtgctcctcgccgacggatcaacct ttatcacggcgcgacagcgccgtggcaaacccctcgaagactcgacccccgtctttac accggagatttatgtcgcggaacaggacacgttttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttctccggacggacgtgtctttaatggcggag gaggactgtcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgcgcgaaaattaccgtagatcaac ccagtcctcaaatggggcgccgcattacgatcagtagcagacagcattaccaa agcgtcactgattcgttacggcacgcgaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaattcgtagcttccaggtaccgtcgga ctcgggctgtggcgctgccaggatactggatgctgtttgtgatgaatagcggggcgtc ccgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
172	GOh2068	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDA AEGSPG GITLTSSWD PSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPD MQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS L PNAKVNPMLTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAV MYDAVKGKILTFGGSPDYTDS DATTN AHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPD GSTFITGG

		QRRGKPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAY HSISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYL YDSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASL IRYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSG VALPGYWMLFVMNSAGVPSVASTIRVTQAAA
173	GOh2070	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtcaataaagccatcgacggca ataaagacacctctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgcgtcgggcagctggttcggcgacagcac caccaagtattccaattttgaaaccgtctgcacgtacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattcaagccag ctctataccgcggcgagccaggacttggcggtggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagccggcgcgcatcactctgacgtcg agttgggatccatccacgggcacgtctccgaacgcaccgtgacctcacgaaacac gacatgtttgcccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacgttgatccc ggggccggacatgcaggtggcacgcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcggcggtcatttagtgccggagtgttgagaagaatggcga agtctatagccccatccaaaacgtggacgtcacttccgaacggaaggtaatccc atgttaaccgcccgaacaacaggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtagaccgaatgaattgtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcgg cgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagccccgaacacggcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctccggacggatcaacct ttatcacggcgagacgcgcgtggcatccccctgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttccggacggacgtgtctttaatggcggag gaggactgtgcggggactgcacgaccaatcattttacgcgcagatctttacccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctgcaaatgggcggccgattacgatcagtagcagcagcattaccaa agcgtcactgattctgtacggcaccgcaaccatacagtcacacggaccagcgccg tattccgttaaccctgaccaataacggtggcaaltcgtatagcttccaggtaccgtcgga ctcgggcgtggcgctgccaggatactggatgctgtttgtgatgaatagcggggcgtc ccgagcgtagcgagcacgatccgtgtgaccaggccgcagcttgataa
174	GOh2070	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDASQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPTSGIVSERTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
175	GOh2071	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgacagcggcaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tactatatacattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgctcacgaggtatatttaagctcc gacggcgataactgggatccccggtcgctcgggcagctggttcggcgacagcac caccaagtattccaattttgaaacccgctctgcacgctacgtgcgttagtggccgtgac agaggcgaaacggccagccatggacctcaatcgccgaaatcaatgattccaagccag ctctataccgcggccagccagcacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcgagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgacctcacgaaacac gacatgttttggccgggatcagcatggacggcaacggccagatcgctgacaggcc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggcccggacatgacgttggcagcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcgcgcgctcatttagtggcgagtggttgagaagaatggcga agtctatagcccctcatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgcaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcg cgtggcgccggacgcaatgtcgcgcaatgccgtgatgtatgacgggtcaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcggtcca atggcctctatttcgcgctacctttcatacgtcggtggtcctgcggacggatcaacct ttatcaccggcgacagcgcggtggcatccccctcgaagactcgacccccgtctttac accggagatttatgtgccggaacaggacacgttttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttctccggacggcgtgtctttaatggcgagg gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctcaaatgtggcgccgcattacgatcagtagcagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtcacacggaccagcgccg tattccgttaaccctgaccaataacggtggcaattcgtatagctccaggtaccgtcgga ctcgggcggtggcgctgccaggatactggatgctgttgatgaatagcgcgggcgctc ccgagcgtagcgagcacgatccgtgtgaccaggccgcagcttgataa

176	GOh2071	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGDNDWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWYTSVSGSDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
177	GOh2072	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagcggaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgctcgctgccg cgccagcagcgaatcagaacggatggatcgccgctcacgaggtatatttaagcgt gacggcaccgaactgggatccccggcgctcgccgagctggtcgccgacagcac caccaagtattccaattttgaaaccgctctgcacgctacgtgcgcttagtgccgctgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctctataccgcgcccagccagcacttggcggttggggcccagaccatgacctgcc tatctaccgcagcccgccgagtgatgaaccaacgtcagccgcgctactgatgtggag cagctaccgtaacgacggcggaaggcagccccggcgccatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgacctcacgaaacac gacatgtttgccccgggatcagcatggacggcaacggccagatcgctgcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggcccggacatgcaggtggcacgcggtaccagtcacgcgacccatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcgga agtctatagcccccatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaacagggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggaggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcgccggacgcaatgtcgggcaatgccgtgatgtatgacgcggcgaagga agatcctgacatttggcgaggatccggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcgcgtcca atggcctctatttcgcgctacctttcatatcggtggtcctgcggacggatcaacct ttatcaccggcgacagcgccgtggcatccccctcgaagactcgacccccgtctttac accggagatttatgtgccgaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccccggacggagctgtctttaatggcgga gaggactgtgcggggactgcacgaccaatcattttgacgcgagatcttaccgccaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac

		ccagtcctgcaaaagtgggcgccgcattacgatcagtagccgacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccg tattccgttaaccctgaccaataacgggtggcaattcgtatagcttcaggtagccgtcgga ctcgggctggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggctc ccgagcgtagcagcacgatccgtgtgacccaggccgcagcttgataa
178	GOh2072	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSRDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
179	GOh2073	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcgcag ccatatgggtaccgcctctgccctatcggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgtttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatattagctcc gacggcaccaactgggatccccggtcgcgtcgggcagctggttcgccgacagcac caccaagtattccaattttgaaacccgtcctgcacgtacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaatcaatgtattccaagccag ctcctataccgcgccgagccaggacttggcggttggggcccgaccatgcacctgcc tactgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttccccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttgatccc ggggccggacatgcaggtggcacgcgggtaccagtccagcgccacctgacagac ggcgtgtctttacaatcgggcggtcatttagtggcgagggtgttgagaagaatggcga

		agtcctatagcccctcatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcggccggacgcaatgtgcggcaatgccgtgatgtatgacgcggcaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtcca atggcctctatttgcgcgtacctttcatacgtcgggtgctcctgccggacggatcaacct ttatcacgcggcgacgcgcgtggcatcccccttgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttcccggacggacgtgtctttaatggcggag gaggactgtgcgggactgcacgaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgatccgaatgggaatctcgcgacccgtccgaaaattaccgctacatcaac ccagtcctcaaaagtggcgccgcattacgatcagtcaccgacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacaggaccagcgcgg tattccgttaaccctgaccaataacggtggcaattcgtatagcttccaggctaccgtcggg ctcgggctggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggctgc ccgagcgtagcgagcacgatccgtgtgaccaggccgcagcttgataa
180	GOh2073	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS L PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DPNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

181	GOh2074	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgcctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagcaat gacggcaccaactggggatccccggtcgctcgggcagctggttcgccacagcac caccaagtattccaatttgaaccggctctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaatcaatgtattccaagccag ctcctataccgcgccgagccagacttggcggttggggcccgaccatgcacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcagccgcgtactgattgggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttggccgggacgacatggagcggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggtccc ggggccggacatgacggtggcacgcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagcccccatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgtaaccgcccgaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattgtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcgg cgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagccccgaacacggcttctcgctcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgccgacggatcaacct ttatcacggcgcgacagcgcggtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtgccggaacaggacacgttttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttctccggacggacgtgtctttaatggcggag gaggactgtgcggggactgcacgaccaatcatttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgacatcaac ccagtcctcaaatggggcgccgcattacgatcagtagcagcagcattacca agcgtcactgattcgttacggcacgcgaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaattcgatagcttccaggtaccgtcgg ctcgggctgtggcgctgccaggatactggatgctgtttgtatgaatagcgcgggctc ccgagcgtagcggagcacgatccgtgtgacccaggccgcagcttgataa
182	GOh2074	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSNDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPTSGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWYTS GSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDS DATTN AHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPD GSTFITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
183	GOH2075	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctatacattgacatgaaaaccaccagaatgtgaacgggctgtcctgtgcgcg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgcgtcggcgagctggttcgccgacagcac caccaagtattccaattttgaaaccgctctgcacgtacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaatcaatgtattcaagccag ctctataccgcgccgagccaggacttggcggtggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcagccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacac gacatgtttgcccgggatcagcatggacggcaacggccagatcgtcgtactggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacgttgatccc ggggccggacatgcaggtggcacgcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcggcggctcatttagtggcgagtggttgagaagaatggcga agtctatagccctcatccaaaacgtggacgtcacttccgaacggaagtgatccc atgttaaccgcccgaacaacaggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgaatgaattgtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcgg cgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacggcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgccgacggatcaacct ttatcacggcgagacgcgcgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttccggacggacgtgtctttaatggcgag gaggactgtgcggggactgcacgaccaatcattttacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctcgaaaattaccgtacatcaac ccagtcctgcaaatggcgccgcattacgatcagtagcagcagcattaccaa agcgtcactgattctgtacggcaccgcaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaaltcgtatagcttccaggtaccgtcgga ctcgggcgtggcgctgccaggatactggatgctgtttgtgatgaatagcgcggcgctc ccgagcgtagcagacgatccgtgtgacccggcgccgagcttgataa
184	GOH2075	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDASQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPTSGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGLLATRPKITRTSTQSVKVGGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTPAAA
185	GOh2076	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgacagcggcaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tactatatacattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggaatcagaacggatggatcgcccgctcacgaggtatatttaagctcc gacggcaccaactggggatccccggcgctcgccgagctggctgcggacagcac caccaagtattccaattttgaaacccgctctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgattccaagccag ccgttataccgcgccgagccaggacttggcggtggggcccgaccatcgacctgcc tatcgtaccgcgagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccgggcgccatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttggccgggacagcatggacggcaacggccagatcgctgacaggcc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggcccggacatgcaggtggcagcgggtaccagtcacgcgacccatgacagac ggccgtgtctttacaatcgcgcgctcatttagtggcgagtggttgagaagaatggcga agtctatagcccctcatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaacaggcgctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcg cgtggcgccggacgcaatgtcgcgcaatgccgtgatgtatgacgggtcaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcggtcca atggcctctatttcgcgcgtacctttcatactcggtggctctcgccgacggatcaacct ttatcaccggcgacagcgcggtggcatccccctcgaagactcgacccccgtctttac accggagatttatgtgccggaacaggacacgttttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttctccggacggcgtgtctttaatggcgag gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctcaaatggggcgccgcatcagatcagtagcagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtcacaacggaccagcgccg tattccgttaaccctgaccaataacggtggcaattcgtatagctccaggtaccgtcgga ctcgggcggtggcgctgccagatactggatgctgtttgtgatgaatagcgggcgctc ccgagcgtagcgagcacgatccgtgtgaccaggcccgagcttgataa

186	GOh2076	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSRYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
187	GOh2077	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagcggcaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgctcgctgccg cggcagcagcgaatcagaacggatggatcgccgctcagcaggtatatttaagctcc gacggcaccgaactgggatccccggctcgctcgggcagctggctcgccgacagcagc caccaagtattccaattttgaaacccgctctgcacgctacgtgcgcttagtgccgctgac agaggcgaacggccagccatggacctaateccgaaatcaatgtattccaagccag ctctataccgcgcccagccagcacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcagccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagccccggcgccatcactctgacgtcg agttgggatccatccacgggcatcgtctccccgcgcaccgtgaccgtcacgaaacac gacatgttttggccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggcccggacatgcaggtggcacgcgggtaccagtcacgcgacccatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcgga agtctatagcccccatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaacagggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcgccggacgcaatgtcgggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcggtggtcctgcggacgcatcaacct ttatcaccggcgacagcgcggtggcatccccctcgaagactcgacccccgtctttac accggagatttatgtgccgaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccccggacggagctgtctttaatggcggag gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatcttaccgccaa ttatctgtatgatcaaatgggaatctcgcgaccgctccgaaaattaccgcatatcaac

		ccagtcctgcaaaagtgggcgccgcattacgatcagtagccagacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccg tattccgtfaaccctgaccaataacgggtggcaattcgtatagcttccaggtagcgcgga ctcggcgctggcgctgccaggatactggatgctgttggatgaatagcgcggcgctc ccgagcgtagcagcacgatccgtgtgacccaggccgcagcttgataa
188	GOh2077	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSPRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
189	GOh2078	atgggcagcagccatcatcatcatcacagcagcgccctgggtccgcgcgcgcag ccatatgggtaccgcctctgccctatcggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgtttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatattagctcc gacggcaccaactgggatccccggtcgcgtcgggcagctggttcgccgacagcac caccaagtattccaattttgaaacccgtcctgcacgtacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccga atcctataccgcgccgcagccaggacttggcggttggggcccgaccatgcacctgcc tactgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacac gacatgttttccccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttgatccc ggggccggacatgcaggtggcacgcgggtaccagtccagcgccacctgtcagac ggccgtgtctttacaatcggcggtcatttagtggcgagggtgttgagaagaatggcga

		agtcctatagcccctcatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcggccggacgcaatgtgcggcaatgccgtgatgtatgacgcggcaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacggcttccgctcca atggcctctatttgcgcgtacctttcatacgtcgtgtgctcctgccggacggatcaacct ttatcacgcggcgacagcgcgtggcatcccccttgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttccggacggacgtgtctttaatggcggag gaggactgtgcgggactgcacaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgcatatcaac ccagtcctgcaaatggggcgccgacattacgacgtaccgacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacaggaccagcgcgg tattccgttaaccctgaccaataacggtggcaattcgtatagcttccaggctaccgtcgg ctcgggcgtggcgtgccaggatactggatgctgttggatgaatagcgcgggcgtc ccgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
190	GOh2078	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQESYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

191	GOh2079	atgggcagcagccatcatcatcatcacagcagcggcctggcgccgcggcag ccatatgggtaccgcctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggctcgcgcggcagctggttcgccgacagcac caccaagtattccaatttgaaccggcctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaatcaatgtattccaagccag ctcctataccgcggcgagccaggacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcagccgcgtactgattgggag cagctaccgtaacgacgcggcggaaggcagcccgggcgcatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgacctcacgaaacac gacatgttttggcgggatcagatggagcgcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttgatccc ggggccggacatgaggtggcagcggggtaccagtcagcgcgaccatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagcccccatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgtaaccgcccgaacagggcctgtacatgagcgacaaccatgcgtggctgttcg gctggaagaaggggagcgtctttcagcgggggcccgacccgaatgaattgtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcgg cgtggcgccggagcgaatgtcgcgcaatgccgtgatgtatgacgggtcaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagccccgaacacgggtcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgccgacggatcaacct ttatcacggcgcgacagcgccgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgttttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttctccggacggacgtgtctttaatggcgag gaggactgtcggggactgcacgaccaatcatttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtagatcaac ccagtcctcaaatggggcgccgacattacgatcagtagcagcagcattacca agcgtcactgattcgttacggcacgcgaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacgggtggcaattcgtagcttccaggtaccgtcgga ctcgggctgtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgtc ccgagcgtagcgagcacgatccgtgtgaccgatgccgcagcttgataa
192	GOh2079	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDA AEGSPG GITLTSSWD PSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPD MQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS L PNAKVNPMLTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAV MYDAVKGKILTFGGSPDYTDS DATTN AHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPD GSTFITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTDAAA
193	GOh2080	atgggcagcagccatcatcatcatcacagcagcggcctggcgccgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtcgacagcgcgcagagcggcaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtcctgtgcgcg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgcgtcgggcagctggttcgccgacagcac caccaagtattccaatttgaaccggctctgcacgtacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaataatgtattccaagccag caaatataccgcgcgcagccaggacttggcggttggggcccgaccatcgacctgc ctatcgtaccgcagccgcggcgattgaaccaacgtcagggcggtactgatgtgga gcagctaccgtaacgacgcggcggaaggcagccccggcgccatcactctgacgtc gagttgggatccatccacgggcatcgtctccgaccgaccgtgacctcacgaaaca cgacatgttttcccgggatcagcatggacggcaacggccagatcgtcgtcacggg cggctgggacccaagaagacgagcctctatgacagtagcagcgacagttggtacc cggggccggacatgcaggtggcacgcgggtaccagtccagcgcgacctgtcaga cggccgtgtctttacaatcgccggctcatttagtggcgagtggttgagaagaatggcg aagctatagccccctatccaaaacgtggacgtcacttccgaacgcgaaggtgaatcc catgttaaccgccgacaaacagggcctgtacatgagcgacaacctgcgtggctgttc ggctggaagaaggggagcgtcttcaggcgggcccgtcgaccgcaatgaattggtat tacacgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcg gcgtggcgccggacgcaatgtcggcaatgccgtgatgtatgacgggtcaaaggc aagatcctgacatttggcgggagtcggactacaccgacagtacgcgcgacaaccaat gcccacattattaccttggggagccggggacgagccccaacacgggtcttcgcgtcc aatggcctctatttcgcgctaccttccatacgtcgggtgctcctccggacggatcaacc tttaccggcgggacagcgcggcgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttccggacggacgtgtctttaatggcgag gaggactgtcggggactgcacgaccaatcattttacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctgcaaatggcgccgcattacgatcagtagcagcagcattaccaa agcgtcactgattctgtacggcaccgcaaccatacagtcacacggaccagcgccg tattccgttaaccctgaccaataacgggtggcaaltcgtatagctccaggtaccgtcgga ctcgggcgtggcgctgccagatactggatgctgtttgtgatgaatagcgcggcgctc ccgagcgtagcgcgacgatccgtgtgacctaggccgcgagcttgataa
194	GOh2080	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSKYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPTSGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPLMTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGLLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
195	GOh2081	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcgcgcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgctcacgaggtatatttaagctcc gacggcaccaactggggatccccggcgctcgccgagctggctgcgcgacagcac caccaagtattccaattttgaaacccgctctgcacgctacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgattccaagccag ctctataccgcgcgcagccaggaactggcggtggggcccgaccatcgacctgcc taccgtaccggtgcccgcgcgattgaaccaacgtcagcgccgctactgatgtggagc agctaccgtaacgacgcggcggaaggcagccccggcgccatcactctgacgtcga gttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacacg acatgttttggccggggatcagcatggacggcaacggccagatcgtcgcacggcg gctgggacgccaagaagacgagcctctatgacagtagcagcgacaggttgatccccg gggccggacatgcaggtggcacgcgggtaccagtcagcgccacatgacagacg gccgtgtctttacaatcgcggtcatttagtggcgaggtgtttgagaagaatggcgaa gtctatagcccctcatcaaaacgtggacgtcacttccgaacgcgaaggtgaatccat gftaacgccgacaaaacaggcctgtacatgagcgacaacatcgctggctgttcgg ctggaagaaggggagcgctttcagcggggcccgtcgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgatgacgcggtcaaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtccaat ggctctatttcgcggtacctttcatacgtcggtgtcctgccggacggatcaaccttt atcaccggcgacagcgccgtggcatcccctcgaaagactgacccccgtctttacac cggagatttatgtccggaaacaggacacgtttataaacagaatccgaactcgattgta cgcgctatcactccatcagccttcttctccggacggacgtgtctttaaaggcgagg aggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaaft atctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaaccc agtccgtcaaagtggcgggccgcaattacgatcagtagcagcagcattaccaag cgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccgtat tccgttaaccctgaccaataacggtggcaattcgtatagcttcaggtaccgtcggactc gggcggtggcgctgccaggatactggatgctgtttgatgaatagcgcgggcgctccc gaggctagcgagcacgatccgtgtgaccagggcgagcttgataa

