

F2365 1 ATGAGGTTACTGTTGTTAAATGAGGCTATACCTAGAAAATACATCCATTAGAGGTAATATTCGKCGITTTTTAGAGAAGCGGTTATAAATCTAACA  
J1-194 1 ATGAGGTTACTGTTGTTAAATGAGGCTATACCTAGAAAATACATCCATTAGAGGTAATATTCGKCGITTTTTAGAGAAGCGGTTATAAATCTAACA  
104035 1 ATGAGGTTACTGTTGTTAAATGAGGCTATACCTAGAAAATACATCCATTAGAGGTAATATTCGKCGITTTTTAGAGAAGCGGTTATAAATCTAACA  
+1  
F2365 101 TGTGAACCTTTATAGCTATATATAGGACTTAAGAGATATATCAGCTAGAACTGTAATATCTTAAACAATAAATGCGAAATACTCTTTCTCAAGGC  
J1-194 101 TGTGAACCTTTATAGCTATATATAGGACTTAAGAGATATATCAGCTAGAACTGTAATATCTTAAACAATAAATGCGAAATACTCTTTCTCAAGGC  
104035 101 TGTGAACCTTTATAGCTATATATAGGACTTAAGAGATATATCAGCTAGAACTGTAATATCTTAAACAATAAATGCGAAATACTCTTTCTCAAGGC  
cH -10 +1 LMOF2365\_0906  
F2365 201 GTGATAATGTCAGATATAGTGTACTTACAGGTACAGGCTTTGGGGGTGTGACACGTTTGTAGAGAAGAAAAGCGGATGATAAATCCGTAGAACTG  
J1-194 201 GTGATAATGTCAGATATAGTGTACTTACAGGTACAGGCTTTGGGGGTGTGACACGTTTGTAGAGAAGAAAAGCGGATGATAAATCCGTAGAACTG  
104035 201 GTGATAATGTCAGATATAGTGTACTTACAGGTACAGGCTTTGGGGGTGTGACACGTTTGTAGAGAAGAAAAGCGGATGATAAATCCGTAGAACTG  
V L E K E K R H I I S V E L  
F2365 301 ACACAGAAATGATACAGAACTCGACGTAGTTGTAGAAAAGAAAATG999CGGAGTGAAGTTAATGGAAGCAAGCCACAGTTTTTACAGAGA  
J1-194 301 ACACAGAAATGATACAGAACTCGACGTAGTTGTAGAAAAGAAAATG999CGGAGTGAAGTTAATGGAAGCAAGCCACAGTTTTTACAGAGA  
104035 301 ACACAGAAATGATACAGAACTCGACGTAGTTGTAGAAAAGAAAATG999CGGAGTGAAGTTAATGGAAGCAAGCCACAGTTTTTACAGAGA  
T Q E M I Q E L D V V V E K E K H G R S E V I M E A T Q Q F L Q E  
F2365 401 AAAGGCTCCGAAATTAAGAGAGAGATGAGCGCGGCTATGAGAAAATG999CAATTAATTTGGTATCGCATGCGAGTGTACCCATGTGAGAGAGA  
J1-194 401 AAAGGCTCCGAAATTAAGAGAGAGATGAGCGCGGCTATGAGAAAATG999CAATTAATTTGGTATCGCATGCGAGTGTACCCATGTGAGAGAGA  
104035 401 AAAGGCTCCGAAATTAAGAGAGAGATGAGCGCGGCTATGAGAAAATG999CAATTAATTTGGTATCGCATGCGAGTGTACCCATGTGAGAGAGA  
K R A R E L R D E M E R G Y A E M A T I N F A I A C E C T H V E A E  
LMOF2365\_0907  
F2365 501 AGCAGAAGACAGAAATTAAGTATTTAGAGGTTAATGGCTGATGGTGAAGCGTGTGACCTATACAGCGGACCTTTCCCGCGTGGTGGAGCGAG  
J1-194 501 AGCAGAAGACAGAAATTAAGTATTTAGAGGTTAATGGCTGATGGTGAAGCGTGTGACCTATACAGCGGACCTTTCCCGCGTGGTGGAGCGAG  
104035 501 AGCAGAAGACAGAAATTAAGTATTTAGAGGTTAATGGCTGATGGTGAAGCGTGTGACCTATACAGCGGACCTTTCCCGCGTGGTGGAGCGAG  
A E D R N I S I L G G \* M V K R G D V Y Y A D L S F V V G S E  
