FIG. 1A

```
                    10        20        30        40        50        60        70
native lac  GGC CGT AGG AGA AGG AGT GTT CAG TGG TGC GCC GTA TCC CAA CCC GAG GCC ACA AAA TGC TTC CAA TGG CAA AGG
             G   R   R   R   R   S   V   Q   W   C   A   V   S   Q   P   E   A   T   K   C   F   Q   W   Q   R

                    10        20        30        40        50        60        70
cod opt lac GGG CGG CGG CGG CGC TCG GTG CAG TGG TGC GCC GTG TCC CAG CCC GAG GCG ACC AAG TGC TTC CAG TGG CAG CGC
            ||  ||  ||  |   |       ||  ||| ||| ||| ||| ||  ||| ||  ||| ||| ||  ||  ||  ||| ||| ||  ||| ||  |
native lac  GGC CGT AGG AGA AGG AGT GTT CAG TGG TGC GCC GTA TCC CAA CCC GAG GCC ACA AAA TGC TTC CAA TGG CAA AGG

            80        90       100       110       120       130       140       150
native lac  AAT ATG AGA AAA GTG CGT GGC CCT CCT GTC AGC TGC ATA AAG AGA GAC TCC CCC ATC CAG TGT ATC CAG GCC ATT
             N   M   R   K   V   R   G   P   P   V   S   C   I   K   R   D   S   P   I   Q   C   I   Q   A   I

            80        90       100       110       120       130       140       150
cod opt lac AAC ATG CGG AAG GTG CGC GGC CCG CCG GTC AGC TGC ATC AAG CGG GAC TCC CCC ATC CAA TGC ATC CAG GCC ATC
            ||  ||| |   ||  ||| ||  ||| ||  ||  ||| ||| ||| ||  |||  |  ||| ||| ||| ||| ||  ||  ||| ||| ||| ||
native lac  AAT ATG AGA AAA GTG CGT GGC CCT CCT GTC AGC TGC ATA AAG AGA GAC TCC CCC ATC CAG TGT ATC CAG GCC ATT

                   160       170       180       190       200       210       220
native lac  GCG GAA AAC AGG GCC GAT GCT GTG ACC CTT GAT GGT GGT TTC ATA TAC GAG GCA GGC CTG GCC CCC TAC AAA CTG
             A   E   N   R   A   D   A   V   T   L   D   G   G   F   I   Y   E   A   G   L   A   P   Y   K   L

                   160       170       180       190       200       210       220
cod opt lac GCG GAG AAC CGC GCC GAC GCG GTC ACC CTG GAC GGC GGG TTC ATC TAC GAG GCG GGG CTC GCC CCG TAC AAG CTC
            ||| ||  ||| |   ||| ||  ||  ||  ||| ||  ||  ||  ||  ||| ||  ||| ||| ||  ||  ||  ||| ||  ||| ||  ||
native lac  GCG GAA AAC AGG GCC GAT GCT GTG ACC CTT GAT GGT GGT TTC ATA TAC GAG GCA GGC CTG GCC CCC TAC AAA CTG

            230       240       250       260       270       280       290       300
native lac  CGA CCT GTA GCG GCG GAA GTC TAC GGG ACC GAA AGA CAG CCA CGA ACT CAC TAT TAT GCC GTG GCT GTG GTG AAG
             R   P   V   A   A   E   V   Y   G   T   E   R   Q   P   R   T   H   Y   Y   A   V   A   V   V   K

            230       240       250       260       270       280       290       300
cod opt lac CGC CCG GTG GCG GCG GAG GTG TAC GGC ACC GAG CGC CAG CCG CGC ACG CAC TAC TAC GCG GTG GCC GTC GTC AAG
            ||  ||  ||  ||| ||| ||  ||  ||| ||  ||| ||  |   ||| ||  ||  ||  ||| ||  ||  ||  ||| ||  ||  ||  |||
native lac  CGA CCT GTA GCG GCG GAA GTC TAC GGG ACC GAA AGA CAG CCA CGA ACT CAC TAT TAT GCC GTG GCT GTG GTG AAG


                   310       320       330       340       350       360       370
native lac  AAG GGC GGC AGC TTT CAG CTG AAC GAA CTG CAA GGT CTG AAG TCC TGC CAC ACA GGC CTT CGC AGG ACC GCT GGA
             K   G   G   S   F   Q   L   N   E   L   Q   G   L   K   S   C   H   T   G   L   R   R   T   A   G

                   310       320       330       340       350       360       370
cod opt lac AAG GGC GGG TCC TTC CAG CTC AAC GAG CTG CAG GGC CTG AAG TCG TGC CAC ACG GGC CTG CGG CGG ACG GCG GGC
            ||| ||| ||  |   ||  ||| ||  ||| ||  ||| ||  ||  ||| ||| ||  ||| ||| ||  ||| ||  ||  ||  ||  ||  ||
native lac  AAG GGC GGC AGC TTT CAG CTG AAC GAA CTG CAA GGT CTG AAG TCC TGC CAC ACA GGC CTT CGC AGG ACC GCT GGA

            380       390       400       410       420       430       440       450
native lac  TGG AAT GTC CCT ATA GGG ACA CTT CGT CCA TTC TTG AAT TGG ACG GGT CCA CCT GAG CCC ATT GAG GCA GCT GTG
             W   N   V   P   I   G   T   L   R   P   F   L   N   W   T   G   P   P   E   P   I   E   A   A   V

            380       390       400       410       420       430       440       450
