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MTTASTSQVRQNYHQDSEAAINRQINLELYASYVYLSMSYYFDRDDVALKNFAKYFL
HQSHEEREHAELMKLQNRGGRIFLQDIKKPDCDDWESGLNAMECALHLEKNVNQS
LLELHKLATDKNDPHLCDFIETHYLNEQVKAIKELGDHVTNLRKMGAPESGLAEYLF
DKHTLGDSDNES

FIG. 1

ATGGCTGATATC
GGATCCATACATATGACGACCGCGTCCACCTCGCAGGTGCGCCAGAACTACCACCAG
GACTCAGAGGCCGCCATCAACCGCCAGATCAACCTGGAGCTCTACGCCTCCTACGTT
TACCTGTCCATGTCTTACTACTTTGACCGCGATGATGTGGCTTTGAAGAACTTTGCC
AAATACTTTCTTCACCAATCTCATGAGGAGAGGGAACATGCTGAGAAACTGATGAAG
CTGCAGAACCAACGAGGTGGCCGAATCTTCCTTCAGGATATCAAGAAACCAGACTGT
GATGACTGGGAGAGCGGGCTGAATGCAATGGAGTGTGCATTACATTTGGAAAAAAT
GTGAATCAGTCACTACTGGAAGTGCACAACTGGCCACTGACAAAAATGACCCCCAT
TTGTGTGACTTCATTGAGACACATTACCTGAATGAGCAGGTGAAAGCCATCAAAGAA
TTGGGTGACCACGTGACCAACTTGGCAAGATGGGAGCGCCCGAATCTGGCTTGGCG
GAATATCTCTTTGACAAGCACACCTGGGAGACAGTGATAATGAAAGCTAACCTAGG
CACCTCGAG