F2365 601 CAAAGGGATACAGCGCTGCTTCATCATCAAAATGATATTGTAATAGATTGACCTCCAACTGTGATGGTGGCAGCAATAACTGCAAAAATTCAAAAG  
J1-194 601 CAAAGGGATACAGCGCTGCTTCATCATCAAAATGATATTGTAATAGATTGACCTCCAACTGTGATGGTGGCAGCAATAACTGCAAAAATTCAAAAG  
104035 601 CAAAGGGATACAGCGCTGCTTCATCATCAAAATGATATTGTAATAGATTGACCTCCAACTGTGATGGTGGCAGCAATAACTGCAAAAATTCAAAAG  
Q G G I R P V L I I Q N D I G N R F S P T V I V A A I T A K I Q K  
F2365 701 CAAAATTGCCAACACAGTGGAGCTACTCGTAAGATGGCTTTGAGAGAGATCTGTGATCTTTTGAACAATTAAGAGATTTGACAAACAGCGCT  
J1-194 701 CAAAATTGCCAACACAGTGGAGCTACTCGTAAGATGGCTTTGAGAGAGATCTGTGATCTTTTGAACAATTAAGAGATTTGACAAACAGCGCT  
104035 701 CAAAATTGCCAACACAGTGGAGCTACTCGTAAGATGGCTTTGAGAGAGATCTGTGATCTTTTGAACAATTAAGAGATTTGACAAACAGCGCT  
A K L P T H V E A T R K D G F E R D S V I L L E Q I R T I D K Q R L  
F2365 801 GACAGCAAAATTAACATTTGAGAGAGATTTAATGGCAGGTAAACAGGCACTTGAAGTCAGTGTAGAGATGATAGAAATTTAATCCACTTAAAA  
J1-194 801 GACAGCAAAATTAACATTTGAGAGAGATTTAATGGCAGGTAAACAGGCACTTGAAGTCAGTGTAGAGATGATAGAAATTTAATCCACTTAAAA  
104035 801 GACAGCAAAATTAACATTTGAGAGAGATTTAATGGCAGGTAAACAGGCACTTGAAGTCAGTGTAGAGATGATAGAAATTTAATCCACTTAAAA  
T D K I T H L D E D L M A K V N K A L E V S L G V V E F \*  
+1  
F2365 901 AAHTAACATAAATGATGATGAGCAGGCAAAAGGCTGACGTAAAATAAATAGTTAATGATAATGAAATAATTAAGTCTGTAAGAAACAGTAAAG  
J1-194 901 AAHTAACATAAATGATGATGAGCAGGCAAAAGGCTGACGTAAAATAAATAGTTAATGATAATGAAATAATTAAGTCTGTAAGAAACAGTAAAG  
104035 901 AAHTAACATAAATGATGATGAGCAGGCAAAAGGCTGACGTAAAATAAATAGTTAATGATAATGAAATAATTAAGTCTGTAAGAAACAGTAAAG  
F2365 999 GACATCAGAACTACAAAACAGCGGTATCAACATCTCGTAATTTGTTTAAATGCTTTTTAAAAGCAGTAAAGCAAAACAGCAATAAGAGAG  
J1-194 999 GACATCAGAACTACAAAACAGCGGTATCAACATCTCGTAATTTGTTTAAATGCTTTTTAAAAGCAGTAAAGCAAAACAGCAATAAGAGAG  
104035 1001 GACATCAGAACTACAAAACAGCGGTATCAACATCTCGTAATTTGTTTAAATGCTTTTTAAAAGCAGTAAAGCAAAACAGCAATAAGAGAG  
F2365 1099 AAAATTTGTTAATGAGAGAAAGGTTGAAAATAACTGATGATATAAAGATTTGCAAACTTCATCGTCAAAATAAGCAGATTTACTGAAGCTGG  
J1-194 1099 AAAATTTGTTAATGAGAGAAAGGTTGAAAATAACTGATGATATAAAGATTTGCAAACTTCATCGTCAAAATAAGCAGATTTACTGAAGCTGG  
104035 1101 AAAATTTGTTAATGAGAGAAAGGTTGAAAATAACTGATGATATAAAGATTTGCAAACTTCATCGTCAAAATAAGCAGATTTACTGAAGCTGG  
M Y K D F A N F I R T N K A D L L N D W  
