

SEQUENCE LISTING

<110> EGGXYT LTD.

<120> METHODS FOR GENDER DETERMINATION OF AVIAN EMBRYOS IN UNHATCHED EGGS AND MEANS THEREOF

<130> 2562455

<150> US 62/510,921

<151> 2017-05-25

<160> 67

<170> PatentIn version 3.5

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<212> DNA

<213> Artificial Sequence

<220>

<223> Guide 1 for W chromosome

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<210> 2

<211> 20

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<213> Artificial Sequence

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<223> Guide 2 for W chromosome

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<213> Artificial Sequence

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<223> For cloning using the gRNA1, W chromosome, "Right arm"

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 <223> For cloning using the gRNA2, W chromosome, "Left arm"

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gagttaaatt ccccgaggag gttagagatt ccctgtattg tggttgcctg cccattagac	240
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tacaaagagc tcacatgcat cgtaaaaatg ggcattggat cacctagggg tgagggaatt	480
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ggtgggggtt cacagaagga tgatttaagt acgatggatg cctttgaggc aggcactagg	600
aaccagcagc agtggcagat ttgtgatcat ggaaagaatt ggtgggagca tacggcacca	660

ggactcagat aagatagcta gctaaggatga tgaattgtag atgggtgtcag ataacgaaag	720
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ta	962

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ggaccaagt ggaggatcag gtaatggcag gggttttgct tggatgtaat gctggaaagg	420
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<210> 8
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 <223> A "left arm" for the region upstream to the CMV-promoter

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gttgcacagg gtagggctaa gaaggtaaag gagttaaatt cccccgggag gttagagatt	240
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gcgttgaca	669

<210> 9

<211> 911

<212> DNA

<213> Artificial Sequence

<220>

<223> A "right arm" for the region downstream the Neomycin-resistance

<400> 9

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 <213> Artificial Sequence

<220>
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<220>
 <223> Guide 3 for Z chromosome

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<220>
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<220>

<223> Guide 6 for Z chromosome

<400> 14

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<210> 15

<211> 4980

<212> DNA

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Val Thr Lys Gly Gly Pro Leu Pro Phe Ala Trp Asp Ile Leu Ser Pro
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Ser Leu Gln Asp Gly Cys Phe Ile Tyr Lys Val Lys Phe Ile Gly Val
115 120 125

Asn Phe Pro Ser Asp Gly Pro Val Met Gln Lys Lys Thr Met Gly Trp
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Glu Ile His Lys Ala Leu Lys Leu Lys Asp Gly Gly His Tyr Leu Val
165 170 175

Glu Phe Lys Ser Ile Tyr Met Ala Lys Lys Pro Val Gln Leu Pro Gly
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Phe Pro Ser Asp Gly Pro Val Met Gln Arg Arg Thr Arg Gly Trp Glu
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Ile His Met Ala Leu Arg Leu Glu Gly Gly Gly His Tyr Leu Val Glu
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Phe Lys Ser Ile Tyr Met Val Lys Lys Pro Ser Val Gln Leu Pro Gly
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Gly Ala Leu Leu Phe Asp Ser Gly Glu Thr Ala Glu Ala Thr Arg Leu
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Lys Arg Thr Ala Arg Arg Arg Tyr Thr Arg Arg Lys Asn Arg Ile Cys
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His Glu Arg His Pro Ile Phe Gly Asn Ile Val Asp Glu Val Ala Tyr
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His Glu Lys Tyr Pro Thr Ile Tyr His Leu Arg Lys Lys Leu Val Asp
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Ser Thr Asp Lys Ala Asp Leu Arg Leu Ile Tyr Leu Ala Leu Ala His
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Asp Asn Ser Asp Val Asp Lys Leu Phe Ile Gln Leu Val Gln Thr Tyr
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Lys Gln Arg Thr Phe Asp Asn Gly Ser Ile Pro His Gln Ile His Leu
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725 730 735

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Arg His Lys Pro Glu Asn Ile Val Ile Glu Met Ala Arg Glu Asn Gln
755 760 765