FIG. 2

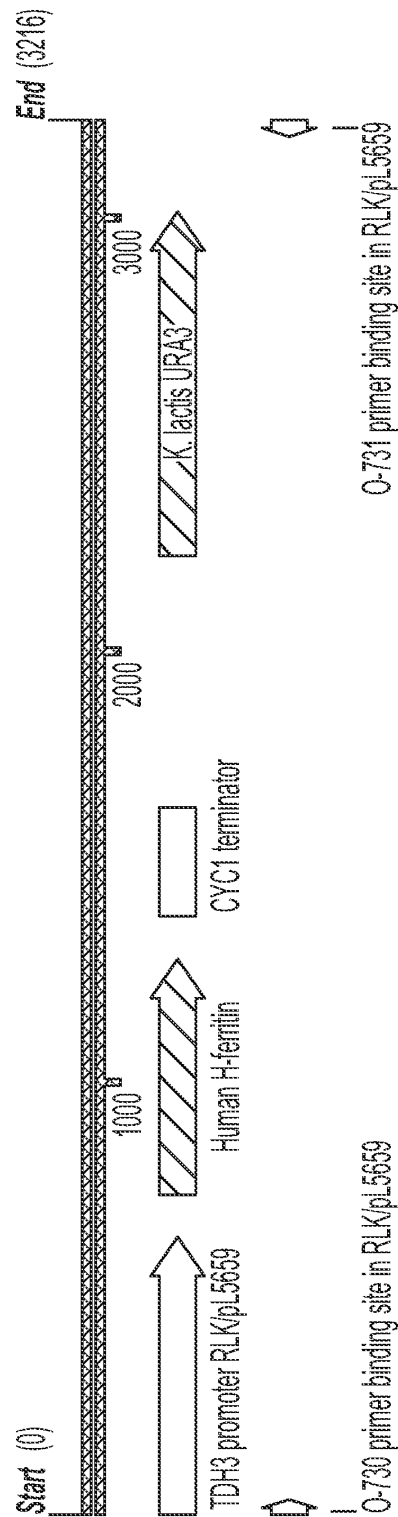


FIG. 3

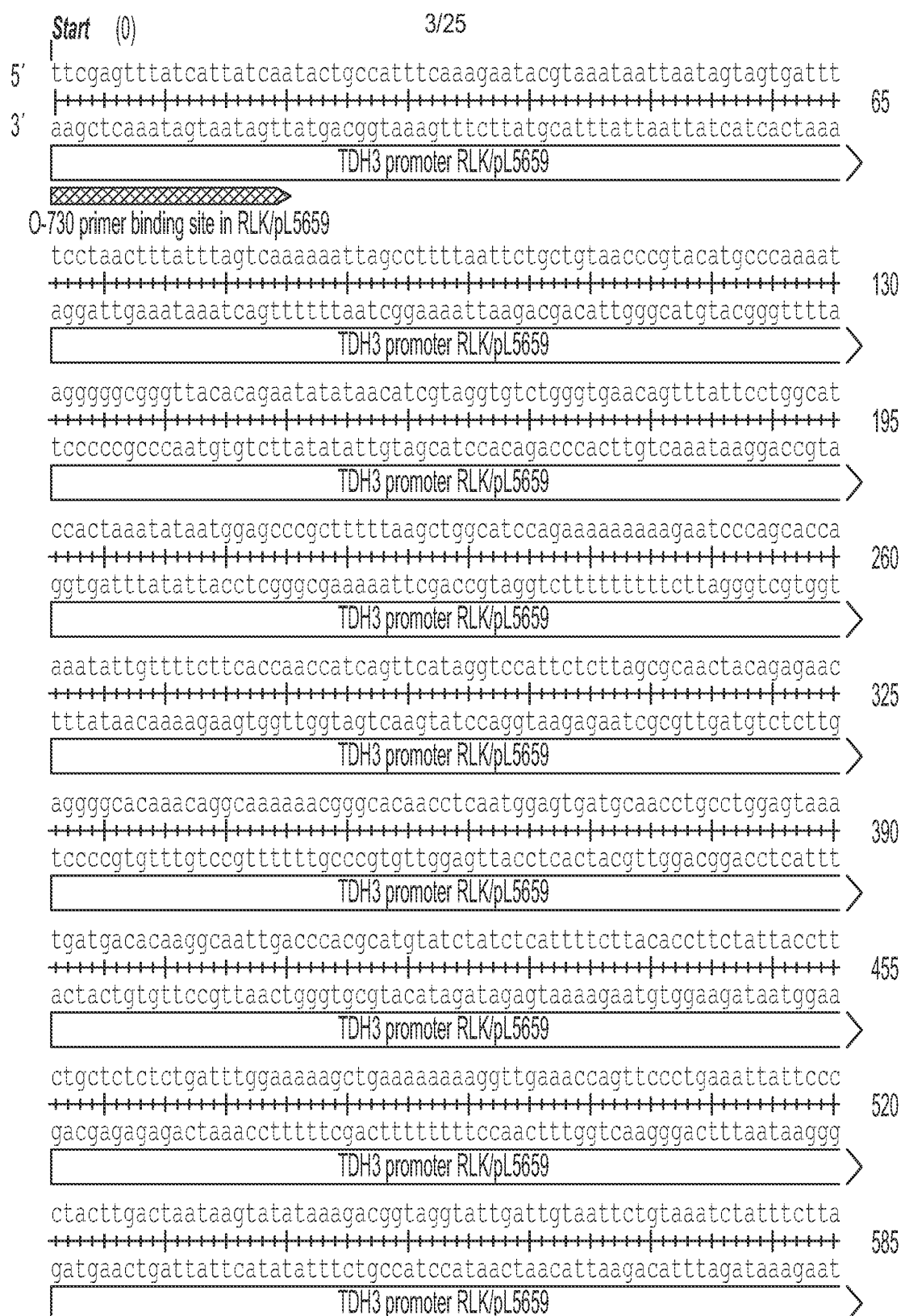


FIG. 4

aacttcttaaatctacttttatagttagtccttttttttagtttttaaaacaccagaacttagttt
650
ttgaagaatttaagatgaaaatatcaatcagaaaaaaatcaaaattttgtggtcttgaatcaaa
TDH3 promoter RLK/pl5659
cgacggattctagaactagtggtatcccccatacacaagtttGTACAAAAAGCAGGCTTTAAAGGA
715
gtcgcctaagatcttgatcacctaggggtagtggttcaaaCATGTTTTTCGTCCGAAATTCCT
TDH3 promoter RLK/pl5659
ACCAATTCAGTCGACTGGATCCATACATATGACGACCGGTCCACCTCGCAGGTGCGCCAGAACT
780
TGGTTAAGTCAGCTGACCTAGGTATGTATACTGCTGGCGCAGGTGGAGCGTCCACGCGGTCTTGA
1 5 10
Met Thr Thr Ala Ser Thr Ser Gln Val Arg Gln Asn
Human H-ferritin
ACCACCAGGACTCAGAGGCCGCCATCAACCGCCAGATCAACCTGGAGCTCTACGCCTCCTACGTT
845
TGGTGGTCCTGAGTCTCCGGCGGTAGTTGGCGGTCTAGTTGGACCTCGAGATGCGGAGGATGCAA
15 20 25 30
Tyr His Gln Asp Ser Glu Ala Ala Ile Asn Arg Gln Ile Asn Leu Glu Leu Tyr Ala Ser Tyr Val
Human H-ferritin
TACCTGTCCATGTCTTACTACTTTGACCGCATGATGTGGCTTTGAAGAACTTTGCCAAATACTT
910
ATGGACAGGTACAGAATGATGAAACTGGCGCTACTACACCGAAACTTCTTGAAACGGTTTATGAA
35 40 45 50 55
Tyr Leu Ser Met Ser Tyr Tyr Phe Asp Arg Asp Asp Val Ala Leu Lys Asn Phe Ala Lys Tyr Phe
Human H-ferritin
TCTTCACCAATCTCATGAGGAGAGGGAACATGCTGAGAAACTGATGAAGCTGCAGAACCAACGAG
975
AGAAGTGGTTAGAGTACTCCTCTCCCTTGACGACTCTTGACTACTTCGACGCTTGGTTGCTC
60 65 70 75
Leu His Gln Ser His Glu Glu Arg Glu His Ala Glu Lys Leu Met Lys Leu Gln Asn Gln Arg
Human H-ferritin
GTGGCCGAATCTTCCTTCAGGATATCAAGAAACCAGACTGTGATGACTGGGAGAGCGGGCTGAAT
1040
CACCGGCTTAGAAGGAAGTCTATAGTTCTTTGGTCTGACACTACTGACCTCTCGCCCGACTTA
80 85 90 95
Gly Gly Arg Ile Phe Leu Gln Asp Ile Lys Lys Pro Asp Cys Asp Asp Trp Glu Ser Gly Leu Asn
Human H-ferritin

FIG. 4 Continued

GCAATGGAGTGTGCATTACATTTGGAAAAAATGTGAATCAGTCACTACTGGAAGTGCACAAACT
 1105
 CGTTACCTCACACGTAATGTAAACCTTTTTTACACTTAGTCAGTGACCTTGACGTGTTTGA
 100 105 110 115 120
 Ala Met Glu Cys Ala Leu His Leu Glu Lys Asn Val Asn Gln Ser Leu Leu Glu Leu His Lys Leu
 Human H-ferritin
 GGCCACTGACAAAAATGACCCCCATTTGTGTGACTTCATTGAGACACATTACCTGAATGAGCAGG
 1170
 CCGGTGACTGTTTTACTGGGGGTAAACACACTGAAGTAACTCTGTGTAATGGACTTACTCGTCC
 125 130 135 140
 Ala Thr Asp Lys Asn Asp Pro His Leu Cys Asp Phe Ile Glu Thr His Tyr Leu Asn Glu Gln
 Human H-ferritin
 TGAAAGCCATCAAAGAATTGGGTGACCACGTGACCAACTTGC GCAAGATGGGAGCGCCCGAATCT
 1235
 ACTTTCGGTAGTTTCTTAACCCACTGGTGCAC TGGTTGAACGCGTTCTACCTCGCGGGCTTAGA
 145 150 155 160
 Val Lys Ala Ile Lys Glu Leu Gly Asp His Val Thr Asn Leu Arg Lys Met Gly Ala Pro Glu Ser
 Human H-ferritin
 GGCTTGGCGGAATATCTCTTTGACAAGCACACCCTGGGAGACAGTGATAATGAAAGCTAACCTAG
 1300
 CCGAACCGCCTTATAGAGAACTGTTTCGTGTGGGACCTCTGTCACTATTACTTTTCGATTGGATC
 165 170 175 180
 Gly Leu Ala Glu Tyr Leu Phe Asp Lys His Thr Leu Gly Asp Ser Asp Asn Glu Ser
 Human H-ferritin
 GCACCTCGAGATATCTAGACCCAGCTTTCTTGTA Caaagtggatgggctgcaggaattcgata
 1365
 CGTGGAGCTCTATAGATCTGGGTCGAAAGAACATGtttcaccactaccgcagctccttaagctat
 tcaagcttatcgataccgctcgacctcgagtcatgtaattagttatgtcacgottacattcacgcc
 1430
 agttcgaatagctatggcagctggagctcagtaattaatcaatacagtgccaatgtaagtgcgg
 CYC1 terminator
 ctccccccacatccgctctaaccgaaaaggaaggagttagacaacctgaagtctaggtccctatt
 1495
 gaggggggtgtaggcgagattggcttttccctcctcaatctgttggacttcagatccagggataa
 CYC1 terminator
 tatttttttatagttatgtagtattaagaacgttatttatatttcaaattttcttttttttct
 1560
 ataaaaaaatatcaatacaatcataattcttgcaataaatataaagtttaaaaagaaaaaaaaga
 CYC1 terminator