196	GOh2081	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPVAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
197	GOh2082	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcgcag ccatatgggtaccgctctgccctatcggtcagccatcccgcgaataactggcc gtaacgtgcgacagcgcgagcggaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgtttatggcgcaaatggcgacccgaagccaccga tactataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtccg cggcagcagcgaatcagaacggatggatcgccgtcagcaggatatttaagctcc gacggcaccaactgggatccccggtcgctcgggcagctggttcggcagacgac caccaagtattccaattttgaaaccgctctgcacgctacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctctataccgcgcgcagccagcacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcagccgcgtactgatgtggag cagctaccgtaacgacgcggcggttggcagccggcgccatcactctgacgtcgag ttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacacga catgttttggccgggatcagcatggacggcaacggccagatcgtcgtcagggcg ctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatcccg ggccggacatgcaggtggcagcggttaccagtcagcgcgacctatgcagacgg ccgtgtctttacaatcgccggtcatttagtggcgagtggttgagaagaatggcgaag tctatagccctcatccaaaacgtggacgtcacttccgaacggaaggtgaatcccatg ttaaccgccgacaaacagggcctgtacatgagcgacaacatgcgtggctgttcggct ggaagaaggggagcgtctttcagcgggcccgctcgaccgcaatgaattggtattaca cgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggcgt ggcgccggacgcaatgtcgggcaatgccgtgatgtatgacgcggtcaaggcaaga tcctgacatttggcgggagtcgggactacaccgacagtgacgcgacaacaaatgcc acattattacccttggggagccgggacgagccgaacacggctcttcgctccaatg gccttatttcgcgctacctttcatagtcggtggtcctgccggacgcatcaacctttat caccggcgacagcggcgtggcatcccccttgaagactcgacccccgtctttacacc ggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgtac gcgcgtatcactccatcagccttctctccggacggacgtgtctttaatggcgaggga ggactgtcggggactgcacgaccaatcattttgacgcgcagatctttacccgaatta tctgtatgattcaaatgggaatctcgcgaccggtccgaaaattacccgtacatcaacca

		gtccgtcaaagtggcgccgcattacgatcagtagccgacagcagcattaccaaacg gtcactgattcggttacggcaccgcaaccatacagtaaacacggaccagcgccgtatt ccgttaaccctgaccaataacgggtggcaatcgatatagcttcaggtagccgtcggactc ggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctccc gagcgtagcgagcacgatccgtgtgaccagggccgcagcttgataa
198	GOh2082	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVL MWSSYRNDA AFGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAV MYDA VKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPD GSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLL PDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIP LTLNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
199	GOh2083	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcgcgcag ccatatgggtaccgcctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatattaaagctcc gacggcaccaactgggatccccgtcgcgtcgggcagctggttcgccgacgacac caccaagtattcaattttgaaacccgtcctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctcctataccgcgccgcagccaggaactggcggttggggcccgaccatgcacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactcagacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttccccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggccggacatgcaggtggcacgcgggtaccagtcagcgccaccatgtcagac ggccgtgtctttacaatcgggcggtcatttagtggcggagtgtttgagaagaatggcga

		agtcctatagcccctcatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcggccggacgcaatgtgcggcaatgccgtgatgtatgacgcggcaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcgtgtgctcctgccggacggatcaacct ttatcacggcggacagcgcctgtggcatccccctcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttcccggacggacgtgtctttaatggcggag gaggactgtgcgggactgcacaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgacatcaac ccagtcctcaaatggggcggccgacattacgacgtaccgacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacaggaccagcgcgg tattccgttaaccctgaccaataacgtggcaattcgtatagcttccaggctaccgtcgg ctcgggctggcgtgccaggatactggatgctgtttgtgatgaatagcgcgggctgc ccgagcgtagcggagcacgatccgtgtgaccaggccgcagcttgataa
200	GOh2083	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITQTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGILTFGGSPDYTDSDATTNAAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

201	GOh2084	atgggcagcagccatcatcatcatcacagcagcggcctggcgccgcggcag ccatatgggtaccgcctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacggcgctgctcgtgctgccg cgccaggacggcaatcagaacggatggatcgccgctcacgaggtatatttaagctcc gacggcaccaactggggatccccggcgctcgctcgggcagctggttcgccacagcac caccaagtattccaatttgaaccggcctcgcacgctacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaatcaatgtattccaagccag ctcctataccgcgccgagccagacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtacggccgctactgattgggag cagctaccgtaacgacgcggcggaaggcagcccggcggtgactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgacctcacgaaacac gacatgttttggcgggatcagatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggtccc ggggccggacatgaggtggcacgcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagcccccatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgtaaccgcccgaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattgtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcgg cgtggcgccggacgcaatgtcgcgcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagccccgaacacggcttctcgctcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgccgacggatcaacct ttatcacggcgcgacagcgcggtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcggtatcacccatcagccttcttctccggacggacgtgtctttaatggcgag gaggactgtcggggactgcacgaccaatcatttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtagatcaac ccagtcctcaaatggggcgccgacattacgatcagtagcagacagcattacca agcgtcactgattcgttacggcacgcgaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaattcgtagcttccaggtaccgtcgga ctcgggctgtggcgctgccaggatactggatgctgtttgtatgaatagcggggcgctc ccgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
202	GOh2084	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDA AEGSPG GWTLTSSWDPSTGIVSDRTVTVTKHDMFCPGISM DGN GQIVVTGGWDAKKTSLYDSSSDSWIPGPD MQVARGY QSSATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWT SLPNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSV FQAGPSTAMN WYYTSGSGDVKSAGKRQSNRGVAPDA MCGNAV MYDAVKGKILTFGGSPDYTDSDATTNAHIIT LGEPGTSPNTVFASNGLYFARTFHTSVVLPD GSTFITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
203	GOh2085	atgggcagcagccatcatcatcatcacagcagcggcctggcgccgcggcag ccatatgggtaccgctctcgtcctatcggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgcataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtcctgtgcgcg cgccaggacggcaatcagaacggatggatcgccggtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgctcggcgagctggctgccgacagcac caccaagtattccaattttgaaaccgctctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaatcaatgtattccaagccag ctcctataccgcggcgagccaggacttggcggtggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgctactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacac gacatgttttggcgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacgttgatccc ggggccggacatgcaggtggcgacgcgggtaccagtcagcgccatgtcagac ggccgtgtctttacaatcggcggtcatttagtgccggagtgttgagaagaatggcga agtctatagccccatccaaaacgtggacgtcacttccgaacggaagtgatccc atgttaaccgcccagacaacaggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattgttatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcgg cgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtccggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacggcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctccggacggatcaacct ttatcacggcgagacgcgcgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccggacggacgtgtctttaatggcgag gaggactgtgcggggactgcacgaccaatcattttacgcgcagatctttacccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctcgaaaattaccgtacatcaac ccagtcctgcaaatggcgccgcattacgatcagtagcagcagcattaccaa agcgtcactgattctgtacggcaccgcaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaaltcgtatagcttccagtagcgtcgga ctcgggcgtggcgctgccaggatactggatgctgtttgtgatgaatagcggggcgtc ccgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
204	GOh2085	MGSSHHHHHSSGLVPRGSHMGTASRPIGSAIPRNNW AVTCDASQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPTSGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
205	GOh2086	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcgcgcag ccatatgggtaccgctctgccccctttggctcagccatcccgcgaataactgggcg taacgtgcgacagcgcgagcggcaacgagtgcaataaagccatgcagcgaat aaagacacctctggcacacgttttatggcgcaaatggcgaccgaagccaccgcata cctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccgcg ccaggacggcaatcagaacggatggatcgccgtcacgaggtatattaagctccga cggcaccaactggggatccccgtcgctcgccggcagctggttcgccgacagacca ccaagtattccaattttgaaacccgtcctgcacgctacgtgcgcttagtgccgtgaca gaggcgaacggccagccatggacctcaatcgccgaaatcaatgtattccaagccagc tcctataccgcgcgcagccaggactggcggttggggcccaccatcgacctgect atcgtaaccgcagccgcggcgaltgaaccaacgtcagccgcgtactgatgtggagc agctaccgtaacgacgcggcggaaggcagccccggcgccatcactctgacgtcga gttgggatccatccacgggcatcgtcaccgaccgcaccgtaccgtcacgaaacacg acatgttttggccggggatcagcatggacggcaacggccagatcgtcgcacggcg gctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatcccg gggcccgcagatgcaggtggcacgcgggtaccagtcagcgccaccatgtcagacg gccgtgtctttacaatcggcggtcatttagtggcgaggtgtttgagaagaatggcgaa gtctatagcccctcatcaaaacgtggacgtcacttccgaacgcgaaggtgaatccat gttaaccgccgacaaacagggcctgtacatgagcgacaacatcgctggctgttcgg ctggaagaaggggagcgctttcagcggggccgctcgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcgaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatcccgtgatgtatgacgcggtcaaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattacccttggggagccggggacgagcccgaacacggcttccgcgtccaat ggcctctatttcgcggtacctttcatacgtcgggtgtcctgccggacggatcaaccttt atcaccggcgagacgcgcgtggcatccccttgaagactcgaaccccgcttttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgta cgcgcgtatcactccatcagccttcttctccggacggacgtgtctttaatggcggagg aggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaatt atctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaaccc agtccgtcaaagtgggcggccgcaattacgatcagtagcagcagcattaccaag cgctactgattcgttacggcaccgcaaccatacagtcacacggaccagcgccgtat tcgftaacctgaccaataacggtggcaattcgtatagcttcaggtaccgtcggactc ggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctccc gagcgtagcagcagcagatccgtgtgaccaggccgcagcttgataa

206	GOh2086	MGSSHHHHHHSSGLVPRGSHMGTASAPFGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPGDRVFNNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
207	GOh2087	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcgcag ccatatgggtaccgctctgccccatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagcggaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccagcagcgaatcagaacggatggatcgccgctcagcaggtatatttaagctcc gacggcaccgaactgggatccccggctcgcgtcgggcagctggttcgccgacagcagc caccaagtattccaattttgaaaccgctcctgcacgctacgtgcgcttagtgccgtgac agaggcgaacggccagccatggacccaatcgccgaaatcaatgtattccaagccag ctcctataccgcgccgagccagcacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcgagccgcggcgattgaaccaacgtcagccgcgtactgatgtggag cagctaccgtaacgacgcggcgatggcagcccgggcgccatcactctgacgtcga gttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacacg acatgttttgccggggatcagcatggacggcaacggccagatcgtcgtcacggcg gctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc gggcccggacatgcaggtggcagcgggtaccagtcagcgacacatgtcagacg gccgtgtctttacaatcgggcgctcatttagtggcgagtggttgagaagaatggcgaa gtctatagcccctcatcaaaacgtggacgtcacttccgaacggaaggtgaatcccat gttaaccgccgacaaacaggcctgtacatgagcgacaacctgcgtggctgttcgg ctggaagaaggggagcgtcttcaggcgggcccgctgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtcaaaggcaa gatcctgacatttgccgggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtccaat ggcctctatttcgcgctacctttcatatcgtcgggtgtcctgccggacggatcaaccttt atcaccggcgacagcgccgtggcatcccttcgaagactcgacccccgtctttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgta cgcgctatcactccatcagccttcttcccggacggacgtgtctttaatggcgagg aggactgtgcgggactgcacgaccaatcatttgacgcgcagatcttaacccgaatt atctgtatgattcaaatgggaatctcgcgacccgtccgaaaattaccgtacatcaaccc

		agtcggtcaaagtggcgggccgcaattacgatcagtagccgacagcagcattaccaag cgtcactgattcgttacggcaccgcaaccatacagtaacacggaccagcgccgtat tccgttaaccctgaccaataacgggtggcaattcgtatagcttcaggtagccgtcgactc ggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctccc gagcgtagcgagcacgatccgtgtgaccagggccgcagcttgataa
208	GOh2087	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMSWSSYRNDAAYGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
209	GOh2088	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcgcag ccatatgggtaccgcctctgccctatcggctcagccatcccgcgcaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactgggatccccggtcgcgtcgggcagctggttcgccgacgacac caccaagtattccaattttgaaacccgtcctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgtattccaagccag ctcctataccgcgccgcagccaggaactggcggttggggcccgaccatcgacctgcc tactgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagccccggcgcatcactgttacgtcga gttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacacg acatgttttggccggggtacagcatggacggcaacggccagatcgctgcacggcg gctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatcccg ggggccggacatgcaggtggcacgcgggtaccagtcagcgcgaccatgtcagacg gccgtgtctttacaatcgccgggtcatttagtggcgagtggttgagaagaatggcgaa

		gtctatagcccctcatccaaaacgtggacgtcacttccgaacgcgaagggtgaatcccat gttaaccgccgacaaacagggcctgtacatgagcgacaaccatgcgtggctgttcgg ctggaagaaggggagcgtcttfcaggcggggcccgctgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgatgacgcggtcaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgcgcgacaaccaatgc ccacattattacccttggggagccgggacgagcccgaacacggcttccgctccaat ggcctctatttcgcgcgtaccttccatacgtcgggtgctctgccggacggatcaacctt atcacccggcgacagcgccgtggcatccccctcgaagactcgacccccgtctttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgta cgcgcgtatcactccatcagccttcttcccggacggacgtgtctttaatggcggagg aggactgtgcgggactgcacgaccaatcatttgcgcgcagatctttaccccgaaft atctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtaacaccc agtcggtcaaagtggcgccgcattacgatcagaccgacagcagcattacaaag cgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccgtat tccgttaaccctgaccaataacgggtggcaattcgtatagcttcaggtaaccgtcggaactc gggcgtggcgctgccaggatactggatgctgttggatgaatagcgcgggcgtccc gagcgtagcgcgacgatccgtgtgaccaggccgcagcttgataa
210	GOh2088	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGLSPG GITVTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

211	GOh2089	atgggcagcagccatcatcatcatcacagcagcggcctggcgccgcggcag ccatatgggtaccgcctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgctcacgaggtatattaaagtcc gacggcaccaactggggatccccggtcgctcgggcagctggttcgccgacagcac caccaagtattccaatttgaaccggcctcgcacgctacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctcctataccgcggcgagccaggacttggcggttggggcccgaccatgcacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcagccgcgtactgattgggag cagctaccgtaacgacgcggcggaaggcagccggcgccatcactctgacgtcg agttgggatccatccacgggcatcgtctccagcgcaccgtgacctcacgaaacac gacatgttttggcgggatcagatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttgatccc ggggccggacatgaggtggcagcggggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagccccatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgtaaccgcccgaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcagcgggcccgctcgaccgaatgaattgtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcgg cgtggcgccggacgcaatgtcgcgcaatgccgtgatgtatgacgggtcaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagccccgaacacgggtcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgccgacggatcaacct ttatcacggcgcgacagcgccgtggcatccccctcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgttttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttctccggacggacgtgtctttaatggcggag gaggactgtcggggactgcacgaccaatcatttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgacccgtccgaaaattaccgtagatcaac ccagtcctcaaatggggcgccgacattacgatcagtagcagcagcattaccaa agcgtcactgattcgttacggcacgcgaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaattcgtagcttccaggtaccgtcgga ctcgggctgtggcgctgccaggatactggatgctgtttgtatgaatagcggggcgctc ccgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
212	GOh2089	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGLSPG GITLTSSWDPTSGIVSQRVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
213	GOh2090	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgctctgccctatcggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgcgtcgggcagctggttcgccgacgacac caccaagtattccaatttgaaccggctcgtcacgctacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaatcaatgtattcaagccag ctctataccgcggcgagccaggacttggcggtggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacac gacatgtttgcccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacgttgatccc ggggccggacatgcaggtggcacgcgggtaccagtcagcgccatgtcagac ggccgtgtctttacaatcggcggctcatttagtggcggagtgttgagaagaatggcga agtctatagccccatccaaaacgtggacgtcacttccgaacggaagtgatccc atgttaaccgcccgaacaacaggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggggagcgtcttcaggcgggcccgtcgaccgaatgaattgtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcg cgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagccccgaacacggcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcgtgtgctcctcgccgacggatcaacct ttatcacggcgagacgcgcgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttccggacggacgtgtctttaatggcggag gaggactgtgcggggactgcacgaccaatcacatggacgcgcagatctttacccgca attatctgtatgattcaaatgggaatctcgcgaccgtccgaaaattaccgtagatcaa cccagtcctgcaaaagtggcgccgcgcaattacgatcagtagcagcagcattacca aagcgtcactgattcgttacggcaccgcaaccatacagtcacacggaccagcgcc gtattccgttaaccctgaccaataacgggtggcaattcgtatagcttcaggtagcgtcg actcggcgctggcgctgcaggatagtgatgctgtttgatgaatagcggcggt cccgagcgtagcgagcacgatccgtgtgaccaggccgcagcttgataa
214	GOh2090	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGVSFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLDPGRVFNNGGGGLCGDCTTNHMDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
215	GOh2091	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccaattctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgacagcggcaacgagtgaataaagccatcgacggca ataaagacacctctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tactatatacattgacatgaaaaccaccagaatgtgaacggcgctgcctgctgccg cgccaggacggcaatcagaacggatggatcgcccgctcacgaggtatatttaagctcc gacggcaccaactggggatccccggcgctcgccgagctggctgcgcgacagcac caccaagtattccaattttgaaacccgctctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgattccaagccag ctctataccgcgcgcagccagcacttggcgctggggcccgaccatcgacctgcc tatcgtaccgcgagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttggcgggatcagcatggacggcaacggccagatcgctgcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggcccggacatgcaggtggcagcgggtaccagtcacgcgcgacatgtcagac ggccgtgtctttacaatcgcgcgctcatttagtggcgagtggttgagaagaatggcga agtctatagccctcatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaacaggcgctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgcaatgaattgttatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcg cgtggcgccggacgcaatgtcgcgcaatgccgtgatgtatgacgggtcaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcggtcca atggcctctatttcgcgctacctttcatactcggtggctctgcggacggatcaacct ttatcaccggcgacagcgcggtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtgccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttctccggacggcgtgtctttaatggcgga gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctcgaaaattaccgtacatcaac ccagtcctcaaatggggcgccgattacgatcagtagcagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtcacacggaccagcgccg tattccgttaacctgaccaataacggtggcaattcgtatagctccaggtaccgtcgga ctcgggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgggcgctc ccgagcgtagcgagcacgatccgtgtgaccaggccgcagcttgataa