Thr Thr Gln Lys Gly Gln Lys Asn Ser Arg Glu Arg Met Lys Arg Ile
770 775 780

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785 790 795 800

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805 810 815

Gln Asn Gly Arg Asp Met Tyr Val Asp Gln Glu Leu Asp Ile Asn Arg
820 825 830

Leu Ser Asp Tyr Asp Val Asp His Ile Val Pro Gln Ser Phe Leu Lys
835 840 845

Asp Asp Ser Ile Asp Asn Lys Val Leu Thr Arg Ser Asp Lys Asn Arg
850 855 860

Gly Lys Ser Asp Asn Val Pro Ser Glu Glu Val Val Lys Lys Met Lys
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Asn Tyr Trp Arg Gln Leu Leu Asn Ala Lys Leu Ile Thr Gln Arg Lys
885 890 895

Phe Asp Asn Leu Thr Lys Ala Glu Arg Gly Gly Leu Ser Glu Leu Asp
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Lys Ala Gly Phe Ile Lys Arg Gln Leu Val Glu Thr Arg Gln Ile Thr
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Lys His Val Ala Gln Ile Leu Asp Ser Arg Met Asn Thr Lys Tyr Asp
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Val Gly Thr Ala Leu Ile Lys Lys Tyr Pro Lys Leu Glu Ser Glu Phe
995 1000 1005

Val Tyr Gly Asp Tyr Lys Val Tyr Asp Val Arg Lys Met Ile Ala
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Ser Val Lys Glu Leu Leu Gly Ile Thr Ile Met Glu Arg Ser Ser
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1175 1180 1185

Glu Val Lys Lys Asp Leu Ile Ile Lys Leu Pro Lys Tyr Ser Leu
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Phe Glu Leu Glu Asn Gly Arg Lys Arg Met Leu Ala Ser Ala Gly
1205 1210 1215

Glu Leu Gln Lys Gly Asn Glu Leu Ala Leu Pro Ser Lys Tyr Val
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Asn Phe Leu Tyr Leu Ala Ser His Tyr Glu Lys Leu Lys Gly Ser
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His Tyr Leu Asp Glu Ile Ile Glu Gln Ile Ser Glu Phe Ser Lys
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Arg Val Ile Leu Ala Asp Ala Asn Leu Asp Lys Val Leu Ser Ala
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Tyr Asn Lys His Arg Asp Lys Pro Ile Arg Glu Gln Ala Glu Asn
1295 1300 1305

Ile Ile His Leu Phe Thr Leu Thr Asn Leu Gly Ala Pro Ala Ala
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Phe Lys Tyr Phe Asp Thr Thr Ile Asp Arg Lys Arg Tyr Thr Ser
1325 1330 1335

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atgcagcctt ctccgatttt tactctgggtg ccggaaggag gaggaggagc gggggaaaac	240
ccagcggact cagactgcat acgcactctc ggaagtacct ctgaggcggg gtgagaggaa	300
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 <212> DNA
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<220>
 <223> Right arm for gRNA8 integration to Chromosome Z

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agtgcacccc gc	1032

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 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Left arm for gRNA9 integration to Chromosome Z
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gaacaagact gatgcattag tttcatgaaa tcaaggctat gtgtcccact ggtttcatta	180
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gacatggaag cgtggatgga gcaaagttgt gtcactgaat tcctccataa ggaaatgagc	480
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<220>
 <223> Right arm for gRNA9 integration to Chromosome Z
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cagttactaa gactctacac ctctttggtg gcgctagttc tgatgtagtt cttcagttgc	720
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 <213> Artificial Sequence