F2365 1199 ATGAAGAAATGGAAGCAATCAGATGATCAATCAAGGACATTCGCAAAAGAGCAATGTACGAAAGAACTAGCAAGAAATTTGATTAATGTTT  
J1-194 1199 ATGAAGAAATGGAAGCAATCAGATGATCAATCAAGGACATTCGCAAAAGAGCAATGTACGAAAGAACTAGCAAGAAATTTGATTAATGTTT  
104035 1201 ATGAAGAAATGGAAGCAATCAGATGATCAATCAAGGACATTCGCAAAAGAGCAATGTACGAAAGAACTAGCAAGAAATTTGATTAATGTTT  
M N E M E K Q S D Q L I N D I A K E A M Y E E T S K E F V D L I V  
F2365 1299 CAAATGTAATGAAAAGCGTCTAAATCAAGAAAACAGATGATGTTTTGAGAGAAAGTGTCCACCTAGTGTGGCCGATTCATTTGTACCACTGG  
J1-194 1299 CAAATGTAATGAAAAGCGTCTAAATCAAGAAAACAGATGATGTTTTGAGAGAAAGTGTCCACCTAGTGTGGCCGATTCATTTGTACCACTGG  
104035 1301 CAAATGTAATGAAAAGCGTCTAAATCAAGAAAACAGATGATGTTTTGAGAGAAAGTGTCCACCTAGTGTGGCCGATTCATTTGTACCACTGG  
S N V T E N G S K F N E K L D D F A E K V V H L G W P I H F V T T G  
F2365 1399 CTAAGTGTGTTTTGGGCTTTAGTATATACAGCAATGAGAGATGAGATTTAATTTAAGAGAGAAAGAACTGAGAGATGATGCTATTATCGCTT  
J1-194 1399 CTAAGTGTGTTTTGGGCTTTAGTATATACAGCAATGAGAGATGAGATTTAATTTAAGAGAGAAAGAACTGAGAGATGATGCTATTATCGCTT  
104035 1401 CTAAGTGTGTTTTGGGCTTTAGTATATACAGCAATGAGAGATGAGATTTAATTTAAGAGAGAAAGAACTGAGAGATGATGCTATTATCGCTT  
L R V F G L L V Y T A M R D E D L F L K R E E K P E D D A V Y R F  
F2365 1499 GAAACATGCGCTTCCCTCATGATAACAAGTGTGACAGCTACCGGATACGTTGGGAAAGACAGTTTCTATCCAAAAGGCTACTACAGGAAATAT  
J1-194 1499 GAAACATGCGCTTCCCTCATGATAACAAGTGTGACAGCTACCGGATACGTTGGGAAAGACAGTTTCTATCCAAAAGGCTACTACAGGAAATAT  
104035 1501 GAAACATGCGCTTCCCTCATGATAACAAGTGTGACAGCTACCGGATACGTTGGGAAAGACAGTTTCTATCCAAAAGGCTACTACAGGAAATAT  
E T W L S S M Y N K V V T A Y A D T W E K T V S I Q K S A L Q E L  
F2365 1599 CGGCACCACTTTTCCCAATTTGAAAATAATTTCTGTAATGCCGTTAATGGAGCATGACACG99AAAGAGCGAATTAATCAAGAAAATTTAATAA  
J1-194 1599 CGGCACCACTTTTCCCAATTTGAAAATAATTTCTGTAATGCCGTTAATGGAGCATGACACG99AAAGAGCGAATTAATCAAGAAAATTTAATAA  
104035 1601 CGGCACCACTTTTCCCAATTTGAAAATAATTTCTGTAATGCCGTTAATGGAGCATGACACG99AAAGAGCGAATTAATCAAGAAAATTTAATAA  
S A P L L P I F E K I S V M P L I G T I D T E R A K L I E N L L I  
F2365 1699 AGGTGTGTTAAAATAATGCGTGAAGTGTGTTTTGATGATATACGGAGTTCCTGTTGATACATGTTGCGCAGCATATTATCAAGGTCGGA  
J1-194 1699 AGGTGTGTTAAAATAATGCGTGAAGTGTGTTTTGATGATATACGGAGTTCCTGTTGATACATGTTGCGCAGCATATTATCAAGGTCGGA  
104035 1701 AGGTGTGTTAAAATAATGCGTGAAGTGTGTTTTGATGATATACGGAGTTCCTGTTGATACATGTTGCGCAGCATATTATCAAGGTCGGA  