216	GOh2091	MGSSHHHHHHSSGLVPRGSHMGTSAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
217	GOh2092	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcggcag ccatatgggtaccgctctcctcctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagcggcaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cggcagagcgcaatcagaacggatggatcgccggtcagaggatatttaagctcc gacggcaccaactgggatccccggtcgctcgggcagctggttcgccgacagcagc caccaagtattccaattttgaaacccgctcctgcacgctacgtgcgcttagtgccgtgac agaggcgcaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctctataccgcgcccagccagcacttggcggttggggcccagaccatgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcagccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagccccggcgccatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttggccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggcccggacatgcaggtggcacgcgggtaccagtcacgcgacccatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagccctcatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaacagggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtatt acacgtcagggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcgg cgtggcgccggacgcaatgtcgggcaatgccgtgatgtatgacgcgggtcaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcgcgtcca atggcctctatttcgcgctacctttcatcgtcggtggtcctcgccgacgagatcaacct ttatcaccggcgacagcgccgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtgccgaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccccgacggagcgtgtctttaatggcggag gaggactgtcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtagatcaac

		ccagtcctgcaaaagtgggcgccgcattacgatcagtagccgacagcagcattacca agcgtcactgattcgttacggcaccgcaaccatacagtaacacggaccagcgccg tattccgtfaaccctgaccaataacggtggcaattcgtatagcttcaggtagcgcgga ctcggcgctggcgctgccaggatactggatgctgttggatgaatagcgcggcgctc ccgagcgtagcagcacgatccgtgtgacccaggccgcagcttgataa
218	GOh2092	MGSSHHHHHSSGLVPRGSHMGTASHPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
219	GOh2093	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcgcag ccatatgggtaccgcctctgccctatcggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgtttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatattagctcc gacggcaccaactgggatccccggtcgcgtcggcgagctggttcgccgacagcac caccaagtattccaattttgaaacccgtcctgcacgtacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctcctataccgcgccgagccaggacttggcggttggggcccgaccatgcacctgcc tactgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgacctcacgaaacac gacatgttttccccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacccaagaagacgagcctctatgacagtagcagcgacagttgatccc ggggccggacatgcaggtggcacgcgggtaccagtccagcgccacctgacagac ggccgtgtctttacaatcggcggtcatttagtggcgagggtgttgagaagaatggcga

		agtcctatagcccctcatccaaacgtggacgtcacttccgaacgcgaaggatccc atgttaaccgcccagacaaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcggccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacggcttccgctcca atggcctctatttgcgcgtacctttcatacgtcgggtgctcctgccggacggatcaacct ttatcacgcggcgacagcggcgtggcatcccccttgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttcccggacggacgtgtctttaatggcggag gaggactgtgcgggactgcacaccaatcatttgcgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtaacaaac ccagtcctcaaatggggcggccgacattacgacgtaccgacagcagcattaccaa agcgtcactgattcgtatggcaccgcaaccatacagtaaacacggaccagcggcg tattccgttaaccctgaccaataacggtggcaattcgtatagcttccagtgaccgtcgga ctcgggcgtggcgtgccaggatactggatgctgttggatgaatagcgcgggcgtc ccgagcgtagcggagcagatccgtgtgaccagggccgcagcttgataa
220	GOh2093	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RMGTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSG VALPGYWMLFVMNSAGVPSVASTIRVTQAAA

221	GOh2094	atgggcagcagccatcatcatcatcacagcagcggcctggcgccgcggcag ccatatgggtaccgcctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgctcgggcagctggttcgccgacagcac caccaagtattccaatttgaaccggctctgcacgctacgtgcgttagtgccgtgac agaggcgaacaatcagccatggacctcaatcgccgaatcaatgtattccaagccag ctcctataccgcgccgagccagacttggcggttggggcccgaccatgcacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcagccgcgtactgattgggag cagctaccgtaacgacgcggcggaaggcagcccgggcgcatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgacctgcacgaaacac gacatgttttggcgggatcagatggagcgcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggtccc ggggccggacatgaggtggcacgcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagcccccatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgtaaccgcccgaacaacaggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattgtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcgg cgtggcgccggacgcaatgtcgcgcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagccccgaacacgggtcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgccgacggatcaacct ttatcacggcgcgacagcgcgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgttttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttctccggacggacgtgtctttaatggcgag gaggactgtcggggactgcacgaccaatcatttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtagatcaac ccagtcctcaaatggggcgccgacattacgatcagtagcagcagcattaccaa agcgtcactgattcgttacggcacgcgaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaattcgtagcttccaggtaccgtcgga ctcgggctgtggcgctgccaggatactggatgctgtttgtgatgaatagcggggcgtc ccgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
222	GOh2094	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANNQPWTSIAEINVFAQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWYTS GSGDVKSAGKRQSNRGVAPDAM CGNAV MYDA VKGKILTFGGSPDYTDS DATTAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPD GSTFITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
223	GOh2097	atgggcagcagccatcatcatcatcacagcagcggcctggcgccgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcggatagcggcaacgagtgcaataaagccatcgacggcaa taaagacaccttctggcacacgtttatggcgcaaatggcgacccgaagccaccgcat acctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtccgc gccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctccg acggcaccaactggggatccccggtcgctcgggcagctgttcgccgacagcacc accaagtattccaattttgaaacccgctctgcacgtacgtgcgttagtgccgtgaca gaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccagc tcctataccgcggcgagccaggacttggcggttggggcccaccatcgacctgct atcgtaccgcagccgcggcgattgaaccaacgtcagccgcgtactgatgtggagc agctaccgtaacgacgcggcggaaggcagccggggcgcatcactctgacgtcga gttgggatccatccacgggcatcgtccgaccgcaccgtgacctcacgaaacacg acatgtttgcccgggatcagcatggacggcaacggccagatcgtcgtcacggcg gctgggacgccaagaagacgacctctatgacagtagcagcgacagttggatccc gggcccggacatgcaggtggcacgcgggtaccagtccagcgcgaccatgtcagacg gccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcgaa gtctatagcccctcatccaaaacgtggacgtcacttccgaacggaaggtgaatcccat gttaaccgcccacaaacaggcctgtacatgagcgacaacctgcgtggtgttcgg ctggaagaaggggagcgtcttcaggcggggcccgtcgaccgcaatgaattggtattac acgtcagggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtcgggcaatgccgtgatgtatgacggcgtaaggcaa gatcctgacatttggcgggagtccggactacaccgacgtgacgcgacaaccaatgc ccacattattaccttggggagccggggacgagcccgaacacggcttcgcgtccaat ggcctctatttcgcgctaccttctacatcgtcgtgctcctccggacggatcaaccttt atcacccggcgacagcgcgtggcatccccctgaagactcgacccccgtctttacac cggagatttatgtccgggaacaggacacgtttataaacagaatccgaactcgattga cgcgcgtatcactccatcagccttcttctccggacggagctgtcttaatggcgagg aggactgtcggggactgcacgaccaatcatttgacgcgcagatctttacccgaatt atctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccggtacatcaacc agtccgtcaaagtggcgggcgccgattacgatcagtagcagcagcattaccaag cgctactgattcgttacggcaccgcaaccatacagtcacacggaccagcgcggtat tccgttaaccttgaccaataacggtggcaattcgtatagcttcaggtagcgtcggactc ggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcggcggtccc gagcgtagcgagcacgatccgtgtgaccagggccgcagcttgataa
224	GOh2097	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSADSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPTSGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
225	GOh2098	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgaaagcggcaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tactatatacattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgcccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggcgctggcgagctggctgccgacagcac caccaagtattccaattttgaaaccgctctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgattccaagccag ctctataccgcgcccagccagcacttggcggtggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttggatccatccacgggcatcgtctccgaccgcaccgtgacctcacgaaacac gacatgttttggccgggacagcatggacggcaacggccagatcgctgcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggcccggacatgcaggtggcagcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagcccctcatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaacagggcctgtacatgagcgacaaccatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgcaatgaattgtgatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcg cgtggcgccggacgcaatgtcgcgcaatgccgtgatgtatgacgggtcaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcggtcca atggcctctatttcgcgctacctttcatactcggtggctctgcggacggatcaacct ttatcaccggcgacagcgcggtggcatccccctcgaagactcgacccccgtctttac accggagatttatgtgccggaacaggacacgttttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttccccggacggcgtgtctttaatggcgagg gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctcaaatggggcgccgcatcagatcagtagcagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtcacaacggaccagcgccg tattccgttaacctgaccaataacggtggcaattcgtatagctccaggtaccgtcgga ctcgggcggtggcgctgccaggatactggatgctgttgatgaatagcgcgggcgctc ccgagcgtagcgagcacgatccgtgtgaccaggccgcagcttgataa

226	GOh2098	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAESGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
227	GOh2099	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgaatagcggcaacgagtgcaataagccatcgacggcaa taaagacaccttctggcacacgtttatggcgcaaatggcgacccgaagccaccgcat acctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccgc gccagggacggcaatcagaacggatggatcgccgctcagcaggatatttaagctccg acggcaccaactggggatccccggctcgctcggcagctggttcgccgacagcacc accaagtattccaattttaaaccgctctgcacgctacgtgcgcttagtgccgctgaca gaggcgaacggccagccatggacctcaatcgccgaaatcaatgtattccaagccagc tctataccgcggcgagccaggacttggcggttggggcccgaccatcgacctgct atcgtaaccgcagccgcggcgatgaaccaacgtcaggccgcgtactgatgtggagc agctaccgtaacgacgcggcggaaggcagccggggcgccatcactctgacgtcga gttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacacg acatgttttggccggggatcagcatggacggcaacggccagatcgtcgtcacggcg gctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatcccg gggccggacatgcaggtggcacgcgggtaccagtcagcgcgaccatgtcagacg gccgtgtctttacaatcgggcggtcatttagtggcgagggtgttgagaagaatggcgaa gtctatagcccctcatcaaaacgtggacgtcacttcgaacgcgaaggtgaatcccat gttaacgccgacaaacagggcctgtacatgagcgacaacctgcgtggctgttcgg ctggaagaaggggagcgtcttcaggcgggcccgctcgaccgcaatgaattggtattac acgtcagggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtcaaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtccaat ggcccttatttcgcgctacctttcatatcgtcgggtgtcctgccggacggatcaaccttt atcaccggcgacagcgccgtggcatcccttcgaagactcgacccccgtctttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgta cgcgctatcactccatcagccttcttcccggacggacgtgtctttaatggcgagg aggactgtgcgggactgcacgaccaatcattttgacgcgcagatcttaccgccgaatt atctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccggtacatcaacc

		agtcggtcaaagtggcgggccgacattacgatcagtagccgacagcagcattaccaag cgtcactgattcggtacggcaccgcaaccatacagtaacacggaccagcgccgat tccgttaaccctgaccaataacgggtggcaattcgtagcttcagggtaccgtcgactc ggcggtggcgctgccaggatactggatgctgtttgatgaatagcgcgggcgctcc gagcgtagcgagcacgatccgtgtgaccagggccgagcttgataa
228	GOh2099	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSANSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMSWSSYRNDAEAGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
229	GOh2100	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcgcag ccatatgggtaccgcctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagagcggaacaaatgcaataaagccatcgacggca ataaagacaccttctggcacacgtttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatattagctcc gacggcaccaactgggatccccggtcgcgtcggcgagctggttcgccgacgacac caccaagtattcaatttgaaacccgtcctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaatcaatgtattccaagccag ctctataccgcgccgcagccaggacttggcggttggggcccgaccatgcacctgcc tactgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttggccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggccggacatgcaggtggcacgcgggtaccagtccagcgccaccatgtcagac ggcgtgtctttacaatcgggcggtcatttagtggcggagtgtttgagaagaatggcga

		agtcctatagcccctcatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcggccggacgcaatgtgcggcaatgccgtgatgtatgacgcggcgaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtcca atggcctctatttgcgcgtacctttcatacgtcgggtgctcctgccggacggatcaacct ttatcacggcggacagcgcgtggcatcccccttgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttcccggacggacgtgtctttaatggcggag gaggactgtgcggggactgcacaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgcatatcaac ccagtcctcaaatggggcggccgacattacgacgtaccgacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacaggaccagcgcgg tattccgttaaccctgaccaataacgtggcaattcgtatagcttccaggctaccgtcgga ctcgggctggcgtgccaggatactggatgctgtttgtgatgaatagcgcgggcgtc ccgagcgtagcggagcacgatccgtgtgaccaggccgcagcttgataa
230	GOh2100	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNKCENKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

231	GOh2101	atgggcagcagccatcatcatcatcacagcagcggcctggcgccgcggcag ccatatgggtaccgcctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgagatggcgaccggaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatattaaagtcc gacggcaccaactggggatccccggctcgctcgggcagctggttcgccgacagcac caccaagtattccaatttgaaccggctctgcacgctacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaatcaatgtattccaagccag ctcctataccgcggcgagccaggacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtacggccgctactgattgggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgacctcacgaaacac gacatgttttggcgggatcagatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttgatccc ggggccggacatgaggtggcacgcgggtaccagtcagcgccatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagcccccatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgtaaccgcccgaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattgtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcgg cgtggcgccggagcgaatgtgcggcaatgccgtgatgtatgacgggtcaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagccccgaacacgggtcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgccgacggatcaacct ttatcacggcgcgacagcggcgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtgccggaacaggacacgttttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttctccggacggacgtgtctttaatggcggag gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtagatcaac ccagtcctcaaatggggcgccgcattacgatcagtagccagacagcattaccaa agcgtcactgattcgttacggcacgcgaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaattcgtagcttccaggtaccgtcgga ctcgggctgtggcgctgccaggatactggatgctgttgtgatgaatagcgcgggcgctc cgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
232	GOh2101	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGADGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDA AEGSPG GITLTSSWD PSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPD MQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS L PNAKVNPMLTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAV MYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPD GSTFITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
233	GOh2102	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtcaataaagccatcgacggca ataaagacacctctggcacacgttttatggcgagaaggcgaccgaagccaccgc atactataaccattgacatgaaaaccaccagaatgtgaacggcgtgccgtgctcc ggccaggacggcaatcagaacggatggatcgccgacgaggtatatttaagctc cgacggcaccaactggggatccccggcgcgtcgggcagctggttcggcgacgca ccaccaagtattccaattttgaaacccgctcgcacgtacgtgcgttagtggccgtga cagaggcgaacggccagccatggacctcaatcgccgaaatcaatgtattccaagcca gtctctataccgcccgcagccaggacttggcggtggggcccaccatcgacctgc ctatctatcccgacggcggtgattgaaccaacgtcagggcggtactgatgtgga gcagctaccgtaacgacggcggaaggcagccccggcgcatcactctgacgtc gagttgggatccatccacgggcatcgtctccgaccgaccgtgaccgtcacgaaaca cgacatgttttcccgggatcagcatggacggcaacggccagatcgtcgtcacggg cggctgggacccaagaagacgagcctctatgacagtagcagcgacagttggtacc cggggccggacatgcaggtggcacgggtaccagtccagcgcgaccatgtcaga cggccgtgtctttacaatcggcggtcatttagtggcgaggtttgagaagaatggcg aagctatagcccctcatccaaaacgtggacgtcacttccgaacgcgaaggtgaatcc catgttaaccgccgacaaacagggcctgtacatgagcgacaaccatcgctggctgttc ggctggaagaaggggagcgtcttcaggcgggcccgctgaccgcaatgaattggtat tacacgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcg gcgtggcgccggacgcaatgtcggcaatgccgtgatgtatgacgggtcaaaaggc aagatcctgacatttggcgggagtccggactacaccgacagtacgcgcgacaaccaat gcccacattattacccttggggagccggggacgagccccaacacggcttccgctcc aatggcctctatttcgcgctacctttcatacgtcgggtgctcctccggacggatcaacc tttataccggcgacagcgcgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttccggacggacgtgtctttaatggcgag gaggactgtcggggactgcacgaccaatcattttacgcgcagatctttacccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtagatcaac ccagtcctgcaaaagtggcgccgcattacgatcagtagcagacgacattaccaa agcgtcactgattctgtacggcaccgcaaccatacagtcacacggaccagcgccg tattccgttaaccctgaccaataacggtggcaaltcgtatagctccaggtaccgtcgga ctcgggcgtggcgctgccaggatactggatgctgtttgtgatgaatagcggggcgtc ccgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
234	GOh2102	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGAEGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPTSGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMLTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPGDRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
235	GOh2103	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcgcgcag ccatatgggtaccgctctgccctatcggtcagccatcccgccaataactgggcc gtaacgtgcgacagcgcgcagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgtttatggcgcatgtggcgacccgaagccaccgcat acctataccattgacatgaaaaccaccagaatgtgaacgggctgctcggtgctccgc gccaggacggcaatcagaacggaatggatcgccgtcacgaggtatattaaagtcgcg acggcaccaactggggatccccggcgctcggtggcgagctggttcggcgacagcacc accaagtattccaattttgaaaccgctctgcacgctacgtgcgcttagtgccgtgaca gaggcgaacggccagccatggacctaatcgccgaaatcaatgattccaagccagc tctataccgcgcgcagccagactggcggttggggcccgaccatcgacctgct atcgtaaccgcagccgcggcgaltgaaccaacgtcagccgcgactgatgtggagc agctaccgtaacgacgcggcggaaggcagcccgggcggaatcactctgacgtcga gttgggatccatccacgggcatcgtcggaccgcaccgtgacctcacgaaacacg acatgttttggccgggagcagcatggacggcaacggccagatcgtcgcacggcg gctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatcccg gggcccagacatgcaggtggcacgcgggtaccagtcagcgaccatgacagacg gccgtgtctttacaatcggcggtcatttagtggcgaggtgtttgagaagaatggcgaa gtctatagccctcatcaaaacgtggacgtcacttccgaacgcgaaggtgaatccat gttaaccggcgacaaacagggctgtacatgagcgacaacatcgctggctgttcgg ctggaagaaggggagcgctttcagcgggcccgctgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgatgacgcggtcaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtccaat ggcctctatttcgcggtacctttcatacgtcgggtgctcctgccggacggatcaaccttt atcaccggcgacagcgccgtggcatcccttcgaagactgacccccgtctttacac cggagatttatgtccggaaacaggacacgtttataaacagaatccgaactcgattgta cgcgcgtatcactccatcagccttcttctccggacggacgtgtctttaaaggcggagg aggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaatt atctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaaccc agtcctcaaagtggcgggccgcaattacgatcagtagcagcagcattaccaaag cgtcactgattcgttacggcaccgcaaccatagtcacacggaccagcgccgtat tccgttaaccctgaccaataacggtggcaattcgtatagcttcaggtaccgtcggactc ggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctccc gagcgtagcagcagcagatccgtgtgaccagggcgagcgttgataa