<220>
 <223> Left arm for gRNA10 integration to Chromosome Z
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agtgccgtcg tgcagggtggg ctcggtgctc tctgcagccc acggctcggg acccgtgggtg	240
ggcatactgc tgggcaaggg gacggctcgg atgtgcatcc cagagcaggg tgcattgatgt	300
gtgcgcagcg gcacacagca gcgcacttgt ccccgaggca ccacccggtc tgatgaaatt	360
ccaggttttg ttttaagatga aaatgcatgt gggcatacat ttgcacatga gaacacctgc	420
taatgaaaca cacagagttg tatgtgcagt ctccctggct ggtggcatgt ctgtgggggc	480
agttaggcag gaagaaaagc tccacatctt gtttctgtgt cccgggcttg gtgctgccac	540
tagagatggg atgcacacag catgcctgcg tgctgccgag gcagctcagt acctgctgct	600

gggggagagc agccctcagg gagctgctgc aaagaccccg tgggatggct ggtgaacagt	660
gctggagaca tggcagatgt cgcacccctg ctccacacca ccctccgctg cagctgcctg	720
cacgatgcca tttcagcgtg ccacggcttg tttcttcctc ttgcagtctc aggttgccgc	780
agcagcagct gcctgaggtc tgggtggcaaa gggcagagca cccagcccac tgctctccat	840
gagtgagcgg gtagggggca cgccgtgctt cgcttctggt atcgggtggc ctgtggagca	900
catcacccct ggacagtga aacatgtcaa aggggtgtttt ataacagtat agcatatccc	960
tttgaggctg aatttcctga gcttatggat atggtagtaa tgctatacca ggctctctct	1020
gcag	1024

<210> 38
 <211> 1022
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Right arm for gRNA10 integration to Chromosome Z
 TRIM36_PGGT1B_ENSGALG00000008188_ENSGALG00000008197_chrZ_78779927
 _1Chromosome Z

<400> 38	
cagctgctgt acaatggctg tatggcagta tcgatgtgaa cttcctgata ataaacagaa	60
ctcagcagca aataaaccca gattgttctg atcagtaacg agaggctgtg caaaaagctg	120
agaaatgtac agcccttcct gctcaccact acagcccttc atgcagcggc ctgctgcact	180
agggcctgct tggccagagg cagggtgca gcttgagata cgcagcacc agtaccacag	240
caggctgcca tgtgcttctg tcaggccatg aattgcacaa gttggtatag tttatacag	300
tgtcatgcag aagcacaact cttaccttgg cacttgata tggaaagcaa agtgtaaagg	360
aactgtatgt ttcttggctt gtgagttcca ttggttctcc caggacagca gtgacagctc	420
tagattttct gggtgatctc ttccatctaa gtttttactt ctgaatacat ctgtgcagca	480
aagcctgatg cttttttttt tccccctccc ctgggatcgt gaaatattat tttcccatct	540
ccataatata gatgatccac tcaaacatgc atcctcagtc gcagtcctca gaagggcctt	600
ttcccacat acacctacac gctacaccag actttattgg tcaccatgcc ttgagggatt	660

ctgcctaaca caggcacaca ggaagggctg ataccagtaa ttcattgctg aggagagaag	720
gggcacttct tttatagtag agccacagaa tcaccaggat tggaaaacac ctccaagatc	780
atccaatcca accacccacc taccaccagt atttcccact aaaccatgcc ctttgggtacc	840
acatctaaaa gcatcttctg caccttcaca gcttcattgc ctttctcagg acgtgctcca	900
gggccttgggt gtctttcttg tattgagtgg cccaaaattg aacacaatac tcgagggtgca	960
gcttcaccaa agctgagtgc agaggggtga tcacctctac taggccttgt tttaccctt	1020
cc	1022

<210> 39
 <211> 1003
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Left arm for gRNA11 integration to Chromosome Z
 RPS23_ATG10_ENSGALG00000015617_ENSGALG00000027714_chrZ_63364946_-
 1