FIG. 4 Continued

gtacagacgcgtgtacgcatgtaacattatactgaaaaccttgcttgagaagggttttgggacgct
 1625
 catgtctgogcacatgcgtacattgtaatatgacttttggaaacgaactcttccaaaacccctgcga
 CYC1 terminator
 cgaaggcctttaatttgCGGCCGcataggccactagtggatctgatATCACCTAATAACTTCGTAT
 1690
 gcitccogaattaaacGCCGGCgtatccggtgatcacctagactaTAGTGGATTATTGAAGCATA
 CYC1 terminator
 AGCATACATTATACGAAGTTATATTAAGGGTTcTCGAgagctcgttttatttaggttctatcgag
 1755
 TCGTATGTAATATGCTTCAATATAAATCCCAAgAGCTctcgagcaaaataaatccaagatagctc
 gagaaaaagcgacaagaagagatagaccatggataaatgattatgttctaaacactcctcagaag
 1820
 ctctttttcgctgttctctctatctggtacctatttactaatacaagatttgtgaggagtcttc
 ctcatogaactgtcatcctgcgtgaagattaaaaatccaacttagaaatttcgagcttacggagac
 1885
 gagtagcttgacagtaggacgcacttctaattttaggttgaatctttaagctcgaatgcctctg
 aatcatatgggagaagcaattggaagatagaaaaaggactcggtagcataaatatatgtgattc
 1950
 ttagtataccctcttcgtaaaccctctatctttttccatgagccatgtatttatatacactaag
 tgggtagaagatcggctctgcattggatgggtggaacgcatttttttacacacattacttgccctcg
 2015
 acccatcttctagccagacgtaacctaccaccattgcgtaaaaaaatgtgtgtaatgaacggagc
 agcatcaaattgggtggttattcgtggatctatatcacgtgatttgcttaagaattgtcgttcatgg
 2080
 tcgtagtttaccaccaataagcacctagatatagtgcactaaacgaattcttaacagcaagtacc
 tgacacttttagctttgacatgattaagctcatctcaattgatgttatctaaagtcatttcaact
 2145
 actgtgaaaatcgaaactgtactaattcgagtagagttaactacaatagatttcagtaaagttga
 atctaagatgtggttgtgattgggccattttgtgaaagccagtagccagcgtcaatacactccc
 2210
 tagattctacaccaacactaaccggtaaaacacttttcggtcatgcggtcgagttatgtgaggg
 gtcaattagttgcaccatgtccacaaaatcatataccagtagagctgagactcatgcaagtccgg
 2275
 cagttaatcaacgtggttacaggtgttttagtatatggtcatctcgactctgagtacgttcaggcc

1 5 10 15
 Met Ser Thr Lys Ser Tyr Thr Ser Arg Ala Glu Thr His Ala Ser Pro
 K. lactis URA3

FIG. 4 Continued

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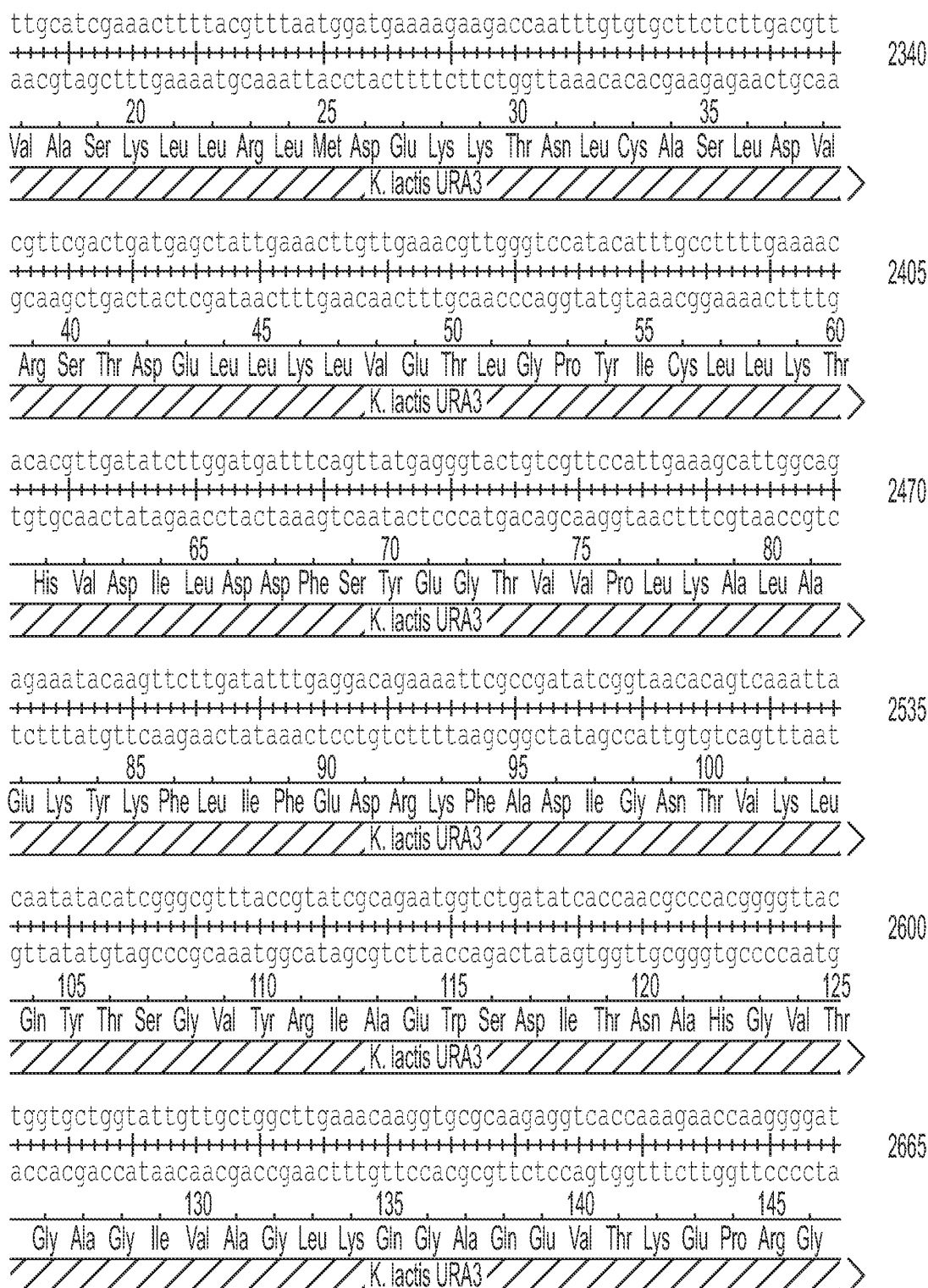