236	GOh2103	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGAFGDPKP PHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
237	GOh2104	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactggccc gtaacgtgcgacagcgcgagcggcaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgacatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctccg cggcagcagggcaatcagaacggatggatcgccggtcagcaggtatatttaagctcc gacggcaccgaactgggatccccggcgctcggtcgggcagctggttcggcagcagc caccaagtattccaattttgaaaccgctctgcacgctacgtgcgcttagtgccgtgac agaggcgaacggccagccatggacccaatcgccgaaatcaatgtattccaagccag ctctataccgcgcccagccagcacttggcggttggggcccagaccatgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcagccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagccccggcggcacactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttggccgggatcagcatggacggcaacggccagatcgctgcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggcccggacatgcaggtggcacgcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagcccccatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaacagggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggggagcgcttttcaggcgggcccgtcgaccgaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcgccggacgcaatgtcgggcaatgccgtgatgtatgacgcggcgaagga agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttgcgtcca atggcctctatttcgcgctacctttcatacgtcggtggtcctgcggacgcatcaacct ttatcaccggcgacagcgccgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccccggacggacgtgtctttaatggcgga gaggactgtcggggactgcacgaccaatcattttgacgcgcagatcttaccgccaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgcatcaaac

		ccagtcctgcaaaagtgggcgccgcattacgatcagtagccgacagcagcattacca agcgtcactgattcgttacggcaccgcaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacgggtggcaattcgtatagcttccaggtagcgcgga ctcgggctggcgctgccaggatactggatgctgttggatgaatagcgcgggctc ccgagcgtagcagcacgatccgtgtgacccaggccgcagcttgataa
238	GOh2104	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGAHGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
239	GOh2105	atgggcagcagccatcatcatcatcacagcagcgccctgggtccgcgcgcgag ccatatgggtaccgcctctgccctatcggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgtttatggcgcaactggcgacccgaagccaccga tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctccg cgccagcagcgcaatcagaacggatggatcgccgtcacgaggtatattagctcc gacggcaccaactgggatccccgtcgcgtcgggcagctggttcgccgacagcac caccaagtattccaatttgaaacccgtcctgcacgtacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctcctataccgcgccgagccagcactggcggttggggcccgaccatgcacctgcc tactgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacac gacatgttttccccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacccaagaagacgagcctctatgacagtagcagcgacagttgatccc ggggccggacatgcaggtggcacgcgggtaccagtccagcgcgacatgtcagac ggcgtgtctttacaatcggcggtcatttagtggcggagtgttgagaagaatggcga

		agtcctatagcccctcatccaaacgtggacgtcacttccgaacgcgaaggatgcc atgttaaccgcccagacaaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcggccggacgcaatgtgcggcaatgccgtgatgtatgacgcggcaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacggcttccgctcca atggcctctatttgcgcgtacctttcatacgtcgggtgctcctgcccggacggatcaacct ttatcacggcggacagcgcggcgtggcatcccccttgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttcccggacggacgtgtctttaatggcggag gaggactgtgcgggactgcacaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtaacaaac ccagtcctgcaaatggggcggccgacattacgacgtaccgacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgcgg tattccgttaaccctgaccaataacggtggcaattcgtatagcttccaggctaccgtcggg ctcgggctggcgtgcccaggatactggatgctgtttgtgatgaatagcgcgggctgc ccgagcgtagcggagcacgatccgtgtgacccaggccgcagcttgataa
240	GOh2105	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGALGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

241	GOh2106	atgggcagcagccatcatcatcatcacagcagcggcctggcgccgcggcag ccatatgggtaccgcctctgcccctatcggtcagccatccccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaatggcgaccggaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgctcacgaggtatatttaagctcc gacggcaccaactggggatccccggctcgcgcggcagctggctcgccgacagcac caccaagtattccaatttgaaccggctctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaatcaatgtattccaagccag ctctataccgcggcgagccaggacttggcggttggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtacggccgctactgattgggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgacctcacgaaacac gacatgttttggcgggatcagatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggtccc ggggccggacatgaggtggcagcggggtaccagtcagcgccagatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagcccccatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgtaaccgcccgaacagggcctgtacatgagcgacaaccatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattgtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcgg cgtggcgccggacgcaatgtcgcgcaatgccgtgatgtatgacgggtcaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagccccgaacacggcttctcgctcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgcgacggatcaacct ttatcacggcgcgacagcgccgtggcatccccctcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgttttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttctccggacggacgtgtctttaatggcgag gaggactgtcggggactgcacgaccaatcatttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtagatcaac ccagtcctcaaatggggcgccgacattacgatcagtagcagacgacattaccaa agcgtcactgattcgttacggcacgcgaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaattcgtagcttccaggtaccgtcgga ctcgggctgtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgtc ccgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
242	GOh2106	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGAMGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDA AEGSPG GITLTSSWD PSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPD MQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVNPMLTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAV MYDAVKGKILTFGGSPDYTDSATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPD GSTFITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGNSYSFQVPSSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
243	GOH2107	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaacagcgaccgaagccaccgc atactataaccattgacatgaaaaccaccagaatgtgaacggcgtgccgtgctgc ggccaggacggcaatcagaacggatggatcgccgacgaggtatatttaagctc cgacggcaccaactggggatccccggcgcgtcgggcagctggttcggcgacagca ccaccaagtattccaatttgaacccgctctgcacgtacgtgcgttagtggccgtga cagaggcgaacggccagccatggacctcaatcgccgaatcaatgtattccaagcca gtctctataccgcccgcagccaggacttggcggtggggcccaccatcgacctgc ctatctatcccgacggcggtgattgaaccaacgtcagggcggtactgatgtgga gcagctaccgtaacgacggcggaaggcagccccggcgcatcactctgacgtc gagttgggatccatccacgggcatcgtctccgaccgaccgtgaccgtcacgaaaca cgacatgtttgccccgggatcagcatggacggcaacggccagatcgtcgtcacggg cggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggtacc cggggccggacatgcaggtggcacgggtaccagtccagcgcgaccatgtcaga cggcgtgtctttacaatcggcggtcatttagtggcgaggtttgagaagaatggcg aagctctatagcccctcatccaaacgtggacgtcacttccgaacgcgaaggtgaatcc catgttaaccgccgacaaacagggcctgtacatgagcgacaaccatcgctggctgttc ggctggaagaaggggagcgtcttcaggcgggcccgctgaccgcaatgaattggtat tacacgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcg gcgtggcgccggacgcaatgtcggcaatgccgtgatgtatgacgggtcaaaaggc aagatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaat gcccacattattaccttggggagccggggacgagccccaacacggcttccgctcc aatggcctctatttcgcgctaccttccatacgtcgggtgctcctccggacggatcaacc tttaccggcgggacagcggcgtggcatccccctcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttccggacggacgtgtctttaatggcgag gaggactgtcggggactgcacgaccaatcattttgacgcgcagatctttacccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtagatcaac ccagtcctgcaaatggcgccgcattacgacgacgtaccgacgacgattaccaa agcgtcactgattctgtacggcaccgcaaccatacagtcacacggaccagcgccg tattccgttaacctgaccaataacgggtggcaaltcgtatagctccaggtaccgtcgga ctcgggctgtggcgtgccaggatactggatgctgtttgtgatgaatagcgcgggcgtc ccgagcgtagcgagcacgatccgtgtgaccaggccgcagcttgataa
244	GOH2107	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGATGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPTSGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGVSFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGLLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
245	GOh2108	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgacagcggcaacgagtgaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcagggcgacccgaagccaccgc atacctataccattgacatgaaaaccaccagaatgtgaacggcgctgccgtgctgcc gcgccaggacggcaatcagaacggatggatcgccgctcagaggtatatttaagctc cgacggcaccaactggggatccccggctcgctcgggcagctggttcgccgacagca ccaccaagtattccaattttgaaaccgctctgcacgtacgtcgcttagtgccgtga cagagcggaacggccagccatggacctcaatcgccgaaatcaatgtattccaagcca gctcctataccgcgcgcagccagcagcttggcgctggggcccgaccatcgacctgc ctatcgtaaccgcagccgcggcgattgaaccaacgtcagggcgctactgatgtgga gcagctaccgtaacgacgcggcggaaggcagccggggcgcatcactctgacgtc gagtgggatccatccacgggcagctctccgaccgcaccgtgaccgtcacgaaaca cgacatgttttccccgggatcagcatggacggcaacggccagatcgtcgtcacggg cggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatcc cggggccggacatgcaggtggcagcgggtaccagtcacgcgacatgtcaga cggccgtgtttacaatcgcggtcatttagtgccggagtggttgagaagaatggcg aagtctatagccccctatccaaaacgtggacgtcacttccgaacgcgaaggtgaatcc catgttaaccgccgacaaaacagggcctgtacatgagcgacaacatcgctggctgttc ggctggaagaaggggagcgtctttcaggcgggcccgctgaccgcaatgaattggtat tacacgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcg gcgtggcgccggacgcaatgtcgcgcaatgccgtgatgtatgacgggtcaaaaggc aagatcctgacatttggcgggagtcgggactacaccgacgtgacgcgacaaccaat gcccacattattacccttggggagccggggacgagcccgaaacacggcttccgctcc aatggcctctatttcgcggtacctttcatagtcggtggctcctgccggacggatcaacc ttatcacccggcgacagcggcggtggcatccccctcgaagactcgacccccgtctttac accggagatttatgtgccggaacagacagcttttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttctccggacggcagctgtctttaatggcgga gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctcaaaagtggcgccgcattacgatcagtagcagcagcattaccaaa agcgtcactgattcgttacggcaccgcaaccatacagtcacaacacggaccagcgccg tattccgttaaccctgaccaataacgggtggcaattcgtatagcttcaggtagcgtcgga ctcgggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctc ccgagcgtagcgagcacgatccgtgtgacctaggcccgagcttgataa

246	GOh2108	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGAWGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
247	GOh2109	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagcggaacgagtgcaataaagccatcgacggca ataaagacacctctggcacacgtttatggcgcataatggcgaccgaagccaccga tactataccattgacatgaaaccaccagaatgtgaacgggctgctcgctgccg cggcagcagcgaatcagaacggatggatcgccgctcagcaggtatatttaagctcc gacggcaccgaactgggatccccggcgctcgccgagcgtggtcgccgacagcagc caccaagtattccaattttgaaaccgctctgcacgctacgtgcgcttagtgccgctgac agaggcgaacggccagccatggacccaatcgccgaaatcaatgtattccaagccag ctctataccgcgcccagccagcacttggcggttggggcccagaccatgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcagccgcgctactgatgtggag cagctaccgtaacgacgcggcggaaggcagccccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgaccgtcacgaaacac gacatgtttgccccgggatcagcatggacggcaacggccagatcgctgcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggcccggacatgcaggtggcacgcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcgcgcgctcatttagtggcgagtggttgagaagaatggcga agtctatagccccatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaacagggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcgccggacgcaatgtcgggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcggtggtcctgcggacgcatcaacct ttatcaccggcgacagcgccgtggcatccccctcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccccggacggacgtgtctttaatggcggag gaggactgtcggggactgcacgaccaatcattttgacgcgcagatcttaccgccaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgcatcaaac

		ccagtcctgcaaaagtgggcgccgcattacgatcagtagccgacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccg tattccgtfaaccctgaccaataacgggtggcaattcgtatagcttccaggtagcgcgga ctcgggctggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggctc ccgagcgtagcagcacgatccgtgtgacccaggccgcagcttgataa
248	GOh2109	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGAYGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS L PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAV MYDAVKGKILTFGGSPDYTDS DATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPD GSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLL PDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTN TDQRRIP LTLNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
249	GOh2110	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcgcag ccatatgggtaccgcctctgccctatcggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggaggtatcgccgtcacgaggtatattagctcc gacggcaccaactgggatccccggtcgcgtcgggcagctggttcgccgacagcac caccaagtattccaattttgaaacccgtcctgcacgtacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgtattccaagccag ctcctataccgcgccgcagccaggacttggcggttggggcccgaccatcgacctgcc tactgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgcatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgacctcacgaaacac gacatgttttccccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttgatccc ggggccggacatgcaggtggcacgcgggtaccagtccagcgccacctgacagac ggcgtgtctttacaatcgggcggtcatttagtggcgagggtgttgagaagaatggcga

		agtcctatagcccctcatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcggccggacgcaatgtgcggcaatgccgtgatgtatgacgcggcaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtcca atggcctctatttgcgcgtacctttcatacgtcgggtgctcctgccggacggatcaacct ttatcacggcggacagcgcctgtggcatcccccttgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttcccggacggacgtgtctttaatggcggag gaggactgtgcggggactgcacaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgcatatcaac ccagtcctgcaaatggggcggccgacattacgacgtaccgacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacaggaccagcgcgg tattccgttaaccctgaccaataacggtggcaattcgtatagcttccaggctaccgtcgga ctcgggcgtggcgtgccaggatactggatgctgtttgtgatgaatagcgcgggcgtc ccgagcgtagcggagcacgatccgtgtgacccaggccgcagcttgataa
250	GOh2110	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGGIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

251	GOh2111	atgggcagcagccatcatcatcatcacagcagcggcctgggtgccgcgcggcag ccatatgggtaccgcctctgcccctatcggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacaccttctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggaaatafcggcgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgctcgggcagctggttcgccgacagcac caccaagtattccaatttgaaccctcctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctcctataccgcgcgcagccaggaacttggcggttggggcccgaccatgcacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcagccgcgtactgattgggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgacctcacgaaacac gacatgttttggcgggatcagatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttgatccc ggggccggacatgaggtggcacgcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagccccatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgtaaccgcccgaacagggcctgtacatgagcgacaaccatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattgtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcgg cgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagccccgaacacggcttctcgctcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgcgacggatcaacct ttatcacggcgcgacagcgcggtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtgccggaacaggacacgttttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttctccggacggacgtgtctttaatggcggag gaggactgtgcgggactgcacgaccaatcatttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccctccgaaaattaccgtacatcaac ccagtcctcaaatggggcgccgcattacgatcagtagcagacagcattaccaaa agcgtcactgattcgttacggcacgcgaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaattcgatagcttccaggtaccgtcggg ctcgggctgtggcgctgccaggatactggatgctgtttgtatgaatagcgcgggctc ccgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
252	GOh2111	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGNIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDA AEGSPG GITLTSSWD PSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPD MQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS L PNAKVNPMLTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAV MYDAVKGKILTFGGSPDYTDS DATTN AHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPD GSTFITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
253	GOh2114	atgggcagcagccatcatcatcatcacagcagcggcctggcgccgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgcataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtcctgtgcgcg cgccaggacggcaatcagaacggatggatcgccggtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgcgtcggcgagctggttcggcgacagcac caccaagtattccaattttgaaaccgctctgcacgctacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaatcaatgtattcaagccag ctcctatgaagcgccgcagccaggacttggcggttggggcccgaccatgcacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcaggccgctactgatgtggag cagctaccgtaacgacgcggcggaaggcagccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacac gacatgttttggcgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacgttggatccc ggggccggacatgcaggtggcgacgcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcggcggctcatttagtggcggagtgttgagaagaatggcga agtctatagccccatccaaaacgtggacgtcacttccgaacggaagtgatccc atgttaaccgcccgaacaacaggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtagaccgaatgaattgttatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcgg cgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagccccgaacacggcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctccggacggatcaacct ttatcacggcgacagcgcgggtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccggacggacgtgtctttaatggcggag gaggactgtgcggggactgcacgaccaatcattttacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctgcaaatggcgccgcattacgatcagtagcagcagcattaccaa agcgtcactgattctgtacggcaccgcaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaaltcgtatagcttccaggtaccgtcgga ctcgggcgtggcgctgccaggatactggatgctgtttgtgatgaatagcgcggcgctc ccgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
254	GOh2114	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDASQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYEAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPLMTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNahiITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPGDRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGLLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
255	GOh2115	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcgcgcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggaatcagaacggatggatcgccgctcacgaggtatatttaagctcc gacggcaccaactggggatccccggcgctcgccgagctggctgccgacagcac caccaagtattccaattttgaaacccgctctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgattccaagccag ctctatcatgcgcgcagccaggactggcgctggggcccgaacctgacctgcct atcgtacccgcagccgcggcgattgaaccaacgtcagggcgctactgatgtggagc agctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcga gttgggatccatccacgggcatcgtcgcgaccgcaccgtgacctcacgaaacacg acatgttttggccggggatcagcatggacggcaacggccagatcgtcgcacggcg gctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc gggccggacatgcaggtggcacgcgggtaccagtcagcgccatgacagacg gccgtgtctttacaatcgcggtcatttagtggcgaggtgtttgagaagaatggcgaa gtctatagcccctcatcaaaacgtggacgtcacttccgaacgcgaaggtgaatccat gftaacgccgacaaaacagggctgtacatgagcgacaacatgcgtggctgttcgg ctggaagaaggggagcgctttcagcgggggccgctgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgatgacgcggcgaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgcgcgacaaccaatgc ccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtccaat ggctctatttcgcggtacctttcatacgtcgggtgtcctgccggacggatcaaccttt atcaccggcgacagcgccgtggcatccccttgaagactgacccccgtctttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgta cgcgctatcactccatcagccttcttctccggacggacgtgtctttaatggcgagg aggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaatt atctgtatgattcaaatgggaatctcgcgaccgctccgaaaattacccgtacatcaaccc agtccgtcaaagtggcgggccgcaattacgatcagtagcagcagcattaccaaag cgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccgtat tccgttaaccctgaccaataacggtggcaattcgtatagcttcaggtaccgtcggactc gggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctccc gaggctagcgagcacgatccgtgtgaccaggccgcagcttgataa