<400> 39	
gggttgaaac tgcgtgatca ttgtagtctt tttcaaccca ggccattcta tgattccatg	60
aagactctgt aaggaccca atgccatcag ctgtccccac agcttcagta cccactgcc	120
ccacatTTTT actgagatag gtagtttgggt agccttcctc ccatcttgga taggggaggg	180
ttaactgctg gcatttttgt tctttcctgc aatatgtgtt ttctgcatgc atttctttt	240
cacccaaaat tttaatgtgg acggactttg aggatattct gcatctgccc aatatttctt	300
acagcctcac atctactgat ttatgcacag tatcttatat ataatgtata ttatattatg	360
tatattatgc actgaatcac atctactgtg tatgcacagt aacttctcct atggtactgt	420
aagcccagaa atcccagata tgtcactaca acgtgtctgc tatgtattgc ttctgtgaga	480
cacagatgtg ataatcagag gctgtacaca gtagaaatgc atacatatcc tactgtgaaa	540
tctctgaaat ctagccttaa tcttggaaca gaaatgaata tggtgacatc ttgatctgat	600
agaattgggt gccagtagca cagctgtaat catccatgat atgaatcaaa ccaagcacag	660
gtaaacaggt gagagaaatc atgaacaatt acatgcaaac ggaccagcta aaatgtgttt	720

gtttgttggtt tttttttttt caggtgattc ttgattacag taagatcaga agctgctaca	780
ttagcagacc agccactgca ctcaaggctg tgattcacag cttgcagacc tgacagcagt	840
tctgtggaag aggcaggctc ctgtcaacca gtttaataca taaatcagtc tcgtgtacac	900
aaataatggtt atcctgcacc actgctgggtg ttacactatt tcacccaagt ttatcaccag	960
caaactgagt cttatcgttc ctactgtgct ttgcttttct tgc	1003

<210> 40
 <211> 1003
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Right arm for gRNA11 integration to Chromosome Z
 RPS23_ATG10_ENSGALG00000015617_ENSGALG00000027714_chrZ_63364946_-
 1

<400> 40	
cagaaacacc agagcttacg gtgtgaattc attgcacatc ttattagatc aacaaaatgg	60
aataaaagaa tacagaagat tactactcca ttgggcatgt ggacgtttta caggcctgga	120
taaattagat cttaaaaaca aacaaacaaa caaacaaaaa aactccttgc aaagataatg	180
ttatgtaata ttagttgcaa gaagtaagca aacacacaga actgggagca gaagcaaagc	240
actaagttat taaagcaagt tgcacatttt gagttgcatt ttgccactgg ttttataaac	300
atgttttagca tgtctgggtca gaatttgggc accaggatgc ttttaagatg tctgtctatg	360
gaacctgtca gtgctcaaga ataacttctg ttatttggat gctgcaccaa agaattcaga	420
ggaagacgag ccaagccaga cgttatcata gtcactagta aagtggttct aagcctaatt	480
aagacatgtc agaactatgt gttgtgcaac caaatcctcc aaaagagaaa tcagagggtga	540
acttgtgcaa taaatataga agacacgtaa atcctgaggc agttagctaa ccatatgaag	600
ccaatcatac ctgactgctg gacgcaggag actgaacctt acagaccctg gagaatcact	660
gtttggccta gttaggcctg aatggaattt accaagattc atgactttta catggatcag	720
gtgcaaagaa aagaaggctc agttagttcc tacaggctac cagatctttt tccacctctg	780
ctcagcctgg agctgtgggc tctacctgcc cctgaagtga agtggcatca actgcaacac	840

tttttgcaga ggcaaaaatc atcaagtcgt gcctctgcat tttaaggtga tggattccaa	900
gagatagatt ccaaacccaa cactgagatt cctctggtga tgcagatgac tgcttactgg	960
gatccttctc tctctatagc ctaatcccat gcagcaccaa aag	1003

<210> 41
 <211> 200
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> For cloning using the gRNA3, Z chromosome, "Left arm"

<400> 41	
cctgcaggac atgtggacac tctgccaggt actgggggag gatccccctcc actgctccct	60
gggagatggc aaacatctag agagggacac tgcagggatg ctgcatgaac acctccagcc	120
ttctgcaggc tgtgatgggg tcagggtga aggtcaacac aagcaatgac tgcttgctga	180
caatgtgggc attgccgacc	200

<210> 42
 <211> 258
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> For cloning using the gRNA3, Z chromosome, "Right arm"