FIG. 4 Continued

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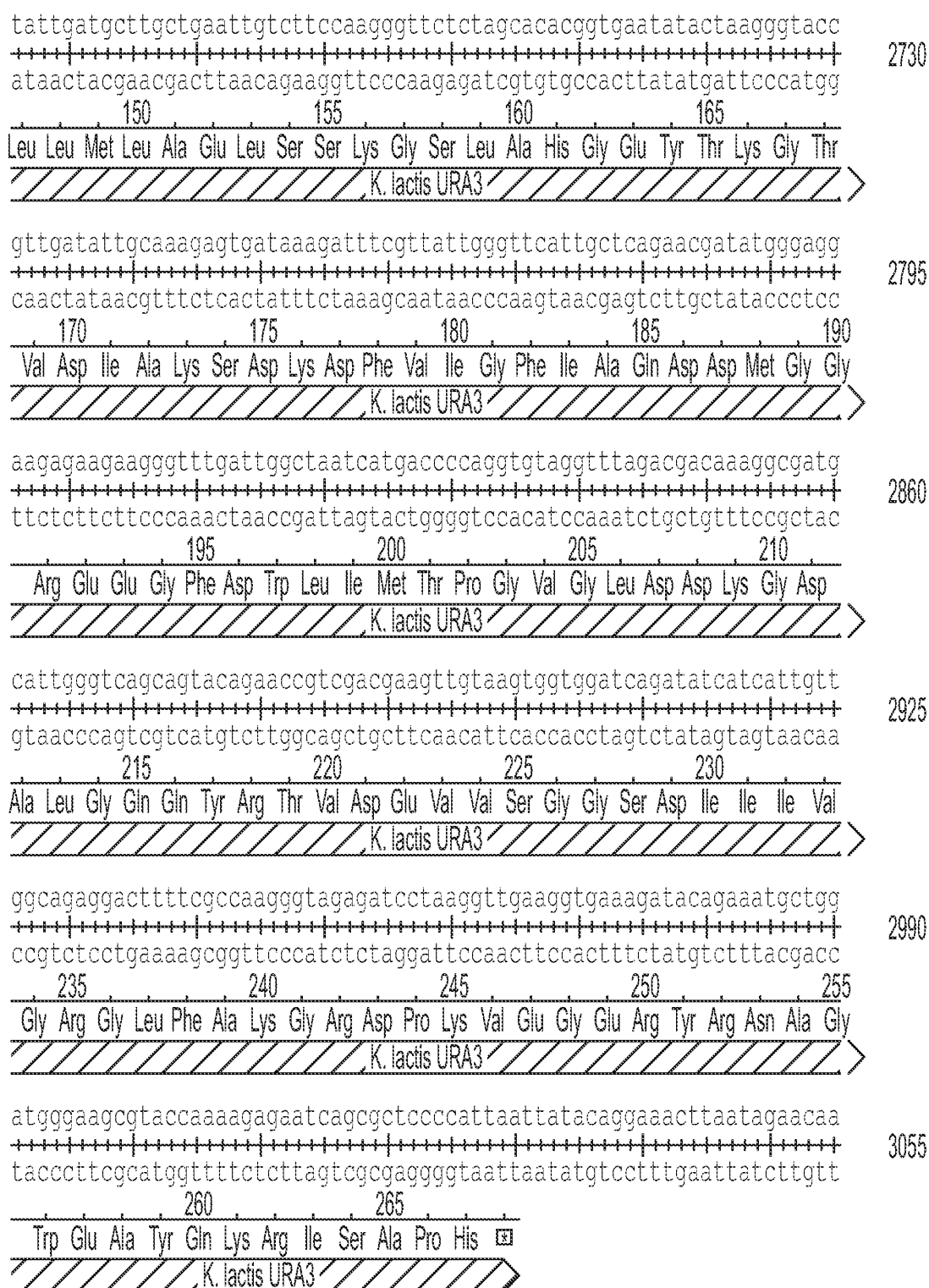
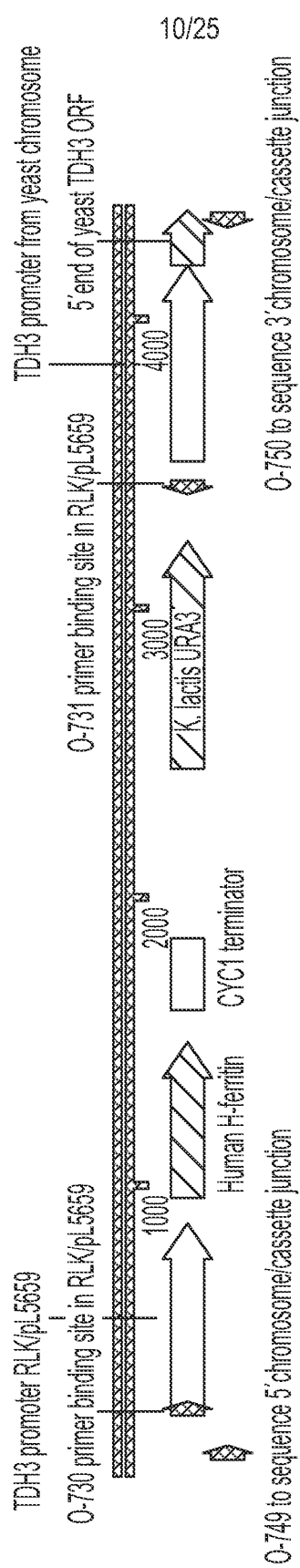


FIG. 4 Continued

atcacatatTTTaatctaataagccacctgcattggcagcggTgcaacactacttTcaacttcatctta
 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+ 3120
 tagtgatataaaattagattatcggTggacgtaaccgTgccacgTtgatgatgaagTtgaagtagaat
 caaaaagatcacgtgatctgttgattgggatctctagACCTAATAACTTCGTATAGCATACATT
 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+ 3185
 gtttttctagTgcactagacaaacataaccctagagatcTGGATTATTGAAGCATATCGTATGTAA
 End (3216)
 ATACGAAGTTATATTAAGGGTTgTCGAacctg 3'
 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+ 3216
 TATGCTTCAATATAATTCCCAAcAGCTggac 5'