256	GOh2115	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQASSYHAPQPLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
257	GOh2116	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcgcag ccatatgggtaccgctctgccccatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagcggaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccagcagcgaatcagaacggatggatcgccgtcagcaggtatatttaagctcc gacggcaccgaactgggatccccggtcgctcgccgagctggttcgccgacagcagc caccgaagtatccaattttgaaaccgctcctgcacgctacgtgcgcttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgtatccaagccag ctcctatattgcgccgagccagcacttggcggttggggcccaccatcgacctgcct atcgtaaccgcagccgcggcgattgaaccaacgtcagccgcgctactgatgtggagc agctaccgtaacgacgcggcggaaggcagccggggcgccatcactctgacgtcga gttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacacg acatgttttggccggggatcagcatggacggcaacggccagatcgtcgtcacggcg gctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc gggcccggacatgcaggtggcacgcgggtaccagtcagcgccacatgtcagacg gccgtgtctttacaatcgggcgctcatttagtggcgagtggttgagaagaatggcgaa gtctatagcccctcatcaaaacgtggacgtcacttcgaacgcgaaggtgaatccat gttaaccgcccgaacacaggcctgtacatgagcgacaacctgcgtggctgttcgg ctggaagaaggggagcgtcttcaggcgggcccgtcgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcgaagcggcagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtcaaaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattacccttggggagccggggacgagcccgaacacggctcttcgctccaat ggcctctatttcgcgctacctttcatatcgtcgggtgtcctgccggacggatcaacctt atcaccggcgacagcgccgtggcatcccttcgaagactcgacccccgtctttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgta cgcgctatcactccatcagccttcttcccggacggacgtgtctttaatggcgagg aggactgtgcgggactgcacgaccaatcatttgacgcgcagatcttaaccggaatt atctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccggtacatcaacc

		agtcggtcaaagtggcgggccgcaattacgatcagtagccgacagcagcattaccaag cgtcactgattcggttacggcaccgcaaccatacagtaacacggaccagcgccgtat tccgttaaccctgaccaataacgggtggcaattcgtatagcttcagggtaccgtcggactc gggcgtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgtccc gagcgtagcgagcacgatccgtgtgaccagggccgcagcttgataa
258	GOh2116	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFQASSYIAPQPGLGRWG PTIDLPIVPA AAAIEPTSGRVLWSSYRNDAAEGSPGGI TLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNGQI VVTGGWDAKKTSLYDSSSDSWIPGPDQMVARGYQSS ATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSLP NAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQA GPSTAMNWWYTS GSGDVKSAGKRQSNRGVAPDAMC GNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITLG EPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGGQR RGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYHSIS LLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLYDS NGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLIRY GTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGVAL PGYWMLFVMNSAGVPSVASTIRVTQAAA
259	GOh2117	atgggcagcagccatcatcatcatcacagcagcgccctgggtccgcgcgcgag ccatatgggtaccgcctctgccctatcggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgttttatggcgcaaatggcgaccggaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatattaaagctcc gacggcaccaactgggatccccggtcgctcgggcagctggttcgccgacgacac caccaagtattccaatttgaaccggcctgcacgctacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctctataaagcgccgcagccaggacttggcggttggggcccgaccatcgacctgcc tactgtaccgcagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttccccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggccggacatgcaggtggcacgcgggtaccagtcagcgccacctgtcagac ggcgtgtctttacaatcggcggtcatttagtggcggagtgtttgagaagaatggcga

		agtcctatagcccctcatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgttaaccgcccagacaaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcggccggacgcaatgtgcggcaatgccgtgatgtatgacgcggcaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacggcttccgctcca atggcctctatttgcgcgtacctttcatacgtcgtgtgctcctgccggacggatcaacct ttatcacgcggcgacagcgcgtggcatcccccttgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttcccggacggacgtgtctttaatggcggag gaggactgtgcgggactgcacaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtaacaaac ccagtcctgcaaatggggcgccgacattacgacgtaccgacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacaggaccagcgcgg tattccgttaaccctgaccaataacgtggcaattcgtatagcttccaggctaccgtcgga ctcgggctgtggcgtgccaggatactggatgctgttggatgaatagcgcgggctgc ccgagcgtagcggagcacgatccgtgtgaccaggccgcagcttgataa
260	GOh2117	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYKAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

261	GOh2119	atgggcagcagccatcatcatcatcacagcagcggcctggcgccgcggcgag ccatatgggtaccgcctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccggtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgctcgggcagctggttcgccgacagcac caccaagtattccaatttgaaccgcctctgcacgctacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaatcaatgtattccaagccag ctctataccgcgcgcagccagcactggggcgttggggcccgaccatcgacctgcc tatcgtaccgcagccgcggcgattgaaccaacgtcagccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacac gacatgttttggcgggatcagatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggtccc ggggccggacatgaggtggcacgcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagcccccatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgtaaccgcccgaacaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattgtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcgg cgtggatccggacgaatgtcgggaatccggtgatgtatgacgcggtcaaggcaa gatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattacccttggggagccggggacgagccccgaacacggtcttccgctcaat ggcctctatttcgcgctacctttcatacgtcgggtgctcctccggacggatcaacctt atcacccggcgacagcgcgtggcatcccttcgaagactcgacccccgtctttacac cggagatttatgtccggaaacaggacacgttttataaacagaatccgaactcgattga cgcggtatcactccatcagccttcttctccggacggagctgtctttaatggcgagg aggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttacccgaatt atctgtatgattcaaatgggaatctcgcgacccgtccgaaaattaccgtacatcaacc agtccgtcaaagtggcgggcgccgacattacgatcagtagcagcagcattacaaag cgtcactgattcgttacggcaccgcaaccatacagtcacacggaccagcgcgtat tccgttaacctgaccaataacggtggcaattcgtatagcttcaggtagcgtcggactc ggcgctggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggctccc gagcgtagcgagcacgatccgtgtgaccagggccgagcttgataa
262	GOh2119	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPA AAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS L PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWYYTSGSGDVKSAGKRQSNRGVDPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
263	GOh3001	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtcgacagcgcgcagagcggcaacgagtcaataaagccatcgacggca ataaagacacctctggcacacgtttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccggtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgcgtcgggcagctggttcgccgacagcac caccaagtattccaatttgaaccggctctgcacgtacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctaatcgccgaataatgtattccaagccag ctctataccgcggcgagccaggaacttggcggtggggcccgaccatcgacctgcc tatcgtaccaccggcgggcggtgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacggcggaaggcagccggcggtcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacac gacatgtttgcccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacgttggatccc ggggccggacatgcaggtggcacgggtaccagtcacggcgaccatgtcagac ggccgtgtctttacaatcgggcggtcatttagtggcgagtggttgaagaatggcga agtctatagccctcatccaaacgtggacgtcacttccgaacggaagtgatccc atgttaaccgcccagacaacaggcctgtggtatgagcgacaacctgcgtggctgttc ggctggaagaaggggagcgtcttcaggcgggcccgctgaccgcaatgaattggtat tacacgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcg gcgtggcgccggacgcaatgtcggcaatgccgtgatgtatgacgggtcaaaggc aagatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaacat gcccacattattaccttggggagccggggacgagcccgaaacacggcttccgctcc aatggcctctatttcgcgctaccttccatacgtcgggtgctcctccggacggatcaacc tttataccggcgacagcggcgtggcatcccttcgaagactcgaccccgctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttccggacggacgtgtctttaatggcgag gaggactgtcggggactgcacgaccaatcattttacgcgcagatctttacccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctgcaaatggcgccgcattacgatcagtcacgacgacgattaccaa agcgtcactgattctgtacggcaccgcaaccatacagtcacacggaccagcgccg tattccgttaaccctgaccaataacgggtggcaaltcgtatagctccaggtaccgtcgga ctcgggcgtggcgctgccagatactggatgctgttgtgatgaatagcgcgggcgtc ccgagcgtagcgagcacgatccgtgtgacctaggccgcagcttgataa
264	GOh3001	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDASQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPTAAAEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVNPLMTADKQGLWMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLDPGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
265	GOh3002	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgcccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgacagcggcaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgtttatggcgcaaatggcgacccgaagccaccgca tacctatacattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgctcacgaggtatatttaagctcc gacggcaccaactggggatccccggcgctggcgagctggctgccgacagcac caccaagtattccaattttgaaacccgctctgcacgctacgtgcttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgattccaagccag ctcctataccgcgcccagccagcacttggcgctggggcccgaccatcgacctgcc tactgtaccgcgagccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccagggcatcgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttggccgggagcagcatggacggcaacggccagatcgctgacaggcc ggctgggagcccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggccggacatgcaggtggcagcgggtaccagtcagcgcgaccatgtcagac ggcgtgtctttacaatcgcgcgctcatttagtggcgagtggttgagaagaatggcga agtctatagcccctcatccaaacgtggacgtcacttccgaacgcgaaggtgtggccc atgttaaccgcccgaacacagggcctgacctgagcgacaacctgcgtggctgttc ggctggaagaaggggagcgtcttccaggcgggcccgctgaccgcaatgaattggtat tacacgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcg gcgtggcgccggacgcaatgtcgggcaatgccgtgatgtatgacgggtcaaaaggc aagatcctgacatttggcgggagtcgggactacaccgacagtgacgcgacaaccaat gcccacattattacccttggggagccggggacgagcccgaaacacggcttccgctcc aatggcctctatttcgcgctacctttcatacgtcgggtggtcctgccggacggatcaacc ttatcacccggcgacagcggcgtggcatccccttgaagactcgacccccgtctttac accggagatttatgtgccggaacagacacgttttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttctccggacggagctgtctttaatggcgag gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctcaaatggggcgccgcattacgatcagtagcagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtcacaacacggaccagcgccg tattccgttaaccctgaccaataacgggtggcaattcgtatagctccaggtaccgtcgga ctcgggcgtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctc ccgagcgtagcgagcacgatccgtgtgaccaggccgcagcttgataa

266	GOh3002	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVWPMILTADKQGLTMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
267	GOh3003	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcgcgcag ccatatgggtaccgctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagcggaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaccaccagaatgtgaacgggctgtccgtgtccg cgccagcagcgaatcagaacggatggatcgccgtcagcaggtatatttaagctcc gacggcaccgaactgggatccccggtcgctcgggcagctggttcgcgcacagcagc caccaagtattccaattttgaaaccgctctgcacgctacgtgcgcttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctctataccgcgcgcagccagcacttggcggttggggcccgaccatcgacctgcc tactgtaccgcagccgcgattattgaaccaacgtcagcccgctactgatgtggagc agctaccgtaacgacgcggcggaaggcagccggcgccatcactctgacgtcga gttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacacg acatgttttgccggggatcagcatggacggcaccggccagatcgtcgtcacggcg gctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc gggcccggacatgcaggtggcacgcgggtaccagtccagcgcgaccatgtcagacg gccgtgtctttacaatcggcggtcatttagtggcgagtggttgagaagaatggcgaa gtctatagcccctcatcaaaacgtggacgtcacttccgaacgcgaaggtgaatccat gttaaccgccgacaaacaggcctgtacatgagcgacaacctgcgtggctgttcgg ctggaagaaggggagcgtcttcaggcgggcccgctgaccgcaatgaattggtattac acgtcaggaagcggggacgtgaaatcagccggcgaagcggcagtcgaaccgcggc gtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtcaaaggcaa gatcctgacatttgccgggagtcggactacaccgacagtgacgcgacaaccaatgc ccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtccaat ggcctctatttcgcgctacctttcatatcgtcgggtgtcctgccggacggatcaacctt atcaccggcgacagcgccgtggcatcccttcgaagactcgacccccgtctttacac cggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattgta cgcgctatcactccatcagccttcttcccggacggacgtgtctttaatggcgagg aggactgtgcgggactgcacgaccaatcatttgacgcgcagatcttaacccgaatt atctgtatgattcaaatgggaatctcgcgaccgtccgaaaattacccgtacatcaaccc

		agtcggtcaaagtggcgggccgcaattacgatcagtagccgacagcagcattaccaag cgtcactgattcggttacggcaccgcaaccatacagtaacacggaccagcgccgtat tccgttaaccctgaccaataacgggtggcaattcgtagcttccaggtagccgtcgactc ggcggtggcgctgccaggatactggatgctgtttgatgaatagcgcgggcgctccc gagcgtagcgagcacgatccgtgtgaccagggccgagcttgataa
268	GOh3003	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFQASSYTAPQPGLGRW GPTIDLPIVPAAAIIPTSGRVLMWSSYRNDAAEGSPGG ITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGTGQI VVTGGWDAKKTSLYDSSSDSWIPGPDMQVARGYQSS ATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSLP NAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQA GPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAMC GNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITLG EPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGGQR RGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYHSIS LLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLYDS NGNLATRPKITRTSTQSVKVGGITISTDSSITKASLIRY GTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGVAL PGYWMLFVMNSAGVPSVASTIRVTQAAA
269	GOh3004	atgggcagcagccatcatcatcatcacagcagcgccctgggtccgcgcgcgag ccatatgggtaccgcctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgtttatggcgcaaatggcgaccggaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatattagctcc gacggcaccaactgggatccccggtcgcgtcgggcagctggttcgccgacgacac caccaagtattccaatttgaaccggcctgcacgctacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctctataccgcgccgcagccaggacttggcggttggggcccgaccatcgacctgcc tactgtaccagcgccgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacac gacatgttttccccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggccggacatgcaggtggcacgcgggtaccagtccagcgccacctgtcagac ggcgtgtctttacaatcgggcggtcatttagtggcggagtgtttgagaagaatggcga

		agtcctatagcccctcatccaaaacgtggacgtcacttccgaacgcgaagggtggccc atgttaaccgcccagacaaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcggccggacgcaatgtgcggcaatgccgtgatgtatgacgcggcgaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacggcttccgctcca atggcctctatttgcgcgtacctttcatacgtcgggtgctcctgccggacggatcaacct ttatcacgcggcgacgcgcgtggcatcccccttgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttcccggacggacgtgtctttaatggcggag gaggactgtgcggggactgcacaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgcatcaaac ccagtcctgcaaatggggcgccgacattacgacgtaccgacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacaggaccagcgcgg tattccgttaaccctgaccaataacgggtggcaattcgtatagcttccaggctaccgtcga ctcgggctggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgtc ccgagcgtagcggagcacgatccgtgtgaccaggccgcagcttgataa
270	GOh3004	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPSAAAEPTSGRVLWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVWPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

271	GOh3005	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgcctctgcccctatcggtcagccatccccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccgctcacgaggtatatttaagctcc gacggcaccaactggggatccccggctcgctcgggcagctggttcgccgacagcac caccagttatccaatttgaaccggctctgcacgctacgtgcgttagtgccgtgaa agaggcgaacggccagccatggacctcaatcgccgaatcaatgtattccaagccag ctcctataccgcgcgcagccaggacttggcggttggggcccgaccatgcacctgcc tatcgtaccagcgcgcggcgattgaaccaacgtcagccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccgggcgcatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgacctcacgaaacac gacatgttttcccgggcatgacatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttgatccc ggggccggacatgacggtggcacgcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagcccccatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgtaaccgcccgaacaacaggcctgtacatgagcgacaacatgcgtggtgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattgtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcgg cgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagccccgaacacgggtcttcgctcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgccgacggatcaacct ttatcacggcgcgacagcgcggtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgttttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttctccggacggacgtgtctttaatggcgag gaggactgtgcgggactgcacgaccaatcatttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtagatcaac ccagtcctcaaatggggcgccgcattacgatcagtagcagacagcattaccaaa agcgtcactgattcgttacggcacgcgaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaattcgtagcttccaggtaccgtcgga ctcgggctgtggcgctgccaggatactggatgctgtttgtatgaatagcggggcgctc ccgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
272	GOh3005	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVKEANGQPWTSIAEINVFAQASSYTAPQPGLGRW GPTIDLPIVPSAAAIPTSGRVLWSSYRNDAAEGSPG GITLTSSWDPTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGTFTITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDQAIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
273	GOh3006	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgctctgcccctctggtgctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccggtcagaggtatatttaagctcc gacggcaccaactggggatccccggtcgctcggcgagctggttcgccgacagcac caccaagtattccaattttgaaaccgctctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaataatgtattccaagccag ctctataccgcggcgagccaggacttggcggtggggcccgaccatcgacctgcc tatctgacctgcagccgcggcgattgaaccaacgtcaggccgctactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacac gacatgtttgcccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacgttgatccc ggggccggacatgcaggtggcacgcgggtaccagtcagcgccacctgtcagac ggccgtgtctttacaatcgggcgtcatttagtggcggagtgttgagaagaatggcga agtctatagcccccatccaaaacgtggacgtcacttccgaacggaaggtaatccc atgttaaccgcccgaacaacaggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgaatgaattgttatt acacgtcaggaagcggggacgtgatctcagccggcaagcggcagtcgaaccgcgg cgtggcggcgacgcaatgtgcggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacggcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgccgacggatcaacct ttatcacggcgagacgcgcgtggcatccccctcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccggacggacgtgtctttaatggcggag gaggactgtgcggggactgcacgaccaatcattttacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccggtacatcaac ccagtcctgcaaatgggcggccgacattacgatcagtagcagcagcattaccaa agcgtcactgattctgtacggcaccgcaaccatacagtcacacggaccagcgccg tattccgttaaccctgaccaataacggtggcaaltcgtatagcttccaggtaccgtcgga ctcgggcgtggcgctgccaggatactggatgctgtttgtgatgaatagcgcggcgctc ccgagcgtagcagcacgatccgtgtgacccaggccgcagcttgataa
274	GOh3006	MGSSHHHHHSSGLVPRGSHMGTASAPRGSaiprnnw AVTCDsAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAaaaIEPTSGRVLMWSSYRNDAaEGSPG GITLTSSWDpSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSlyDSSSDSWIPGpDMQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVNPLMTADKQGLYMSDNHAWLFGWKKGVSFQ AGPSTAMNWYYTSGSGDVISAGKRQSNRGVAPDAMC GNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITLG EPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGGQR RGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYHSIS LLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLYDS NGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLIRY GTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGVAL PGYWMLFVMNSAGVPSVASTIRVTQAAA
275	GOh3007	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgacagcggcaacgagtgcaataaagccatcgacggca ataaagacacctctctggcacacgtttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccggtcacgaggtatatttaagctcc gacggcaccgaactggggatccccggcgcgcggcgagctggctgccgacagcac caccaagtattccaattttgaaacccgctctgcacgctacgtgccttagtggccgtgc gtgaggcgaacggccagccatggacctcaatcgccgaatcaatgtattccaagcca gctcctataccgcgcgcagccagacttggcgctggggcccgaccatcgacctgc ctatcgtaaccaccgccgcgcgattgaaccaacgtcaggccgcgtactgatgtgga gcagctaccgtaacgacgcggcggaaggcagccggggcgcatcactctgacgtc gagtgggatccatccacgggcatcgtctccgaccgcacgtgaccgtcacgaaaca cgacatgttttccccgggatcagcatggacggcaacggccagatcgtcgtcacggg cggtgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatcc cgggcgccgacatgcaggtggcagcggggtaccagtcacgcgcgacctgtcaga cgccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcg aagtctatagccccctatccaaaacgtggacgtcacttccgaacgcgaaggtgaatcc catgttaaccgccgacaaacagggcctgtacatgagcgacaacctcgctggctgttc ggctggaagaaggggagcgtctttcaggcgggcccgctcgaccgcaatgaattggtat tacacgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcg gcgtggcgccggacgcaatgtcgggcaatgccgtgatgtatgacgcggctcaaaaggc aagatcctgacatttggcgggagtcgggactacaccgacgtgacgcgacaaccaat gccacattattacccttggggagccggggacgagcccgaaacacggcttccgcgtcc aatggcctctatttcgcggtacctttcatagtcgggtggtcctcgccgacggatcaacc ttatcacccggcgacagcgcggtggcatccccctcgaagactcgacccccgtctttac accggagatttatgtgccggaacagacagcttttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttctccggacggagctgtctttaatggcgag gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctcaaaagtggcgccgcattacgatcagtagcagcagcattaccaaa agcgtcactgattctgtacggcaccgcaaccatacagtcacaacacggaccagcgccg tattccgttaaccctgaccaataacggtggcaattcgtatagctccaggtaccgtcgga ctcgggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctc ccgagcgtagcgagcacgatccgtgtgaccaggcccgagcttgataa