<400> 42	
tggtgagtgg ggccaggaga gcaggacagg agtgtggact cggaggcgcg ggcagaggag	60
gtagctcaga gcatgagata tattcgccag gtgtcagtgg acttctggca gtgcatactg	120
cagagagctt tggttgctgg ccatctggat gatgacaaaa tctcagccac agaccatgtg	180
ggttggaaga gtcctcagga gatcaccttt ccacctctg ctaaagcaca ttccctacag	240
tatgtttcac atgacacc	258

<210> 43
 <211> 436
 <212> DNA
 <213> Artificial Sequence

<220>

<223> For cloning using the gRNA4, Z chromosome, "Left arm"

<400> 43

tcaacagctg tacgaaaagt ccatgcttcc tcattataaa cggaggaaaa aaagttgttt	60
acagctgtaa tgggattata aaaggcaa at ggggatagta cagtgggtgag aaccagatct	120
atgaaggaaa agccctaaga aaaagagagt gcacagatac tcttaaccat ctaataactg	180
tttcctccat cctacagctc agagttaaga cttacagagg actctagtag ttagtaagat	240
gaatacgagc taatagtggc aaaaataatc ccagtgcctc aacactgacc tgggaaaaag	300
gggcatgtat agaccttctg atattgtgat gctgtgtttg tacacttatt atctacattt	360
tcagaaatta ggttaaactt cagaaaactg aagatctcca gggctttagtag cagaccctga	420
ccaccagact ggtccc	436

<210> 44

<211> 521

<212> DNA

<213> Artificial Sequence

<220>

<223> For cloning using the gRNA4, Z chromosome, "Right arm"

<400> 44

tcaaaccgat tgtggctgtt ttcagaggc aactctttgc gctctagccc ctctataaca	60
tggggcaact tcccctgccc caccttcctt tcctgtatct tctgaaaagc ttgtagccct	120
caattgtcac gctccagcca tatgaatcat cccaccagc cctgtgttc acaattacct	180
tctagtcttc taattgcacc atggcttcca attcctcctg tttatcacc acgttgcatc	240
cattgatgta gaggcacttc agtcgggcta tcagcaatgt taccacctgt gaggagccct	300
cttgagatct tttaggacaa tttagagggtt ttccccactg tttcctaata ttacagcatt	360
ccctgtccct tcttagtgat atagaactcc atccccctcc accatcaaac ctagcttaag	420
ctctggtaaa tgatccagcc agtctgcttc caaaaactct tgctcagttg cattctatct	480
gatgcctaca tgcccaacac cttcaaggcc tgtccaagat c	521

<210> 45
<211> 505
<212> DNA
<213> Artificial Sequence

<220>

<223> For cloning using the gRNA5, Z chromosome, "Left arm"

<400> 45
gcctgtccaa actgacctg gggccccggg cacagctgct cccgagcaag gagaggcaga 60
gaattgtgga ggaaaccctc ttccacctag ctccaagggt gcacgctcaa tgcttggaatg 120
aagattcaag ttctcaatga agaactgcat tcaaagacat ctttggagggt gacccagact 180
gcctctggga tgaatccaga acaaacagaa tcttcccagc aacacctttg tttatcatac 240
acgttcagaa atgcagtgcc tgcctggtat ttttttaaac tcatcacaga ggaatctctg 300
agtggagcag aggagtgttt cctcttgctt ttttcttccc cttttctgta agaaatgcat 360
atgccagttt ccccctaaat gttttcaaac tccaaattgt ttcctgctgg tgacattctc 420
ctctccagca ctgcctacac cccagctgcg tctgatagga aaagcaccca gtaccatgct 480
ggcatggcat ggtcagtgac accca 505

<210> 46
<211> 599
<212> DNA
<213> Artificial Sequence

<220>

<223> For cloning using the gRNA5, Z chromosome, "Right arm"