 O-731 primer binding site in RLK/pL5659

FIG. 4 Continued



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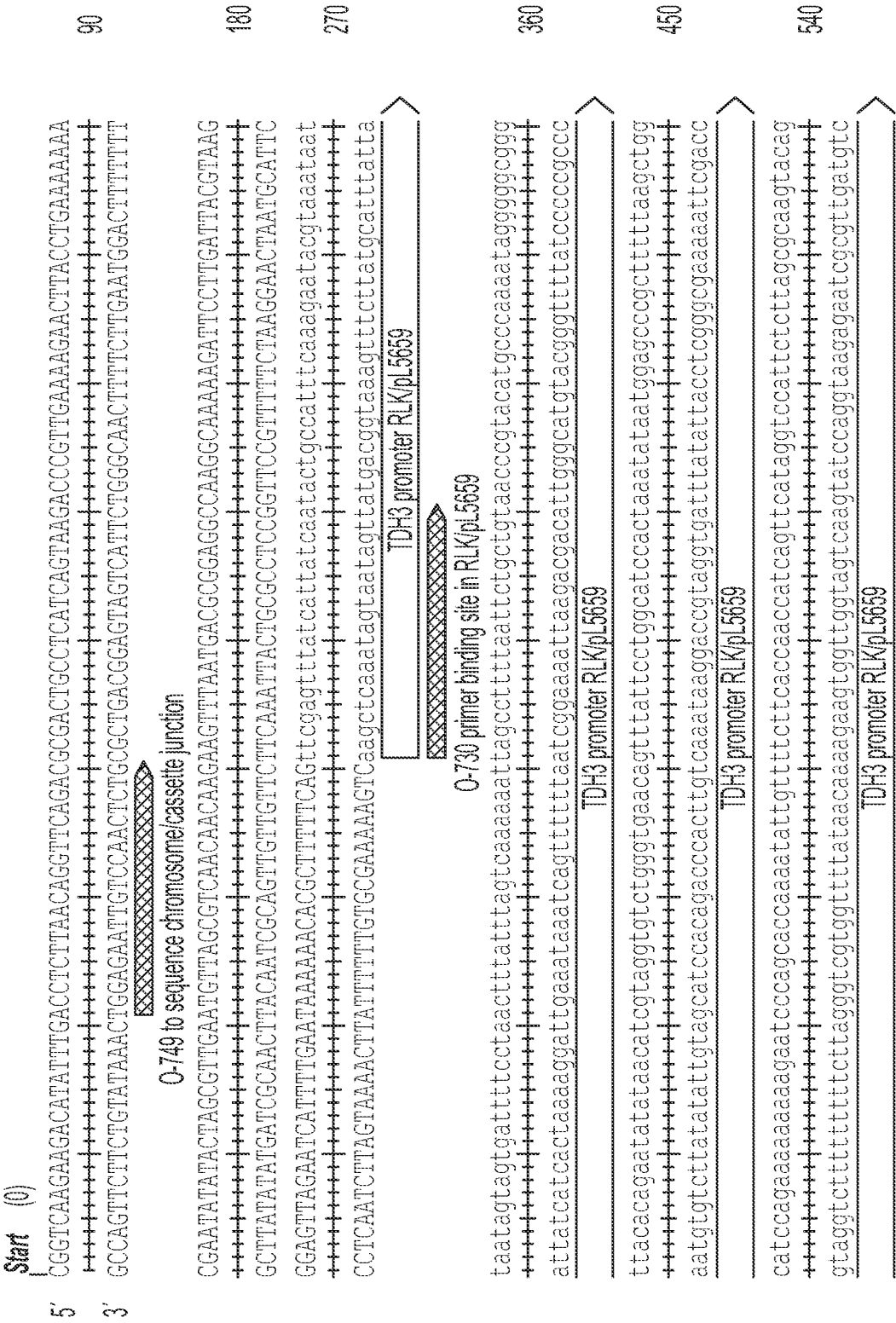


FIG. 6

FIG. 6 Continued^x

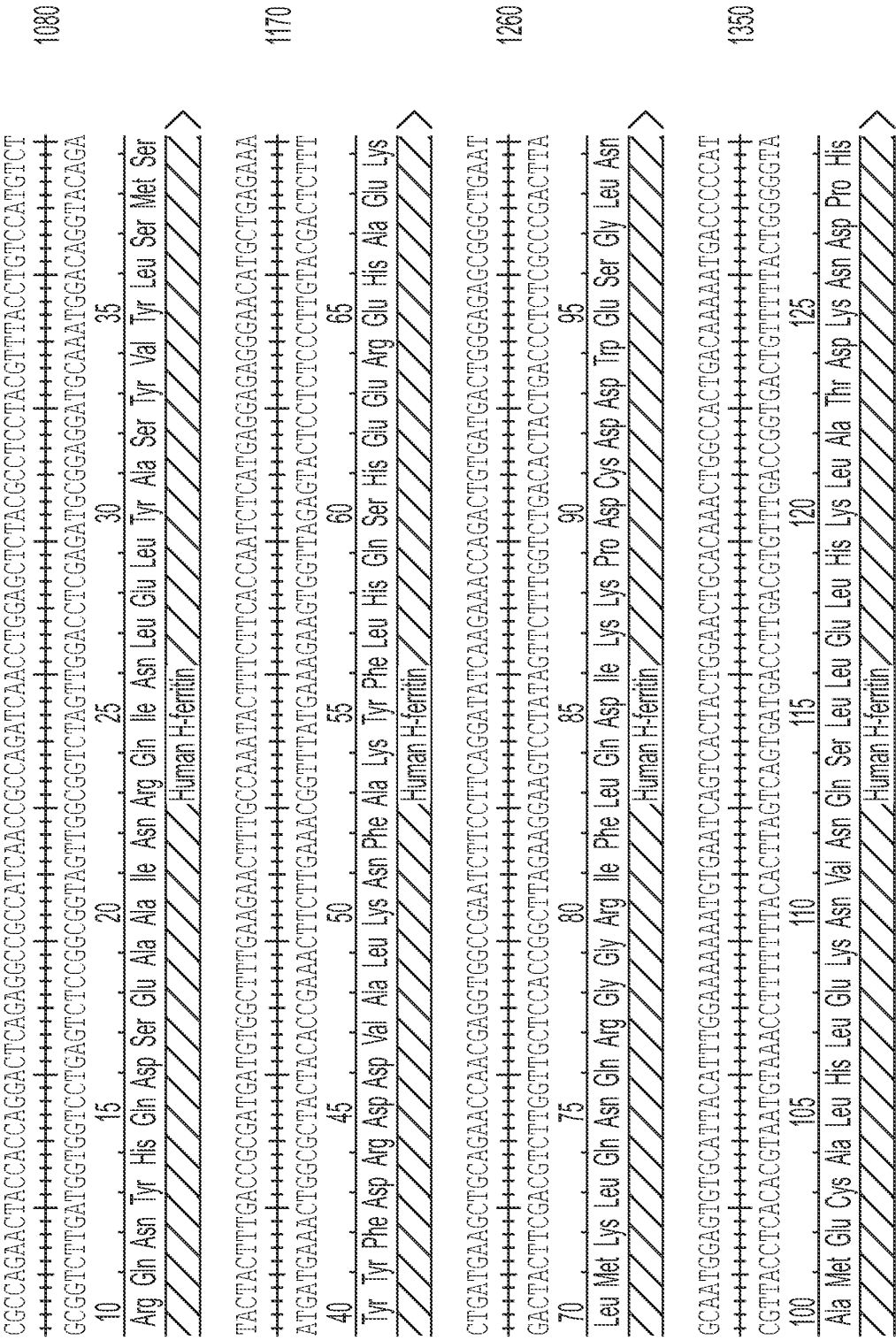


FIG. 6 Continued

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FIG. 6 Continued

1890

gtaacattatactgaaaaccttgcttgaagaaggttttgggacgctcgaaggctttaatttgcggccgcatagggccactagtggatctgat
cattgtaatatgacttttggaaacgaactcttccaaaaccctggagagcttcgaaattaaacccggcgtatccggtgatcacctagacta

1900

ATCACCTAATAACTTCGTATAGCATACATTATACGAAGTTATATAAGGGTTcTCGAGagctcggttttatttaggttctatcgaggagaa
TAGTGGATTATTGAAGCATATCGTATGTAATATATGCTTCAATATAATTCCCAAGAGCTctogagcaaaaataaaatccaagatagctcctctt

2070

aaagcgacaagaagagatagaccatggataaaatgattatgtttctaaacactcctcagaagctcatcgaactgtcatcctgcgtgaagatt
tttcgctgttcttctctatctcgtgtacctatttactaatacaagatttgtgaggagctcttcgagtagcttgacagtaggacgcacttctaa