276	GOh3007	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVREANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPTAAAEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
277	GOh3008	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcggcag ccatatgggtaccgctctgccctcgtggctcagccatcccgcaataactgggcc gtaacgtgcgacagcgcgagcggaacgagtgcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cggcagcagcgaatcagaacggatggatcgccgtcagcaggatatttaagctcc gacggcaccaactgggatccccggtcgctcgggcagctggttcggcagacgac caccaagtattccaattttgaaacccgtcctgcacgctacgtgccttagtgccgtgc gtgaggcgaacggccagccatggacctcaatcgccgaatcaatgtattccaagcca gctctataccggcgccgagccagacttggcggttggggcccaccatcgacctgc ctatcgtaccgcagccgagattattgaaccaacgtcagggcgctactgatgtggag cagctaccgtaacgacgcggcggaaggcagccccggcgccatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacac gacatgtttgccccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggcccggacatgcaggtggcacgcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagcccccatccaaaacgtggacgtcacttccgaacgcgaaggtgtggccc atgttaaccgcccagacaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgaatgaattggtatt acacgtcagggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcgg cgtggcgccggacgcaatgtcgggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcggtggtcctgcggacggatcaacct ttatcaccggcgacagcgccgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtgccgaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccccggacggagctgtcttaattggcggag gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatcttaccgccaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtaacaaac

		ccagtcctgcaaaagtgggcgccgcattacgatcagtagccagacagcagcattacca agcgtcactgattcgttacggcaccgcaaccatacagtaacacggaccagcgccg tattccgttaaccctgaccaataacgggtggcaattcgtatagcttccaggtagcgcgga ctcgggctggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggctc ccgagcgtagcagcacgatccgtgtgacccaggccgcagcttgataa
278	GOh3008	MGSSHHHHHSSGLVPRGSHMGTASAPRGSaiprnnw AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVREANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAIIPTSGRVLMWSSYRNDAAEGSPGG ITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNGQ IVVTGGWDAKKTSLYDSSSDSWIPGPDQMVARGYQSS ATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSLP NAKVWPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
279	GOh3009	atgggcagcagccatcatcatcatcacagcagcgccctgggtccgcgcgcgcag ccatatgggtaccgcctctgccctatcggctcagccatcccgcgcaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgtttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatattagctcc gacggcaccaactgggatccccgtcgcgtcgggcagctggttcgccgacagcac caccaagtattcaattttgaaacccgtcctgcacgtacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattcaagccag ctcctataccgcgccgagccaggacttggcggttggggcccgaccatgcacctgcc tactgtaccaccggcgcggtgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgacctcacgaaacac gacatgttttccccgggatcagcatggacggcaccggccagatcgtcgtcacgggc ggctgggacccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggccggacatgcaggtggcacgcgggtaccagtccagcgccacctgacagac ggccgtgtctttacaatcggcggtcatttagtggcggagtgtttgagaagaatggcga

		agtcctatagcccctcatccaaaacgtggacgtcacttccgaacgcgaagggtggccc atgttaaccgcccagacaaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgtcgaccgcaatgaattggtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcggccggacgcaatgtgcggcaatgccgtgatgtatgacgcggcgaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacggcttccgctcca atggcctctatttgcgcgtacctttcatacgtcgggtgctcctgccggacggatcaacct ttatcacggcggacagcgcctgtggcatcccccttgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttccggacggacgtgtctttaatggcggag gaggactgtgcgggactgcacgaccaatcatttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgcatcaaac ccagtcctcaaatggggcggccgacattacgacgtaccgacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacaggaccagcgcgg tattccgttaaccctgaccaataacgggtggcaattcgtatagcttccagtgaccgtcgg ctcgggctggcgtgccaggatactggatgctgttggatgaatagcgcgggctgc ccgagcgtagcggagcacgatccgtgtgaccaggccgcagcttgataa
280	GOh3009	MGSSHHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPTAAAIPTSGRVLWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGTG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVWPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

281	GOh3013	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgcctctgcccctcgtggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacaccttctggcacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggctcgcgcggcagctggttcgccacagcac caccaagtattccaatttgaaccctcctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaatcaatgtattccaagccag ctcctataccgcgcgcagccagacttggcggttggggcccgaccatgcacctgcc tatcgtaccaccgcgcggcgattgaaccaacgtcagccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccgggcgcatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgacctcacgaaacac gacatgttttggcgggatcagcatggacggcaccggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttgatccc ggggccggacatgaggtggcacgcgggtaccagtcacgcgacatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagcccccatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgtaaccgcccgaacagggcctgtacatgagcgacaacatgcgtggtgttcg gctggaagaaggggagcgtctttcagcgggcccgctcgaccgaatgaattgtatt acacgtcaggaagcggggacgtgatctcagccggcaagcggcagtcgaaccgcgg cgtggcgccggacgcaatgtcgcgcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagccccgaacacgggtcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgccgacggatcaacct ttatcacggcgcgacagcgcggtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgttttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttctccggacggacgtgtctttaatggcgag gaggactgtgcgggactgcacgaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccctccgaaaattaccgtacatcaac ccagtcctcaaatggggcgccgacattacgatcagtagcagacagcattaccaa agcgtcactgattcgttacggcacgcgaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaattcgtagcttccaggtaccgtcgga ctcgggctgtggcgctgccaggatactggatgctgtttgtatgaatagcgcgggctc ccgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
282	GOh3013	MGSSHHHHHSSGLVPRGSHMGTASAPRGSaiprnnw AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPTAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPTGIVSDRTVTVTKHDMFCPGISMDGTG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS L PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVISAGKRQSNRGVAPDAMC GNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITLG EPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGGQR

		RGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYHSIS LLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLYDS NGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLIRY GTATHTVNTDQRRIPLTNTNNGGNSYSFQVPSDSGVAL PGYWMLFVMNSAGVPSVASTIRVTQAAA
283	GOh3015	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgctctgcccctctggtgctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtcctgtgctgccg cgccaggacggcaatcagaacggatggatcgccgctcagaggtatatttaagctcc gacggcaccaactggggatccccggctcgcgcgggcagctggttcgccgacagcac caccaagtattccaattttgaaaccgctctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattcaagccag ctctataccgcgccgcagccaggacttggcggtggggcccgaccatcgacctgcc tatctaccgcagccgcggcgattgaaccaacgtcaggccgctactgatgtggag cagctaccgtaacgacgcggcggaaggcagccggcgccatcactctgacgtcg agttgggatccatccacgggcacgtctccgaccgcaccgtgacctcagaaacac gacatgttttggccgggatcagcatggacggcaccggccagatcgtcgtcagggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacgttgatccc ggggccggacatgcaggtggcagcgggtaccagtcagcgccacatgtcagac ggccgtgtctttacaatcggcggctcatttagtggcgagtggttgagaagaatggcga agtctatagccccatccaaaacgtggacgtcacttccgaacgcaaggtgtggccc atgttaaccgcccagacaacaggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctgaccgcaatgaattgttatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcg cgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaaacacggcttcgcgtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgccgacggatcaacct ttatcacggcgacagcgcgggtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccggacggacgtgtctttaatggcggag gaggactgtgcggggactgcacgaccaatcattttacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgacatcaac ccagtcctgcaaatgggcggccgcatcagatcagtagcagcagcattaccaa agcgtcactgattctgtacggcaccgcaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaaltcgtatagcttccagtagcgtcgga ctcgggcgtggcgctgccagatactggatgctgtttgtgatgaatagcgcggcgctc ccgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
284	GOh3015	MGSSHHHHHSSGLVPRGSHMGTASAPRGSaiprnnw AVTCDsAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPAaaaIEPTSGRVLMWSSYRNDAaEGSPG GITLTSSWDpSTGIVSDRTVTVTKHDMFCPGISMDGTG QIVVTGGWDAKKTSlyDSSSDSWIPGpDMQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVWPMILTADKQGLYMSDNHAWLFGWKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNahiITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPGDRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
285	GOh3018	atgggcagcagccatcatcatcatcacagcagcggcctggcgccgcggcag ccatatgggtaccgctctgcccctcgtggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgacagcggcaacgagtgaataaagccatcgacggca ataaagacacctctcgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctatacattgacatgaaaaccaccagaatgtgaacggcgctgcctgctgccg cgccaggacggaatcagaacggatggatcgccgctcacgaggtatatttaagctcc gacggcaccaactggggatccccggcgctggcgagctggctgcggacagcac caccaagtattccaattttgaaacccgctcgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgattccaagccag ctcctataccgcgcgcagccagcacttggcgctggggcccgaccatcgacctgcc tatcgtaccagcgcgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccgggcgcatcactctgacgtcg agttgggatccatccagggcatcgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttggcggggatcagcatggacggcaacggccagatcgtcgtcagggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggccggacatgcaggtggcagcgggtaccagtcagcgcgacatgtcagac ggcgtgtctttacaatcgcgcgctcatttagtggcgagtggttgagaagaatggcga agtctatagccctcatccaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgtaaccgcccagacaacaggcgctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattgttatt acacgtcaggaagcggggacgtgatctcagccggcaagcgccagtcgaaccgcgg cgtggcgccggacgcaatgtcgcgcaatgccgtgatgtatgacgggtcaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcggtcca atggcctctatttcgcgctacctttcatactcggtggctctgcggacggatcaacct ttatcaccggcgacagcgcgctggcatcccttcgaagactcgacccccgtctttac accggagatttatgtgccggaacaggacacgttttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttctccggacggcgtgtctttaatggcgag gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctcaaatggggcgccgcattacgatcagtagcagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtcacaacggaccagcgccg tattccgttaacctgaccaataacggtggcaattcgtatagctccaggtaccgtcgga ctcgggcgtggcgctgccaggatactggatgctgtttgtgatgaatagcgcgggcgctc ccgagcgtagcgagcacgatccgtgtgaccaggccgcagcttgataa

286	GOh3018	MGSSHHHHHHSSGLVPRGSHMGTASAPRGSaiprnnw AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPSAAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVNPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVISAGKRQSNRGVAPDAMC GNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITLG EPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGGQR RGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYHSIS LLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLYDS NGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLIRY GTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGVAL PGYWMLFVMNSAGVPSVASTIRVTQAAA
287	GOh3019	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgagcggaacgagtgcaataaagccatcgacggca ataaagacacctctggcacacgtttatggcgcaaatggcgacccgaagccaccgca tactataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctccg cggcagcagggcaatcagaacggatggatcgccgtcagcaggatatttaagctcc gacggcaccaactgggatccccggtcgctcgggcagctggttcggcgacagcagc caccaagtattccaattttgaaacccgctctgcacgctacgtgcgcttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattccaagccag ctctataccgcgcccagccagcacttggcggttggggcccgaccatcgacctgcc tatcgtaccacccgcgcgcgatgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagccccggcgcgcatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacac gacatgtttgccccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacgccaagacgagcctctatgacagtagcagcgacagttggatccc ggggcccggacatgcaggtggcacgcgggtaccagtcacgcgacccatgtcagac ggccgtgtctttacaatcgcgcgctcatttagtggcgagtggttgagaagaatggcga agtctatagccctcatccaaaacgtggacgtcacttccgaacgcgaaggtgtggccc atgttaaccgcccagacaacagggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattgttatt acacgtcaggaagcggggacgtgaaatcagccggcaagcgcagtcgaaccgcgg cgtggcgccggacgcaatgtcgggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcgctcca atggcctctatttcgcgctacctttcatcgtcggtggtcctcgccgacgagatcaacct ttatcaccggcgacagcgccgtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccccgacggacgtgtctttaatggcggag gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatcttaccgccaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtaacaaac

		ccagtcctgcaaaagtgggcgccgcattacgatcagtagccagacagcagcattacca agcgtcactgattcgttacggcaccgcaaccatacagtaaacacggaccagcgccg tattccgtfaaccctgaccaataacgggtggcaattcgtatagcttccaggtagcgcgga ctcgggctggcgctgccaggatactggatgctgttggatgaatagcgcgggctc ccgagcgtagcagcacgatccgtgtgacccaggccgcagcttgataa
288	GOh3019	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPTAAAEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS PNAKVWPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHVTNVDQRRIPLTNTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
289	GOh3023	atgggcagcagccatcatcatcatcacagcagcgccctgggtccgcgcgcag ccatatgggtaccgcctctgccctcgtggctcagccatcccgcaataactgggcc gtaacgtgcgacagcgcgagagcggaacgagtgcaataaagccatcgacggca ataaagacaccttctggcacacgtttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatattagctcc gacggcaccaactgggatccccgtcgcgtcgggcagctggttcgccgacagcac caccaagtattcaatttgaaccctcctgcacgtacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattcaagccag ctcctataccgcgccgagccaggacttggcggttggggcccgaccatgcacctgcc tactgtaccaccggcgccggtgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agtgggatccatccacgggcacgtctccgaccgcaccgtgacctcacgaaacac gacatgttttccccgggatcagcatggacggcaacggccagatcgtcgtcacgggc ggctgggacccaagaagacgagcctctatgacagtagcagcgacagttgatccc ggggccggacatgcaggtggcacgcgggtaccagtccagcgccacctgcagac ggcgtgtctttacaatcgccggctcatttagtggcgagtggttgagaagaatggcga

		agtcctatagcccctcatccaaaacgtggacgtcacttccgaacgcgaaggtgtggccc atgttaaccgcccagacaaacagggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcagggcgcccgctcgaccgcaatgaattggtatt acacgtcaggaagcggggacgtgatctcagccggcaagcgccagtcgaaccgcgg cgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacggctcttcgcgtcca atggcctctatttcgcggtacctttcatacgtcgggtgctcctgccggacggatcaacct ttatcacggcgagacgcgccgtggcatccccctcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccggacggacgtgtctttaatggcggag gaggactgtgcgggactgcacgaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtaacaaac ccagtcctcaaatggggcgccgacattacgacgtaccgacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacgggtggcaattcgtatagcttccaggtaccgtcgga ctcggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcggggcgctc ccgagcgtagcgagcacgatccgtgtgaccagggccgcagcttgataa
290	GOh3023	MGSSHHHHHHSSGLVPRGSHMGTASAPRGSaiprnnw AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPTAAAIPTSGRVLmwssyrndaaegspg GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVWPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWYYTSGSGDVISAGKRQSNRGVAPDAMC GNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITLG EPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGGQR RGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYHSIS LLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLYDS NGNLATRPKITRTSTQSVKVGGITISTDSSITKASLIRY GTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGVAL PGYWMLFVMNSAGVPSVASTIRVTQAAA

291	GOh3026	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgcctctgcccctcgtggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtgaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgtgccg cgccaggacggcaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactggggatccccggctcgcgcggcagctggttcgccacagcac caccaagtattccaatttgaaccggctcctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaatcaatgtattccaagccag ctcctataccgcgcgcagccaggacttggcggttggggcccgaccatgcacctgcc tatcgtaccaccgcgcggcgattgaaccaacgtcaggccgcgtactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccggcgccatcactctgacgtcg agttgggatccatccacgggcatcgtctccgaccgcaccgtgacctgcacgaaacac gacatgttttggcgggatcagatggacggcaccggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggtccc ggggccggacatgagggtggcacgcgggtaccagtcacgcgcacatgtcagac ggccgtgtctttacaatcgcggtcatttagtggcgagtggttgagaagaatggcga agtctatagcccccatccaaaacgtggacgtcacttccgaacgcgaaggtgaatccc atgtaaccgcccgaacaacaggcctgtacatgagcgacaacatgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattgtatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgcgg cgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtaaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggcgagcccgaacacgggtcttcggtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctcgccgacggatcaacct ttatcacggcgcgacagcgcggtggcatcccttcgaagactcgacccccgtctttac accggagatttatgtgccggaacaggacacgtttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttctccggacggacgtgtctttaatggcgag gaggactgtgcggggactgcacgaccaatcatttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtagatcaac ccagtcctcaaatggggcgccgcattacgatcagtagcagacagcattaccaa agcgtcactgattcgttacggcacgcgaaccatacagtaaacaggaccagcgccg tattccgttaaccctgaccaataacggtggcaattcgtagcttccaggtaccgtcgga ctcgggctgtggcgctgccaggatactggatgctgtttgtatgaatagcgcgggctc ccgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
292	GOh3026	MGSSHHHHHSSGLVPRGSHMGTASAPRGSaiprnnw AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPTAAAEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPTGIVSDRTVTVTKHDMFCPGISMDGTG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS L PNAKVNPMLTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWWYTS GSGDVKSAGKRQSNRGVAPDAM CGNAV MYDAVKGILTFGGSPDYTDSDATTNAHIITL GEPGASPNTVFASNGLYFARTFHTSVVLPDGGSTFITGG

		QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTNTNNGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
293	GOh3032	atgggcagcagccatcatcatcatcacagcagcggcctggtgccgcgcggcag ccatatgggtaccgctctgcccctcgtggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgcagagcggcaacgagtcaataaagccatcgacggca ataaagacacctcttgccacacgttttatggcgcaaatggcgacccgaagccaccgca tacctataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggcaatcagaacggatggatcgccggtcacgaggtatatttaagctcc gacggcaccaactggggatccccggtcgcgtcgggcagctggttcgccgacagcac caccaagtattccaattttgaaaccgctctgcacgctacgtgcgttagtgccgtgac agaggcgaacggccagccatggacctcaatgccgaaatcaatgtattcaagccag ctcctataccgcgccgagccaggaacttggcggtggggcccgaccatcgacctgcc tatcgtaccagcggcgggcggtgaaccaacgtcagggcgctactgatgtggag cagctaccgtaacgacggcggaaggcagccggcgccatcactctgacgtcg agttgggatccatccagggcatcgtctccgaccgcaccgtgacctcacgaaacac gacatgttttggccgggatcagcatggacggcaccggccagatcgtcgtcacgggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacgttgatccc ggggccggacatgcaggtggcgacgggtaccagtcacggcgaccatgtcagac ggccgtgtctttacaatcgggcgtcatttagtggcgagtggttgagaagaatggcga agtctatagcccccatccaaacgtggacgtcacttccgaacggaaggtgtggccc atgttaaccgcccgaacaacaggcctgtacatgagcgacaacctgcgtggctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctgaccgcaatgaattgttatt acacgtcaggaagcggggacgtgaaatcagccggcaagcggcagtcgaaccgagg cgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgggtcaaaggca agatcctgacatttggcgggagtcggactacaccgacagtgacgcgacaaccaatg cccacattattacccttggggagccggggacgagcccgaaacacgggtcttcggtcca atggcctctatttcgcgctacctttcatacgtcgggtgctcctccggacggatcaacct ttatcacggcgagcagcggcgtggcatccccctcgaagactcgacccccgtctttac accggagatttatgtccggaacaggacacgtttataaacagaatccgaactcgattg tacgcggtatcactccatcagccttcttccggacggacgtgtctttaatggcgag gaggactgtgcggggactgcacgaccaatcattttacgcgcagatctttacccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctgcaaatggcgccgcattacgatcagtagcagcagcattaccaa agcgtcactgattctgtacggcaccgcaaccatacagtcacacggaccagcgccg tattccgttaaccctgaccaataacggtggcaaltcgtatagcttccaggtaccgtcggg ctcggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcggggcgtc ccgagcgtagcgagcacgatccgtgtgacccaggccgcagcttgataa
294	GOh3032	MGSSHHHHHSSGLVPRGSHMGTASAPRGSaiprnnw AVTCDsAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPSAAIEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPTGIVSDRTVTVTKHDMFCPGISMDGTG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS

		SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKWTSL PNAKVWPMILTADKQGLYMSDNHAWLFGWKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPGDRVFNNGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA
295	GOh3038	atgggcagcagccatcatcatcatcacagcagcgccctggcgccgcggcag ccatatgggtaccgacctctgccctcgtggctcagccatcccgcgaataactgggcc gtaacgtgcgacagcgcgacagcggcaacgagtgcaataaagccatcgacggca ataaagacacctctcggcacacgtttatggcgcaaatggcgacccgaagccaccgca tacctatacattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cgccaggacggaatcagaacggatggatcgccgctcacgaggtatatttaagctcc gacggcaccaactggggatccccggcgcgcgcggcagctggctgccgacagcac caccaagtattccaattttgaaaccgctcctgcacgctacgtgccttagtgccgtgac agaggcgaacggccagccatggacctcaatcgccgaaatcaatgattccaagccag ctcctataccgcgccgagccaggaacttggcggtggggcccgaccatcgacctgcc tactgtaccaccgcccggcgatgaaccaacgtcaggccgctactgatgtggag cagctaccgtaacgacgcggcggaaggcagcccgggcgcatcactctgacgtcg agttggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaacac gacatgttttcccgggcatcagcatggacggcaccggccagatcgtcgtcagggc ggctgggacgccaagaagacgagcctctatgacagtagcagcgacagttggatccc ggggccggacatgcaggtggcagcgggtaccagtcacgcgcgacatgtcagac ggcgtgtctttacaatcgcgcgctcatttagtggcgagtggttgagaagaatggcga agtctatagcccctcatccaaacgtggacgtcacttccgaacgcgaaggtgtggccc atgttaaccgcccagacaacagggcctgtacatgagcgacaacatgcgtgctgttcg gctggaagaaggggagcgtctttcaggcgggcccgctcgaccgaatgaattgtatt acacgtcaggaagcggggacgtgatctcagccggcaagcgccagtcgaaccgcgg cgtggcgccggacgcaatgtcgcgcaatgccgtgatgtatgacgggtcaaaggca agatcctgacatttggcgggagtccggactacaccgacagtacgcgcacaaccaatg cccacattattacccttggggagccggggacgagcccgaacacgggtcttcggtcca atggcctctatttcgcgcgtacctttcatactcggtggctctgcggacggatcaacct ttatcaccggcgacagcgcctggcatcccttcgaagactcgacccccgtctttac accggagatttatgtgccggaacaggacacgttttataaacagaatccgaactcgattg tacgcgcgtatcactccatcagccttcttctccggacggcgtgtctttaatggcgag gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatctttaccccgaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac ccagtcctcaaatggggcgccgcatcagatcagtagcagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtcacaacacggaccagcgccg tattccgttaacctgaccaataacggtggcaattcgtatagctccaggtaccgtcgga ctcggcggtggcgctgccaggatactggatgctgtttgtgatgaatagcgcggcgctc ccgagcgtagcgagcacgatccgtgtgaccaggccgcagcttgataa

296	GOh3038	MGSSHHHHHHSSGLVPRGSHMGTASAPRGSaiprnnw AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVTEANGQPWTSIAEINVFAQSSYTAPQPGLGRW GPTIDLPIVPTAAAEPTSGRVLMWSSYRNDAAEGSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGTG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTSL PNAKVWPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVISAGKRQSNRGVAPDAMC GNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITLG EPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFTITGGQR RGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYHSIS LLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLYDS NGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLIRY GTATHTVNTDQRRIPLTLTNNGGNSYSFQVPDSGVAL PGYWMLFVMNSAGVPSVASTIRVTQAAA
297	GOh3049	atgggcagcagccatcatcatcatcacagcagcgccctggtgccgcggcag ccatatgggtaccgctctgccctatcggtcagccatcccgcgaataactggcc gtaacgtgcgacagcgcgagcggcaacgagtcaataaagccatcgacggca ataaagacacctcttgccacacgtttatggcgcaaatggcgacccgaagccaccga tactataccattgacatgaaaaccaccagaatgtgaacgggctgtccgtgctgccg cggcagcagcgaatcagaacggatggatcgccgtcacgaggtatatttaagctcc gacggcaccaactgggatccccggtcgctcgggcagctggttcgccgacagcag caccaagtattccaattttgaaacccgtcctgcacgctacgtgccttagtgccgtgc gtgagcggaacggccagccatggacctaatcgccgaatcaatgtattccaagcca gctctataccggcgccgagccagacttggcggttggggcccaccatcgacctgc ctatcgtaaccgcagccggcggttgatgaaccaacgtcaggcccgctactgatgtga gcagctaccgtaacgacgcggcggaaggcagccccggcggcacactctgacgtc gagttgggatccatccacgggcatcgtctccgaccgcaccgtgaccgtcacgaaaca cgacatgttttccccgggatcagcatggacggcaacggccagatcgtcgtcacggg cggctgggagccaaagaagacgagcctctatgacagtagcagcagagttggatcc cggggccggacatgcaggtggcacgcgggtaccagtcacgcgacacatgtcaga cggccgtgtctttacaatcgccggctcatttagtggcggagtggttgagaagaatggcg aagtctatagccccctatccaaaacgtggacgtcacttcgaacgcgaaggtgtggcc catgttaaccgccgacaaaacagggcctgtacatgagcgacaacatcgctggctgttc ggctggaagaaggggagcgtcttcaggcgggcccgtcgaccgcaatgaattggtat tacacgtcaggaagcggggacgtgaaatcagccggcaagcgccagtcgaaccgcg gcgtggcgccggacgcaatgtgcggcaatgccgtgatgtatgacgcggtcaaaaggc aagatcctgacatttggcgggagtcgggactacaccgacagtgacgcgacaaccaat gccacattattacccttggggagccggggacgagccccgaacacggcttcgcgtcc aatggcctctatttcgcgctacctttcatagtcgggtgtcctccggacggatcaacc ttatcacccggcgacagcgccgtggcatccccctcgaagactcgacccccgtcttac accggagatttatgtgccgaacaggacacgtttataaacagaatccgaactcgattg tacgcgctatcactccatcagccttcttccccggacggagctgtcttaattggcggag gaggactgtgcggggactgcacgaccaatcattttgacgcgcagatcttaccgccaa ttatctgtatgattcaaatgggaatctcgcgaccgctccgaaaattaccgtacatcaac

		ccagtcctgcaaaagtgggcgccgcattacgatcagtagccgacagcagcattaccaa agcgtcactgattcgttacggcaccgcaaccatacagtaacacggaccagcgccg tattccgttaaccctgaccaataacggtggcaattcgtatagcttcaggtagcgtcgga ctcggcggtggcgctgccaggatactggatgctgttggatgaatagcgcggcgctc ccgagcgtagcagcagcagatccgtgtgaccagccgcagcttgataa
298	GOh3049	MGSSHHHHHSSGLVPRGSHMGTASAPIGSAIPRNNW AVTCDSAQSGNECNKAIDGNKDTFWHTFYGANGDPK PPHTYTIDMKTTQNVNGLSVLPRQDGNQNGWIGRHEV YLSSDGTNWGSPVASGSWFADSTTKYSNFETRPARYV RLVAVREANGQPWTSIAEINVQASSYTAPQPGLGRW GPTIDLPIVPAAAAIEPTSGRVLMWSSYRNDAAEGLSPG GITLTSSWDPSTGIVSDRTVTVTKHDMFCPGISMDGNG QIVVTGGWDAKKTSLYDSSSDSWIPGPDMMQVARGYQS SATMSDGRVFTIGGSFSGGVFEKNGEVYSPSSKTWTS PNAKVWPMILTADKQGLYMSDNHAWLFGWKKGSVFQ AGPSTAMNWYYTSGSGDVKSAGKRQSNRGVAPDAM CGNAVMYDAVKGKILTFGGSPDYTDSDATTNAHIITL GEPGTSPNTVFASNGLYFARTFHTSVVLPDGSTFITGG QRRGIPFEDSTPVFTPEIYVPEQDTFYKQNPNSIVRAYH SISLLLPDGRVFNGGGGLCGDCTTNHFDAQIFTPNYLY DSNGNLATRPKITRTSTQSVKVGGRITISTDSSITKASLI RYGTATHTVNTDQRRIPLTLTNNGGNSYSFQVPSDSGV ALPGYWMLFVMNSAGVPSVASTIRVTQAAA

CLAIMS

What is claimed is:

1. A modified galactose oxidase comprising a polypeptide sequence having at least 85%,
5 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99%
sequence identity to SEQ ID NO: 6,
wherein SEQ ID NO: 6 is a polypeptide sequence of galactose oxidase variant M3-
5, wherein the galactose oxidase variant M3-5 comprises mutations of S33P, M93V,
G218E, W313F, R353M, Q429T, V517A, and N558D relative to the wildtype galactose
10 oxidase from *Fusarium graminearum* (SEQ ID NO: 4),
and wherein the polypeptide sequence of the modified galactose oxidase further
comprises at least one mutation at one or more positions selected from the group consisting
of 24, 26, 28, 45, 49, 65, 69, 104, 114, 117, 153, 157, 172, 173, 175, 193, 194, 195, 197,
198, 202, 214, 217, 218, 220, 224, 226, 239, 240, 250, 259, 265, 268, 269, 284, 294, 313,
15 314, 325, 341, 346, 348, 352, 353, 356, 389, 401, 429, 447, 485, 487, 537, 538, 546, 559,
576, 599, and 662, wherein the position of the mutation is numbered with reference to SEQ
ID NO: 6.
2. The modified galactose oxidase of claim 1, wherein the mutation is selected from the group
20 consisting of A24H, A24N, A26H, A26R, I28F, I28M, I28R, Q45D, Q45E, Q45N, E49K,
F65P, N69D, N69E, N69F, N69H, N69L, N69M, N69T, N69W, N69Y, W104G, W104N,
S114N, S114R, T117D, T153K, T153R, G157N, S172E, S173K, S173R, T175E, T175H,
T175I, T175K, V193T, P194C, A195S, A195T, A195V, A197C, A197G, A198I, T202D,
T202I, T202K, T202Q, N214R, N214S, F217A, F217C, F217D, F217E, F217G, F217H,
25 F217I, F217K, F217L, F217M, F217N, F217P, F217Q, F217R, F217S, F217T, F217V,
F217Y, E218F, E218K, E218P, E218Y, S220T, I224W, L226Q, L226V, D239E, D239P,
D239Q, R240G, F250E, F250Y, N259T, T265S, N268W, D269N, I284S, I284Y, G294A,
F313R, S314C, Y325F, N341W, A346L, K348S, Y352T, Y352W, M353F, N356K,
N356R, N356W, K389I, A401D, T429W, T447A, I485A, I485K, I485R, F487R, L537G,
30 C538K, C538R, F546M, S559P, S576D, Y599M, Q662D, and Q662P.

3. The modified galactose oxidase of claim 2, wherein the mutation is selected from the group consisting of I28R, A24H, A195S, A195T, A195V, A198I, T202I, F217A, E218F, E218K, L226Q, D239E, N259T, N268W, S314C, Y352W, Y599M, and combinations thereof.
- 5 4. The modified galactose oxidase of claim 2, wherein the mutation is selected from the group consisting of:
- M353F;
 - S314C;
 - L537G;
 - 10 • F217V;
 - F217P;
 - F217Q;
 - F217N;
 - F217S;
 - 15 • N268W;
 - E218P;
 - F217I;
 - F217T;
 - F217L;
 - 20 • F217E;
 - F217Y;
 - F217A;
 - F217C;
 - F217D;
 - 25 • F217G;
 - F217H;
 - F217K;
 - F217M;
 - F217R;
 - 30 • a combination of F217P and E218P;
 - a combination of F217P and L537G;

- a combination of F217P, E218P and L537G;
- a combination of F217V and E218P;
- a combination of F217V and L537G;
- a combination of F217V, E218P and L537G;
- 5 • a combination of E218P and L537G;
- a combination of F217A and N268W;
- a combination of F217A, N268W and M353F;
- a combination of F217A, N268W and S314C;
- a combination of F217G and N268W;
- 10 • a combination of F217G, N268W and M353F;
- a combination of F217A, N268W and A195S;
- a combination of F217A, N268W and V193T;
- a combination of F217A, N268W and N259T;
- a combination of F217A, N268W and Y325F;
- 15 • a combination of F217A, N268W and G294A;
- a combination of F217A, N268W and A195T;
- a combination of F217A, N268W and Y352T;
- a combination of F217A, N268W and N341W;
- a combination of F217A, N268W and A197C;
- 20 • a combination of F217A, N268W and R240G;
- a combination of F217A, N268W and A198I;
- a combination of F217A, N268W and K348S;
- a combination of F217A, N268W and T202D;
- a combination of F217A, N268W and T202Q;
- 25 • a combination of F217A, N268W and T202I;
- a combination of F217A, N268W and T202K;
- a combination of F217A, N268W and P194C;
- a combination of F217A, N268W and A346L;
- a combination of F217A, N268W and K389I;
- 30 • a combination of F217A, N268W and Y352W;
- a combination of F217A, N268W and C538K;

- a combination of F217A, N268W and C538R;
- a combination of F217A, N268W and F250E;
- a combination of F217A, N268W and F250Y;
- a combination of F217A, N268W and N356K;
- 5 • a combination of F217A, N268W and N356R;
- a combination of F217A, N268W and N356W;
- a combination of F217A, N268W and F487R;
- a combination of F217A, N268W and T429W;
- a combination of F217A, N268W and E218K;
- 10 • a combination of F217A, N268W and F313R;
- a combination of F217A, N268W and I284Y;
- a combination of F217A, N268W and A24H;
- a combination of F217A, N268W and I28R;
- a combination of F217A, N268W and I28M;
- 15 • a combination of F217A, N268W and S576D;
- a combination of F217A, N268W and I284S;
- a combination of F217A, N268W and F65P;
- a combination of F217A, N268W and T153R;
- a combination of F217A, N268W and A197G;
- 20 • a combination of F217A, N268W and T265S;
- a combination of F217A, N268W and S220T;
- a combination of F217A, N268W and N214S;
- a combination of F217A, N268W and I485A;
- a combination of F217A, N268W and N214R;
- 25 • a combination of F217A, N268W and D269N;
- a combination of F217A, N268W and I485R;
- a combination of F217A, N268W and I485K;
- a combination of F217A, N268W and D239E;
- a combination of F217A, N268W and T117D;
- 30 • a combination of F217A, N268W and S114R;
- a combination of F217A, N268W and S559P;

- a combination of F217A, N268W and S114N;
- a combination of F217A, N268W and Q662P;
- a combination of F217A, N268W and S173R;
- a combination of F217A, N268W and D239P;
- 5 • a combination of F217A, N268W and S172E;
- a combination of F217A, N268W and Q662D;
- a combination of F217A, N268W and S173K;
- a combination of F217A, N268W and A195V;
- a combination of F217A, N268W and E218F;
- 10 • a combination of F217A, N268W and L226Q;
- a combination of F217A, N268W and I224W;
- a combination of F217A, N268W and A26R;
- a combination of F217A, N268W and I28F;
- a combination of F217A, N268W and E218Y;
- 15 • a combination of F217A, N268W and L226V;
- a combination of F217A, N268W and D239Q;
- a combination of F217A, N268W and F546M;
- a combination of F217A, N268W and A24N;
- a combination of F217A, N268W and A26H;
- 20 • a combination of F217A, N268W and Y599M;
- a combination of F217A, N268W and G157N;
- a combination of F217A, N268W and Q45D;
- a combination of F217A, N268W and Q45E;
- a combination of F217A, N268W and Q45N;
- 25 • a combination of F217A, N268W and E49K;
- a combination of F217A, N268W and N69D;
- a combination of F217A, N268W and N69E;
- a combination of F217A, N268W and N69F;
- a combination of F217A, N268W and N69H;
- 30 • a combination of F217A, N268W and N69L;
- a combination of F217A, N268W and N69M;

- a combination of F217A, N268W and N69T;
- a combination of F217A, N268W and N69W;
- a combination of F217A, N268W and N69Y;
- a combination of F217A, N268W and W104G;
- 5 • a combination of F217A, N268W and W104N;
- a combination of F217A, N268W and T175E;
- a combination of F217A, N268W and T175H;
- a combination of F217A, N268W and T175I;
- a combination of F217A, N268W and T175K;
- 10 • a combination of F217A, N268W and A401D;
- a combination of F217A, N268W, A195T and Y352W;
- a combination of F217A, N268W, N341W and Y352T;
- a combination of F217A, N268W, A198I and N259T;
- a combination of F217A, N268W, A195S and N341W;
- 15 • a combination of F217A, N268W, T153K and A195S;
- a combination of F217A, N268W, I28R and K389I;
- a combination of F217A, N268W, T153R and A195T;
- a combination of F217A, N268W, I28R, T153R, A198I and N341W;
- a combination of F217A, N268W, A195T, N259T and N341W;
- 20 • a combination of F217A, N268W, I28R, A195T, N259T and K389I;
- a combination of F217A, N268W, I28R, N259T and N341W;
- a combination of F217A, N268W, I28R, A195S and K389I;
- a combination of F217A, N268W, A195T and N341W;
- a combination of F217A, N268W, I28R, A195T, N341W and K389I;
- 25 • a combination of F217A, N268W, I28R, A195T, N259T and T447A;
- a combination of F217A, N268W, I28R, A195S, N259T and N341W;
- a combination of F217A, N268W, I28R, A195T, N259T, N341W and K389I; and
- a combination of F217A, N268W, T153R and N341W.