<400> 46
ctgccagagc agagggtgc tgaaacgccg agtgccaact gacactgttc agctgacagc 60
ctcacgagag tgctgcgagg gttaagttag gcaacaaaat acaagtactc aaaaatagaa 120
tggaatggaa tggaataaca gagggaatgg ggaacaggct gcagtgagaa ggaaaccccc 180
gtgcaccgac caaccgctc ccagtagcct ggtccctacc ttgccccact ccagcagctc 240
cacgaggtag tcgaagtgcc catgtccggc catccccagc atggcacagc tgtcacctgg 300
gagcagcggg ggtccggcag gcatcgccgg caccacagc ctgggctggg ctgaggatgg 360
gcttggtggg cagctgggtg ctgccgtggc agctgagtgc cgtcgtgcag gtgggctcgg 420

tgctctctgc agcccacggc tcgggacccg tgggtgggcat actgctgggc aaggggacgg	480
ctcggatgtg catcccagag caggggtgcat gatgtgtgcg cagcggcaca cagcagcgca	540
cttgtccccg aggcaccacc cggctctgatg aaattccagg ttttgtttaa gatgaaaat	599

<210> 47
 <211> 453
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> For cloning using the gRNA6, Z chromosome, "Left arm"

<400> 47	
ttgcagtctc aggttgccgc agcagcagct gcctgaggtc tgggtggcaaa gggcagagca	60
cccagcccac tgctctccat gaggtagcgg gtagggggca cgccgtgctt cgcttctggt	120
atcgggtggc ctgtggagca catcaccctt ggacagtga aacatgtcaa aggggtgttt	180
ataacagtat agcatatccc tttgaggctg aatttcctga gcttatggat atggtagtaa	240
tgctatacca ggctctctct gcagggttgct cactgaaaca atataccctt tctttctcaa	300
gaaatgggac tcatgaatag ctaccaggcc tttctgctac tagatactgt agaattacat	360
atatcagatg gctcattaat cacatagctt gttattggga cagaggcagg ttttcagcat	420
ttcccacact gcttttctgc aaatggatta gga	453

<210> 48
 <211> 439
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> For cloning using the gRNA6, Z chromosome, "Right arm"

<400> 48	
gggaccatca ctcacttcct aggccatgct tcgtagttta actccatgca aggtattttc	60
ttgctctgat ctaactctag atcactaaat ggcacttggt caggacactt ttccactgtc	120
attttggggg gtagaagtgt ggtcagagcc agggaggctt gcagggccca caccagctgt	180
ggcccaagca gctgctgtac aatggctgta tggcagtatc gatgtgaact tcctgataat	240

aaacagaact cagcagcaaa taaaccaga ttgttctgat cagtaacgag aggctgtgca	300
aaaagctgag aaatgtacag cccttcctgc tcaccactac agcccttcat gcagcggcct	360
gctgcactag ggcttgcttg gccagaggca gggctgcagc ttgagatacg cagcaccag	420
tacccagca ggctgcat	439

<210> 49
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> LEFT PRIMER

<400> 49	
ttggtgtgtg ctaataggca gt	22

<210> 50
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> RIGHT PRIMER

<400> 50	
tagtcctcgt tgtgggaggt	20

<210> 51
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> LEFT PRIMER

<400> 51	
gcattgatct gtccagttgc	20

<210> 52
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
<223> RIGHT PRIMER

<400> 52
tactgccaaa accgcatcac 20

<210> 53
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> ChZgRNA_FORWARD PRIMER

<400> 53
tgtatgagac cacgtaatac agagctaaac cag 33

<210> 54
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> ChZgRNA_Reverse PRIMER

<400> 54
aaacctggtt tagctctgta ttacgtggtc tca 33

<210> 55
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer Forward for cloning of the 'Left arm' of gRNA 7

<400> 55
acgggggtcat tagttcatag cccatatatg gtgaacggat aggcagcaag c 51

<210> 56
<211> 52
<212> DNA
<213> Artificial Sequence

<220>

<223> Primer Reverse for cloning of the 'Left arm' of gRNA 7

<400> 56
ggcgggccat ttaccgtaag ttatgtaacg tgaggaaggg tctgttactg ga 52

<210> 57
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer Forward for cloning of the 'Right arm' of gRNA 7

<400> 57
ttctatcgcc ttcttgacga gttcttctga gtcatgtcgg tggaggagaa a 51

<210> 58
<211> 53
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer Reverse for cloning of the 'Right arm' of gRNA 7