cod opt lac TGG AAC GTG CCC ATC GGC ACC CTG CGC CCC TTC CTG AAC TGG ACC GGC CCG CCG GAG CCG ATC GAG GCC GCC GTG
            ||| ||  ||  ||  ||  ||  ||  ||  ||  ||| ||  ||| ||  ||  ||| ||  ||  ||  ||| ||  ||| ||  ||  ||| |||
native lac  TGG AAT GTC CCT ATA GGG ACA CTT CGT CCA TTC TTG AAT TGG ACG GGT CCA CCT GAG CCC ATT GAG GCA GCT GTG

                   460       470       480       490       500       510       520
native lac  GCC AGG TTC TTC TCA GCC AGC TGT GTT CCC GGT GCA GAT AAA GGA CAG TTC CCC AAC CTG TGT CGC CTG TGT GCG
             A   R   F   F   S   A   S   C   V   P   G   A   D   K   G   Q   F   P   N   L   C   R   L   C   A

                   460       470       480       490       500       510       520
cod opt lac GCC CGC TTC TTC AGC GCC TCC TGC GTC CCC GGC GCC GAC AAG GGC CAG TTC CCG AAC CTC TGC CGG CTC TGC GCC
            |||  |  ||| |||     |||  |  ||  ||  ||| ||  ||  ||  ||  ||  ||| ||| ||  ||| ||  ||  ||  ||  ||  ||
native lac  GCC AGG TTC TTC TCA GCC AGC TGT GTT CCC GGT GCA GAT AAA GGA CAG TTC CCC AAC CTG TGT CGC CTG TGT GCG

            530       540       550       560       570       580       590       600
native lac  GGG ACA GGG GAA AAC AAA TGT GCC TTC TCC TCC CAG GAA CCG TAC TTC AGC TAC TCT GGT GCC TTC AAG TGT CTG
             G   T   G   E   N   K   C   A   F   S   S   Q   E   P   Y   F   S   Y   S   G   A   F   K   C   L

            530       540       550       560       570       580       590       600
cod opt lac GGG ACG GGC GAG AAC AAG TGC GCC TTC TCC TCG CAG GAG CCG TAC TTC TCC TAC TCG GGC GCG TTC AAG TGC CTC
            ||| ||  ||  ||  ||| ||  ||  ||| ||| ||| ||  ||| ||  ||| ||| |||   | ||| ||  ||  ||  ||| ||| ||  ||
native lac  GGG ACA GGG GAA AAC AAA TGT GCC TTC TCC TCC CAG GAA CCG TAC TTC AGC TAC TCT GGT GCC TTC AAG TGT CTG

                   610       620       630       640       650       660       670
native lac  AGA GAC GGG GCT GGA GAC GTG GCT TTT ATC AGA GAG AGC ACA GTG TTT GAG GAC CTG TCA GAC GAG GCT GAA AGG
             R   D   G   A   G   D   V   A   F   I   R   E   S   T   V   F   E   D   L   S   D   E   A   E   R

                   610       620       630       640       650       660       670
cod opt lac CGC GAC GGG GCC GGC GAC GTG GCG TTC ATC CGC GAG TCC ACC GTG TTC GAG GAC CTC TCC GAC GAG GCG GAG CGG
            |  ||| ||| ||  ||  ||| ||| ||  ||  ||| |  ||| |  ||  ||| ||  ||| ||| ||  ||  ||| ||| ||  ||  ||
native lac  AGA GAC GGG GCT GGA GAC GTG GCT TTT ATC AGA GAG AGC ACA GTG TTT GAG GAC CTG TCA GAC GAG GCT GAA AGG

            680       690       700       710       720       730       740       750
native lac  GAC GAG TAT GAG TTA CTC TGC CCA GAC AAC ACT CGG AAG CCA GTG GAC AAG TTC AAA GAC TGC CAT CTG GCC CGG
             D   E   Y   E   L   L   C   P   D   N   T   R   K   P   V   D   K   F   K   D   C   H   L   A   R

            680       690       700       710       720       730       740       750
cod opt lac GAC GAG TAC GAG CTG CTG TGC CCC GAC AAC ACC CGC AAG CCG GTG GAC AAG TTC AAG GAC TGC CAC CTG GCG CGG
            ||| ||| ||  ||| |   |||  |  ||| ||| ||  ||  ||| ||  ||| ||| ||| ||| ||| ||  ||| ||| ||  ||| ||  |||
native lac  GAC GAG TAT GAG TTA CTC TGC CCA GAC AAC ACT CGG AAG CCA GTG GAC AAG TTC AAA GAC TGC CAT CTG GCC CGG

                   760       770       780       790       800       810       820
native lac  GTC CCT TCT CAT GCC GTT GTG GCA CGA AGT GTG AAT GGC AAG GAG GAT GCC ATC TGG AAT CTT CTC CGC CAG GCA
             V   P   S   H   A   V   V   A   R   S   V   N   G   K   E   D   A   I   W   N   L   L   R   Q   A

            760       770       780       790       800       810       820
cod opt lac GTG CCC TCG CAC GCG GTC GTC GCC CGC AGC GTC AAC GGC AAG GAG GAC GCG ATC TGG AAC CTC CTC CGC CAG GCC
            ||  ||  ||  ||  ||  ||  ||  ||  ||  ||  ||  ||  ||| ||| ||| ||  ||  ||  ||| ||| ||  ||  ||| ||| ||| ||
native lac  GTC CCT TCT CAT GCC GTT GTG GCA CGA AGT GTG AAT GGC AAG GAG GAT GCC ATC TGG AAT CTT CTC CGC CAG GCA
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