2160

aaaatccaaacttagaaaatttcgagcttacggagagacaatcatatggggagaagcaattggaaagatagaaaaaggctactcgggtacataaata
ttttaggttgaatctttaagctcogaatgcctctgttagtataccctctcttcgttaaccttctatcttttccatgagccatgtatttat

2250

tatgtgattctgggtagaagatcggctcgttgatgggtggttaacgcatttttttacacacattacttgccctcgagcatcaaatggtgg
atacactaaagaccatcttctagccagacgtaacctaccaccattgcgtaaaaaatgtgtgaatgaacggagctcgtagtttaccacc

2340

ttattcgtgatctatatcacgtgatttgcttaagaattgtcgttcattggtgacacttttagctttgacatgattaaacctcatctcaatt
aataagcacctagatatagtgcactaaaacgaattcttaacagcaagtaccactgtgaaaatcgaaactgtactaattcogagtagagttaa

2430

gatgttatctaaagtcatttcaactatctaagatgtggttgatgggccatttttgtgaagccagtagccagcgtcaatacacactccc
ctacaatagatttcagtaagttgatagattctacaccaacactaacccggtaaaacactttcgggtcatgcggtcgcaggttatgtggagg

FIG. 6 Continued

2520

gtcaattagttgcaccatgtccacaaaatcatatacagtagagctgagaciatcatgcaagtcoggttgcatcgaaaacttttaacgtttaat
cagttaatcaacgtggtacaggtgttttagtatatagttcatctcgactctgactctgactacgttcaggccaacgttagctttgaaaaatgcaaat
1 5 10 15 20 25
Met Ser Thr Lys Ser Tyr Thr Ser Arg Ala Glu Thr His Ala Ser Pro Val Ala Ser Lys Leu Arg Leu Met
K. lactis URA3

2610

ggatgaaagaagaccatttgtgtgtctctcttgacgttcgttcgactgatcagctattgaaacttgtgaaacggttggtgccatacat
cctactttctctgtttaaacacacgaagaagaactgcaagcagctgactactcgataactttgaaacactttgcaacccagggtatgta
30 35 40 45 50 55
Asp Glu Lys Lys Thr Asn Leu Cys Ala Ser Leu Asp Val Arg Ser Thr Asp Glu Leu Leu Lys Leu Val Glu Thr Leu Gly Pro Tyr Ile
K. lactis URA3

2700

ttgccttttgaaaacacacagttgatattctgttgatgatttcagttatgaggtgactgtcgttcattgaaagcattggcagagaaaatacaa
aacggaaaacttttgtgcactatagaaacctactaaaagtcaatactccatgcacgaaggaagtaactttcgtaacccgtctctttatggt
60 65 70 75 80 85
Cys Leu Leu Lys Thr His Val Asp Ile Leu Asp Asp Phe Ser Tyr Glu Gly Thr Val Val Pro Leu Lys Ala Leu Ala Glu Lys Tyr Lys
K. lactis URA3

2790

gttcttgatatatttgaggacagaaaatttcgcgatatcgggttaacacagtcacaaattacaatacatatcggcggtttaccgtatcgcaaatg
caagaactataaaactcctgtcttttaagcgggtatagccattgtgtcagtttaagtgttatatgtagcccgcaaatggcatagcggcttttac
90 95 100 105 110 115
Phe Leu Ile Phe Glu Asp Arg Lys Phe Ala Asp Ile Gly Asn Thr Val Lys Leu Glu Thr Thr Ser Gly Val Tyr Arg Ile Ala Glu Tyr
K. lactis URA3

FIG. 6 Continued

2880

gtctgatatcaccacgcccacgggttactggtgctgtgttattgttgcgttggttgaaacaagggtgcgcaagaggtccaccaagaaccaaag
cagactatagtgttgctgggtgcccgaatgaccacgaccataacaacgacgaaacttgttccacggttctccagtggtttcttcttggttc
Ser Asp Ile Thr Asn Ala His Gly Val Thr Gly Ala Gly Ile Val Ala Gly Leu Lys Gln Gly Ala Gln Glu Val Thr Lys Glu Pro Arg
K. lactis URA3

2970

gggattattgatgttgcgtgaattgttccaaaggtttcttagcacacggtgaatatataactaagggtacogttgatattgcacaaagagtga
 ccctaataactacgaacgacttaacagaaggttcccaagagatogtgtgcacattatatgattcccatggccaactataaacgtttctcact
 150 155 160 165 170 175
 Gly Leu Leu Met Leu Ala Glu Leu Ser Ser Lys Gly Ser Leu Ala His Gly Glu Tyr Thr Lys Gly Thr Val Asp Ile Ala Lys Ser Asp
 K. lactis URA3

3060

taaagatttggttattgggttcattgctcagaacgatatgggaggaagaagaagggtttgattggctaatcatgacccagggttagg
 atttctaaagcaataacccaagtaacgagcttggctataacctcttctcttcttcccaactaacccgattagtaactgggtccacatcc
 Lys Asp Phe Val Ile Gly Phe Ile Ala Gln Asn Asp Met Gly Gly Arg Glu Glu Gly Phe Asp Trp Leu Ile Met Thr Pro Gly Val Gly
 K. lactis URA3

0513

tttagacgacaaaggcgatgcattgggtcagcagctacagaaccgtcgacgaagtttgttaagtggtggatcagatatcatcattgttggcag
aaatctgctgttccgtacgtaaccagtcgtcatgtcttggcagctgcttcaacattcaccacctagctatagtagtaacaacogtc
Leu Asp Asp Lys Gly Asp Ala Leu Gly Gln Gln Tyr Arg Thr Val Asp Glu Val Val Ser Gly Gly Ser Asp Ile Ile Val Gly Arg
K. lactis URA3