5. The modified galactose oxidase of claim 4, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence of at least one modified galactose oxidase variant set forth in the even numbered sequences of SEQ ID NOS: 7-298.
6. The modified galactose oxidase of claim 5, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in the even numbered sequences of SEQ ID NOS: 7-298.
7. The modified galactose oxidase of claim 4, wherein the mutation is selected from the group consisting of:
- (a) S314C;
 - (b) N268W;
 - (c) F217A;
 - (d) a combination of F217A and N268W;
 - (e) a combination of F217A, N268W and A195S;
 - (f) a combination of F217A, N268W and N259T;
 - (g) a combination of F217A, N268W and A195T;
 - (h) a combination of F217A, N268W and A198I;
 - (i) a combination of F217A, N268W and T202I;
 - (j) a combination of F217A, N268W and Y352W;
 - (k) a combination of F217A, N268W and A24H;
 - (l) a combination of F217A, N268W and I28R;
 - (m) a combination of F217A, N268W and D239E;
 - (n) a combination of F217A, N268W and A24N;
 - (o) a combination of F217A, N268W and E218K;
 - (p) a combination of F217A, N268W and E218F;
 - (q) a combination of F217A, N268W and Y599M;
 - (r) a combination of F217A, N268W and L226Q;
 - (s) a combination of F217A, N268W and A195V;
 - (t) a combination of F217A, N268W, A195T and Y352W;

- (u) a combination of F217A, N268W, I28R and K389I;
- (v) a combination of F217A, N268W, I28R, A195T, N259T, and K389I; and
- (w) a combination of F217A, N268W, I28R, A195T, N259T, N341W, and K389I.

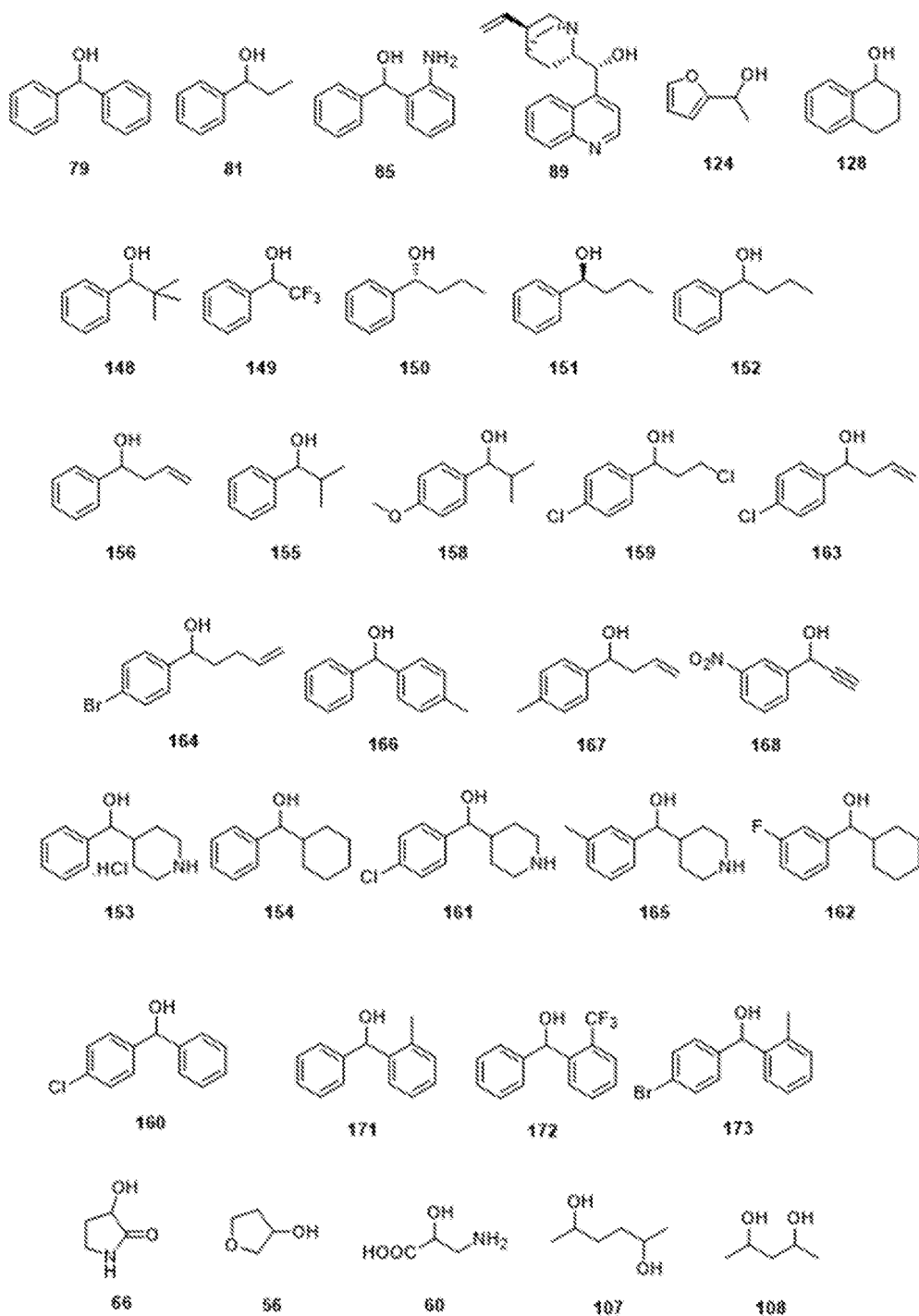
- 5 8. The modified galactose oxidase of claim 4 or 7, wherein the modified galactose oxidase comprises the mutations of F217A and N268W.
9. The modified galactose oxidase of claim 8, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%,
10 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to SEQ ID NO:68.
10. The modified galactose oxidase of claim 8 or 9, wherein the modified galactose oxidase further comprises at least one mutation selected from the group consisting of A24H, A24N, A26H, A26R, I28F, I28M, I28R, Q45D, Q45E, Q45N, E49K, F65P, N69D, N69E, N69F,
15 N69H, N69L, N69M, N69T, N69W, N69Y, W104G, W104N, S114N, S114R, T117D, T153K, T153R, G157N, S172E, S173K, S173R, T175E, T175H, T175I, T175K, V193T, P194C, A195SX, A195T, A195V, A197C, A197G, A198I, T202D, T202I, T202K, T202Q, N214R, N214S, E218F, E218K, E218P, E218Y, S220T, I224W, L226Q, L226V, D239E, D239P, D239Q, R240G, F250E, F250Y, N259T, T265S, D269N, I284S, I284Y, G294A,
20 F313R, S314C, Y325F, N341W, A346L, K348S, Y352T, Y352W, M353F, N356K, N356R, N356W, K389I, A401D, T429W, T447A, I485A, I485K, I485R, F487R, L537G, C538K, C538R, F546M, S559P, S576D, Y599M, Q662D, and Q662P, wherein the position of the mutation is numbered with reference to SEQ ID NO: 6.
- 25 11. The modified galactose oxidase of claim 10, wherein the polypeptide sequence of the modified galactose oxidase has at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% sequence identity to the sequence of at least one modified galactose oxidase variant set forth in SEQ ID NOS: 70, 72 or the even numbered sequences of SEQ ID NOS: 77-298.

12. The modified galactose oxidase of claim 11, wherein the polypeptide sequence of the modified galactose oxidase comprises a polypeptide sequence set forth in SEQ ID NOS: 70, 72 or the even numbered sequences of SEQ ID NOS: 77-298.
- 5 13. The modified galactose oxidase of any one of claims 1-12, wherein the modified galactose oxidase comprises one or more of the following properties:
- (a) enhanced protein expression by at least 1.01-fold compared to the galactose oxidase variant M3-5 or by at least 1.01-fold compared to the modified galactose oxidase of claim 8;
 - 10 (b) enhanced solubility by at least 1.01-fold compared to the galactose oxidase variant M3-5 or by at least 1.01-fold compared to the modified galactose oxidase of claim 8;
 - (c) enhanced thermal stability by at least 1.01-fold compared to the galactose oxidase variant M3-5 or by at least 1.01-fold compared to the modified galactose oxidase of claim 8 at a temperature of at least 50°C;
 - 15 (d) increased enzymatic activity by at least 1.01-fold compared to the galactose oxidase variant M3-5 or by at least 1.01-fold compared to the modified galactose oxidase of claim 8, wherein the enzymatic activity comprises converting a secondary alcohol to a ketone, wherein optionally the secondary alcohol is a bulky secondary alcohol or unactivated secondary alcohol; and
 - 20 (e) reduced enantioselectivity by at least 1.01-fold compared to the galactose oxidase variant M3-5 or by at least 1.01-fold compared to the modified galactose oxidase of claim 8.
14. A polynucleotide sequence encoding the modified galactose oxidase of any one of claims 25 1-13.
15. The polynucleotide sequence of claim 14, wherein the polynucleotide sequence comprises at least 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% or more sequence identity to SEQ ID NO: 5, wherein SEQ ID NO: 5 is a polynucleotide sequence of the galactose oxidase variant M3-5, wherein the polynucleotide sequence of claim 14 comprises at least one mutation at one or more positions which leads
- 30

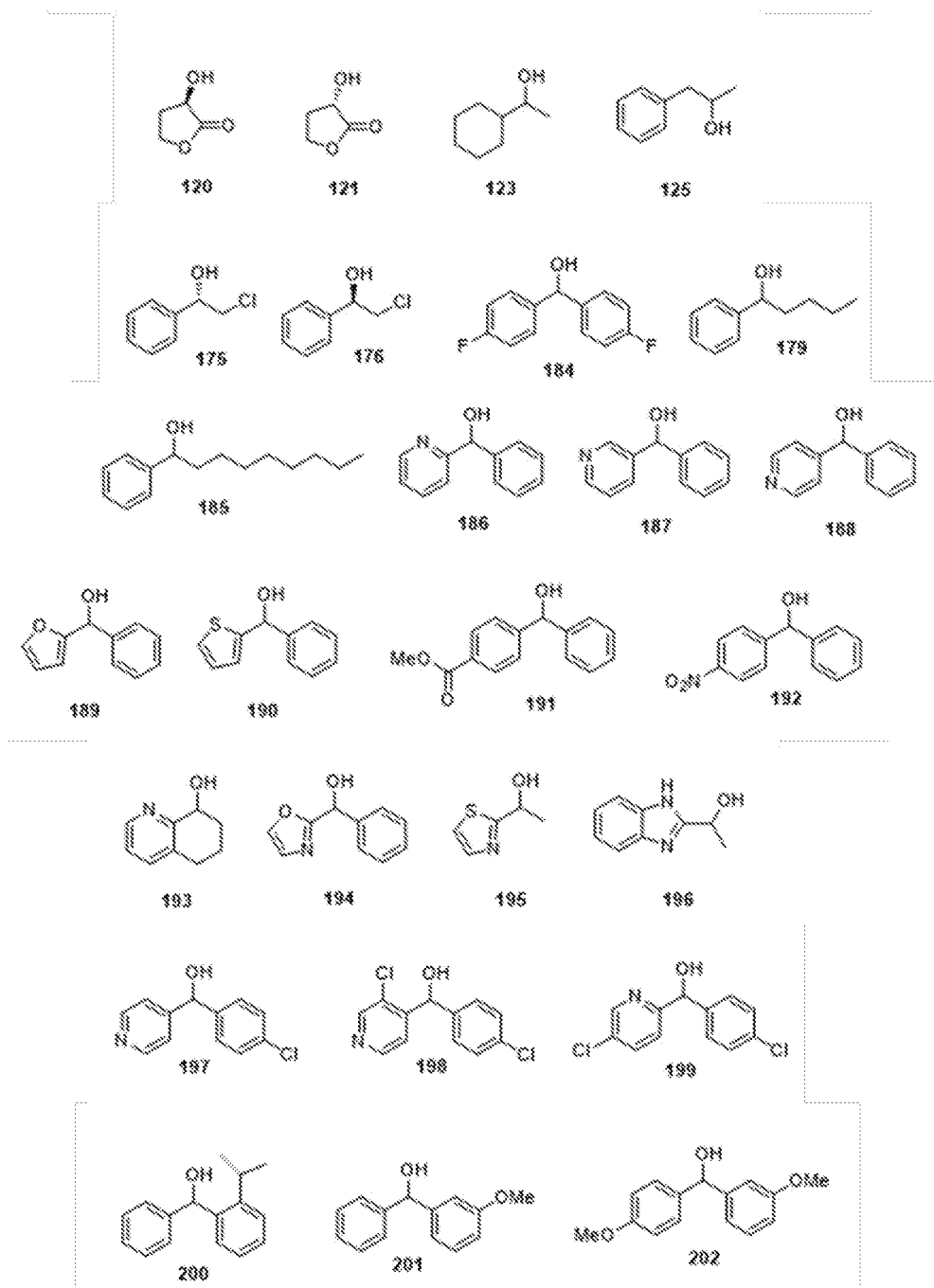
to at least one mutation in the polypeptide sequence of the modified galactose oxidase in any one of claims 1-13.

16. The polynucleotide sequence of claim 14 or 15, wherein the polynucleotide is codon optimized, wherein optionally the polynucleotide is codon optimized for protein expression in *Escherichia coli*.
17. The polynucleotide sequence of any one of claims 14-16, wherein the polynucleotide sequence is further linked to a control sequence, wherein optionally the control sequence is a promoter sequence or a termination sequence, wherein optionally the promoter sequence is a lac promoter sequence.
18. The polynucleotide sequence of any one of claims 14-17, wherein the polynucleotide comprises an odd numbered sequence of SEQ ID NOS: 7-298.
19. An expression vector comprising the polynucleotide sequence of any one of claims 14-18.
20. The expression vector of claim 19, wherein the expression vector is selected from the group consisting of a plasmid and a viral vector, wherein optionally the expression vector is a pET28a plasmid vector.
21. A host cell comprising the polynucleotide sequence of any one of claims 14-18 or the expression vector of claim 19 or 20.
22. The host cell of claim 21, wherein the host cell is a prokaryotic cell or eukaryotic cell, wherein optionally the host cell is a prokaryotic cell, and wherein optionally the prokaryotic cell is *Escherichia coli*.
23. A method of producing a modified galactose oxidase, comprising culturing the host cell of claim 21 or 22 under suitable culture conditions such that the modified galactose oxidase is produced.

24. The method of claim 23, further comprises recovering the modified galactose oxidase from the culture and/or the host cell.
25. The method of claim 23 or 24, further comprises purifying the modified galactose oxidase.
- 5 26. A method of producing a ketone from a secondary alcohol, comprising contacting the secondary alcohol with the modified galactose oxidase of any one of claims 1-13 under suitable conditions for an oxidation reaction.
- 10 27. The method of claim 26, wherein the secondary alcohol is a bulky secondary alcohol or unactivated secondary alcohol, wherein the bulky secondary alcohol comprises one or more bulky substituents, and wherein the unactivated secondary alcohol is an aliphatic secondary alcohol without a benzene ring in the alpha position adjacent to the alcohol group.
- 15 28. The method of claim 26 or 27, wherein the secondary alcohol comprises the formula R^1R^2CHOH , wherein R^1 and R^2 are independently selected from the group consisting of cycloalkyl, aryl, heteroaryl, alkyl, alkylene, alkynyl, haloalkyl, carboxyl, and carbonyl, wherein the cycloalkyl, aryl, heteroaryl, alkyl, alkylene, alkynyl, haloalkyl, carboxyl, and carbonyl is optionally substituted with one or more substituents selected from the group
- 20 consisting of alkyl, halogen, alkyl halide, alkylene, alkynyl, alkoxy, cyano, oxo, nitro, amino, thiol, carboxyl, ester and hydroxyl.
29. The method of any one of claims 26-28, wherein the secondary alcohol is selected from the group consisting of:



277



- 5 30. The method of any one of claims 26-29, wherein the secondary alcohol is chiral or non-chiral, wherein optionally the chiral secondary alcohol is present as (S)-enantiomer, (R)-

enantiomer, or a mixture of (S)- and (R)-enantiomers, wherein optionally the chiral secondary alcohol is present as a racemic mixture.

31. The method of any one of claims 26-30, wherein the contacting step is performed at a
5 temperature of 25°C, 30°C, 35°C, 40°C, 45°C, 50°C, 55°C or more, wherein optionally the temperature is 35°C.

32. The method of any one of claims 26-31, further comprising converting the secondary
10 alcohol into an active pharmaceutical ingredient.

33. A kit for use in the method of any one of claims 26-32, wherein the kit comprises the
modified galactose oxidase of any one of claims 1-13.

34. The kit of claim 33, wherein the kit further comprises one or more of the following:
15 (a) one or more reaction buffers;
(b) one or more reaction vessels, wherein optionally the reaction vessel is a HPLC vial;
(c) one or more reaction solvents, wherein optionally the reaction solvent is 5% v/v
dimethyl sulfoxide in 100 mM sodium phosphate buffer with a pH of 7;
(d) one or more secondary alcohol substrates;
20 (e) one or more co-enzymes to break down the by-product of the oxidation reaction,
wherein optionally the co-enzyme is a horseradish peroxidase that breaks down the
H₂O₂; and
(f) instructions for performing the method of any one of claims 23-30.