<400> 58
gtgatggcag gttgggcgtc gcttggtcgg gcatgggatg ttaaagagaa gct 53

<210> 59
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Repetition of 16 nucleotides

<400> 59
cggtaaatgg cccgcc 16

<210> 60
<211> 261
<212> DNA
<213> Artificial Sequence

<220>
<223> Flanking left arm of Z chromosome

<400> 60
 tggagatccc ttattggtga agctttcccc tgcaaaccta gaatcttctg atgcaagtga 60
 gcaatcttct tcccttcctt agcagctctc tgttgcacca gtccttccat ccttgcacct 120
 ttgttgtaat gcttttccca tggcattgat ctgtccagtt gctacagtgt agaaacaaga 180
 aagtgttttc tcaaaacatt atacatgctt actatcagat cttacttaac attgataaga 240
 agtacacctt tcattacaac a 261

<210> 61
 <211> 245
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Flanking right arm of Z chromosome

<400> 61
 caaactttta atcactttca atcaatgttg gaaatctgca gtacataaat tttattttga 60
 ttcattattc agagaatcag agaaataagg acttttttag aggtttatgt ttattttaga 120
 aaatataaat aaatcttgta tacatagatt tccaactagt aaaattttta gctatcgctg 180
 tagcatttct atgaggagtt ttacttttta ctgtctctta tgaaacttag tggaacaaaa 240
 gctag 245

<210> 62
 <211> 1014
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Left arm of Z chromosome

<400> 62
 gtgaacggat aggcagcaag cattcagaac aatgaaaaag atctgcgttc tattgtaaag 60
 caaacaaagg tgatgacgga acgtttattt gagatacagg caccatagta caagatatca 120
 aagaggaatt aattcaaccc tccaacaac agttgggaaa aaaaaaggat aagctgagga 180
 atgcagcctt ctccgatttt tactctgggtg ccggaaggag gaggaggagc gggggaaaac 240
 ccagcggact cagactgcat acgcactctc ggaagtacct ctgaggcggg gtgagaggaa 300

gggtggatct aggctcccc cgctccacac actcacgtgc tcgtgtactg gttcaggctg	360
tgacttggca actcctctac atctatccat ctagttagac tcaacaagac catcgtgatt	420
caggagtctg aagatgctta actctctcag aacgtctagt tctcctggcc tggtaaattgc	480
tatgtttctc atactgcctc tctgaagaat gcttcgaatg cttctagtga tgctctaaag	540
ttctaaacag aaaaatctgg agacagttct ggtctttaga tagaaaaaat gccaacatgc	600
caaaggatgg ttacatcctt caagcaacct tgttgcattg tgtacaatag actcatgtaa	660
taacttagcc gtagtcatcg tatctcttat ttacctgttc gttattacat tttcctggta	720
ctgctttata tttagtcagt tgtcctttta agacaaattt tttgggtgtg gctaataaggc	780
agttacaaaa tgttctagag ggagggaata taatcagtga gtatgtagat gtatatagat	840
gtataaccag taagtataca gagaagttag ggtgggtctt tgagagcata tagctggaaa	900
gattatcaca tgggaaaagg taatcagaaa taaatggaaa aatgctcacc agtgtcatag	960
gctcacaaga aaactcccca aggagcaatc tccagtaaca gacccttcct cagt	1014

<210> 63
 <211> 629
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> CMV Enhancer

<400> 63	
tggagttccg cgttacataa cttacggtaa atggcccgcc tggctgaccg cccaacgacc	60
cccgccatt gacgtcaata atgacgtatg ttcccatagt aacgccaata gggactttcc	120
attgacgtca atgggtggag tatttacggg aaactgcccc cttggcagta catcaagtgt	180
atcatatgcc aagtacgccc cctattgacg tcaatgacgg taaatggccc gcctggcatt	240
atgccagta catgacctta tgggactttc ctacttggca gtacatctac gtattagtca	300
tcgctattac catgggtgatg cggttttggc agtacatcaa tgggcgtgga tagcggtttg	360
actcacgggg atttccaagt ctccacccca ttgacgtcaa tgggagtttg ttttggcacc	420
aaaatcaacg ggactttcca aaatgtcgta acaactccgc ccattgacg caaatgggcg	480

gtaggcgtgt acggtgggag gtctatataa gcagagctgg tttagtgaac cgtcagatcc	540
gctagcgcta ccggactcag atctcgagct caagcttcga attctgcagt cgacgggtacc	600
gcggggccccgg gatccaccgg tcgccacca	629