FIG. 6 Continued

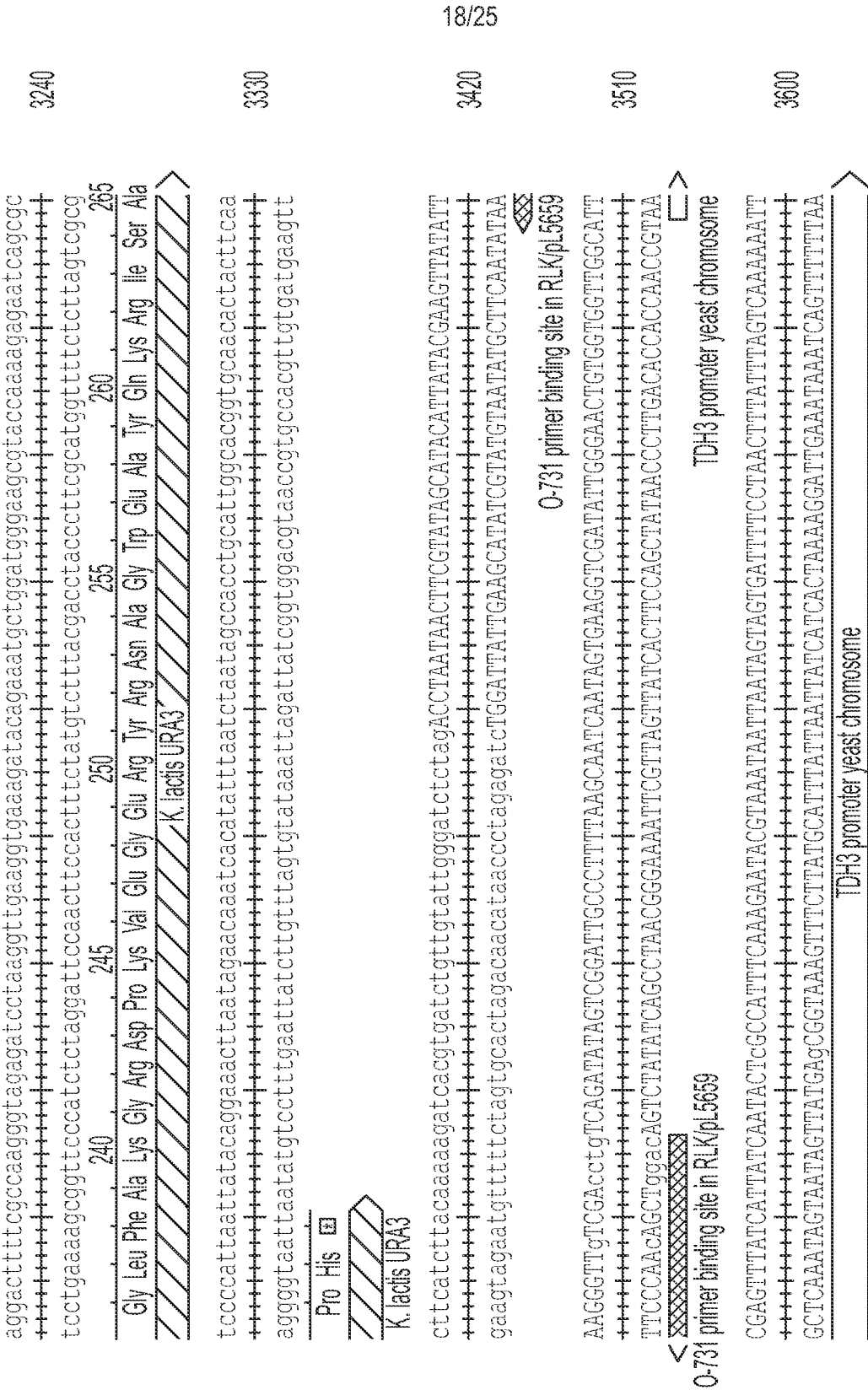


FIG. 6 Continued

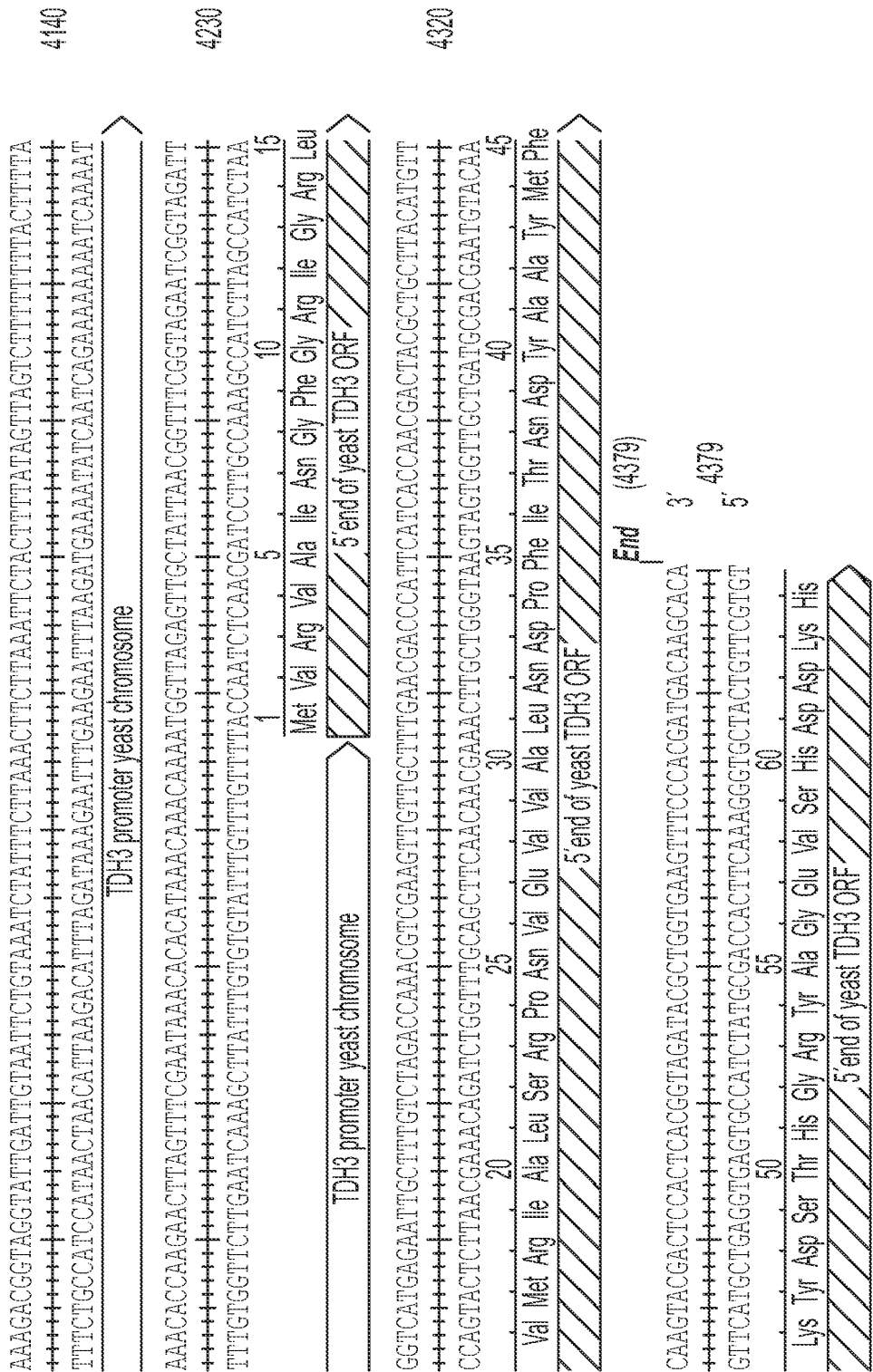
TDH3 promoter yeast chromosome

TDH3 promoter yeast chromosome

TDH3 promoter yeast chromosome

TDH3 promoter yeast chromosome

MDH3 promoter yeast chromosome



O-750 to PCR Ferritin::URA3 insert in P3190

FIG. 6 Continued

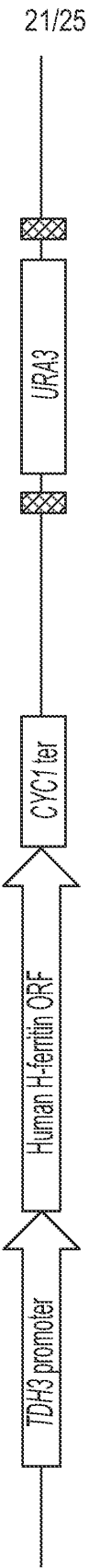


FIG. 7

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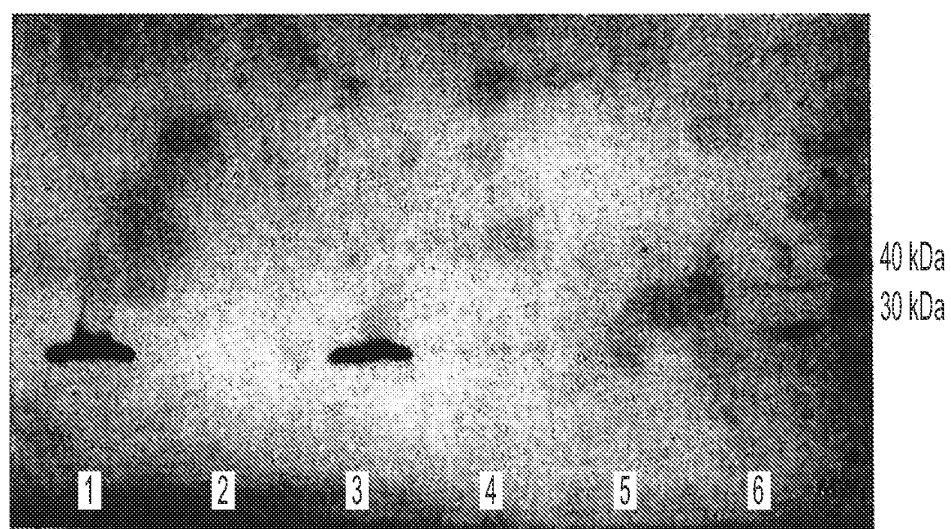


FIG. 8

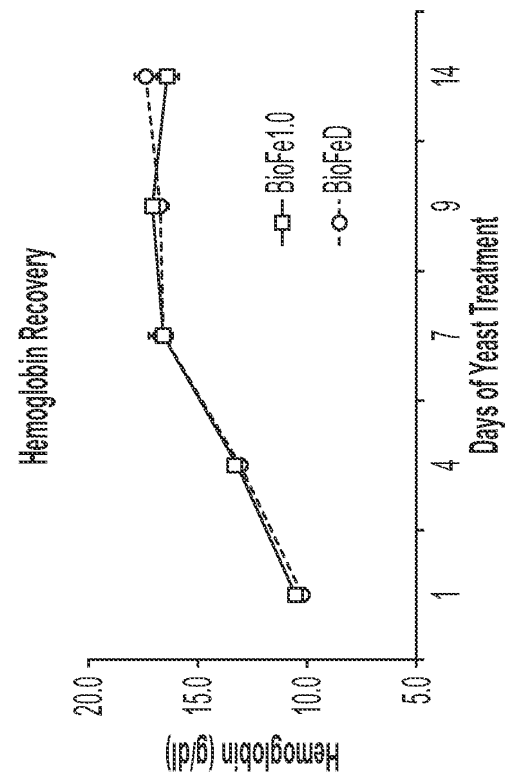


FIG. 9

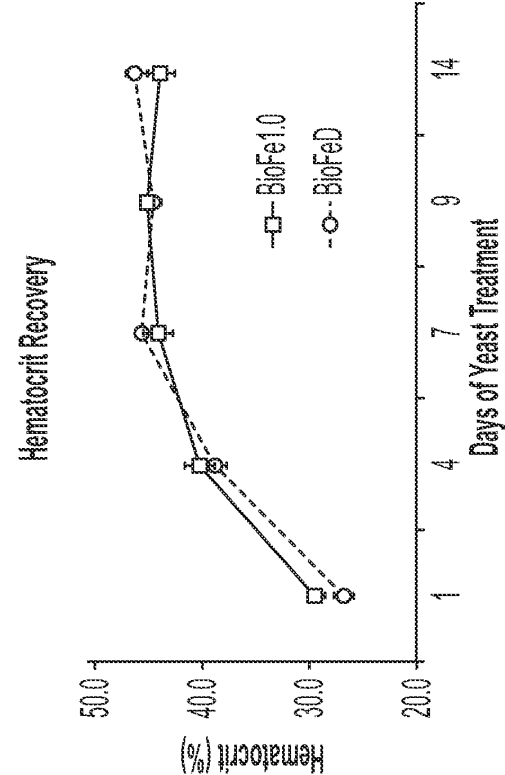


FIG. 10

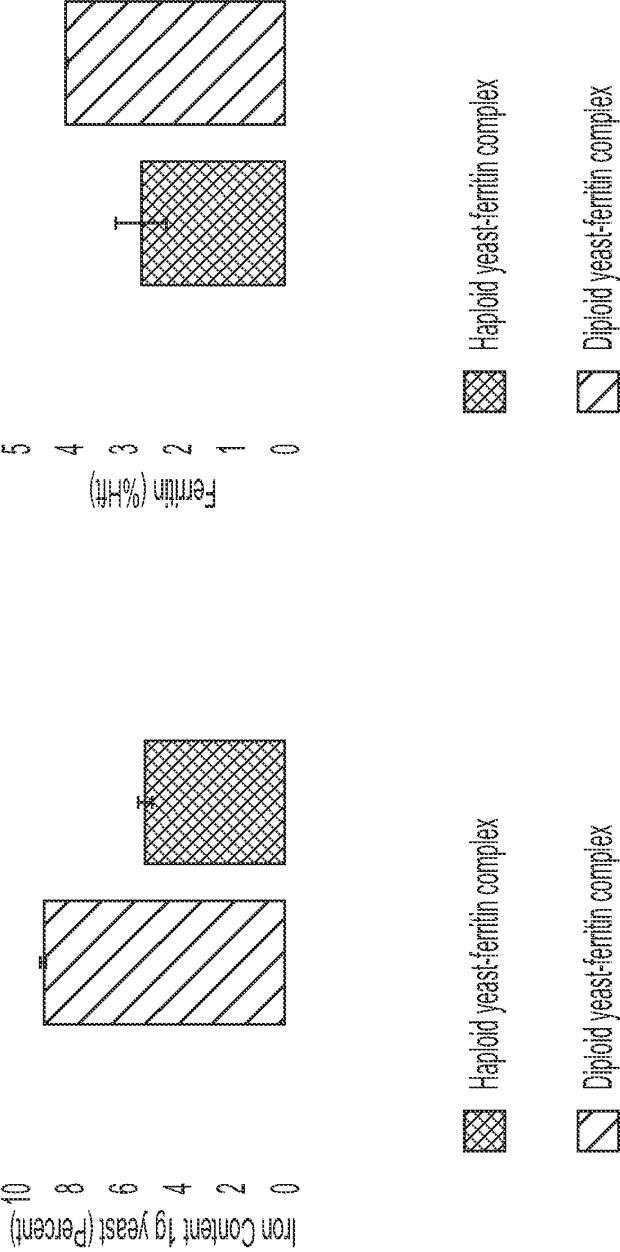


FIG. 11B

FIG. 11A