<210> 64
 <211> 714
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> dsRED2 reporter gene

<400> 64	
tggcctcctc cgagaacgtc atcaccgagt tcatgcgctt caaggtgcgc atggagggca	60
ccgtgaacgg ccacgagttc gagatcgagg gcgagggcga gggccgcccc tacgagggcc	120
acaacaccgt gaagctgaag gtgaccaagg gcggccccct gcccttcgcc tgggacatcc	180
tgtcccccca gttccagtac ggctccaagg tgtacgtgaa gcaccccgcc gacatccccg	240
actacaagaa gctgtccttc cccgagggct tcaagtggga gcgcgtgatg aacttcgagg	300
acggcggcgt ggcgaccgtg acccaggact cctccctgca ggacggctgc ttcatttaca	360
aggtgaagtt catcggcgtg aacttccccct ccgacggccc cgtgatgcag aagaagacca	420
tgggctggga ggcctccacc gagcgctgt acccccgca cggcgtgctg aagggcgaga	480
cccacaaggc cctgaagctg aaggacggcg gccactacct ggtggagttc aagtccatct	540
acatggccaa gaagcccgtg cagctgcccc gctactacta cgtggacgcc aagctggaca	600
tcacctcca caacgaggac tacaccatcg tggagcagta cgagcgcacc gagggccgcc	660
accacctgtt cctgtagcgg ccgcgactct agatcataat cagccatacc acat	714

<210> 65
 <211> 1026
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Right arm of Z chromosome

<400> 65
gagtcatgtc ggtggaggag aaagtggctg tagaaaaggt aacggacaag aaatccctca 60
ctggccttagc tgtaaaggtc agaggaaaaat catcttctgt tctccataca catctcctgt 120
aattaggcac ctgtgccctt taaaaaagta aagtaatcaa agagtcattt ggtgaaaata 180
gaagccaaac agttacaaaa tttagttaat attcaaagac aaaacaactc tggttccaaa 240
tataaaaccc tttgtgtaaa cactgcggga aggtgccaaa gagccaccta cacaagaga 300
tgccacagag taatttgcgt accccaacaa taggatcata tatgggcaaa ccaaagacc 360
aacaagacc ctttgaata atcccttgat tggcagaagc aagtcagcg ttagatttag 420
tatgtgtgac aattctgaga ataggaagga atttactga aactgtgtga agatttgtat 480
gttaaataca tataatgagg gttatttagc tctgggggtgt gcatgctatg tggagagatc 540
cccatgtgcc cagcactgca atagactaat gtcagctttt taaaccatca tttggtttga 600
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<211> 2618
<212> DNA
<213> Artificial Sequence

<220>
<223> Right arm of Z chromosome of Figure 15

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agtacacctt tcattacaac agtgaacgga taggcagcaa gcattcagaa caatgaaaaa	300
gatctgcgtt ctattgtaaa gcaaacaaag gtgatgacgg aacgtttatt tgagatacag	360
gcaccatagt acaagatatc aaagaggaat taattcaacc ctcccaacaa cagttgggaa	420
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cgtgcagctg cccggctact actacgtgga cgccaagctg gacatcacct cccacaacga	2520
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 <211> 1271
 <212> DNA
 <213> Artificial Sequence

<220>
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aattaggcac ctgtgccctt taaaaaagta aagtaatcaa agagtcattt ggtgaaaata	180

gaagccaaac agttacaaaa tttagttaat attcaaagac aaaacaactc tggttccaaa	240
tataaaaccc tttgtgtaaa cactgcggga aggtgccaaa gagccaccta cacaaagaga	300
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