G V V K N R S E V V L I D I T G V F V V D T M V A H H I I Q A S E

F2365 1799 GCGGTAGACTTGTGGCTGTGAGGCGATGCTTGTAGTATTAGACCAAGAAATCGCCAAACAACTGCTTACCTTAGGAAATGAATTAGATCAAAATTATCA  
A V R L V G C Q A M L V G I R P E I A Q T I V N L G I E L D Q I I  
J1-194 1799 GCGGTAGACTTGTGGCTGTGAGGCGATGCTTGTAGTATTAGACCAAGAAATCGCCAAACAACTGCTTACCTTAGGAAATGAATTAGATCAAAATTATCA  
A V R L V G C Q A M L V G I R P E I A Q T I V N L G I E L D Q I I  
104035 1801 GCGGTAGACTTGTGGCTGTGAGGCGATGCTTGTAGTATTAGACCAAGAAATCGCCAAACAACTGCTTACCTTAGGAAATGAATTAGATCAAAATTATCA  
A V R L V G C Q A M L V G I R P E I A Q T I V N L G I E L D Q I I

rsbS  
F2365 1899 GCACCAACACATGAAAAAAGCATGAGGCGTCCGCTAGCCTTGACCAACAGAGAGATAGTAAAAAGAGGGGTGAATCTGTGGGATACCAATCTTA  
T T H T M K K R G M E R A L A L T N R E I V E R E G \* V G I F I L  
J1-194 1899 GCACCAACACATGAAAAAAGCATGAGGCGTCCGCTAGCCTTGACCAACAGAGAGATAGTAAAAAGAGGGGTGAATCTGTGGGATACCAATCTTA  
T T N T M K K G M E R A L A L T N R E I V E R E G \* V G I F I L  
104035 1901 GCACCAACACATGAAAAAAGCATGAGGCGTCCGCTAGCCTTGACCAACAGAGAGATAGTAAAAAGAGGGGTGAATCTGTGGGATACCAATCTTA  
T T H T M K K R G M E R A L A L T N R E I V E R E G \* V G I F I L

F2365 1999 AAGTAGTGAATGTTTAAATTTCTATCCAGAGTGAATAGATGATCATACTGCGGTAGAAATCCGAGAAAGATTTGCTGCAAAATCCATGAAAGCT  
K L G E C L L I S I Q S E L D D H T A V E F Q E D L L A K I H E T  
J1-194 1999 AAGTAGTGAATGTTTAAATTTCTATCCAGAGTGAATAGATGATCATACTGCGGTAGAAATCCGAGAAAGATTTGCTGCAAAATCCATGAAAGCT  
K L G E C L L I S I Q S E L D D H T A V E F Q E D L L A K I H E T  
104035 2001 AAGTAGTGAATGTTTAAATTTCTATCCAGAGTGAATAGATGATCATACTGCGGTAGAAATCCGAGAAAGATTTGCTGCAAAATCCATGAAAGCT  
K L G E C L L I S I Q S E L D D H T A V E F Q E D L L A K I H E T

F2365 2099 CGGCCAGAGAGTAGTGTGATATACTTCCATCGATTTTATTGATTCATTATTGCAAAAATTTCTGGAGATGTAGTAAATGCTTAACTAATGGG  
S A R G V V I D I T S I D F I D S F I A K I L G D V V S H S K L N G  
J1-194 2099 CGGCCAGAGAGTAGTGTGATATACTTCCATCGATTTTATTGATTCATTATTGCAAAAATTTCTGGAGATGTAGTAAATGCTTAACTAATGGG  
S A R G V V I D I T S I D F I D S F I A K I L G D V V S H S K L N G  
104035 2101 CGGCCAGAGAGTAGTGTGATATACTTCCATCGATTTTATTGATTCATTATTGCAAAAATTTCTGGAGATGTAGTAAATGCTTAACTAATGGG  
S A R G V V I D I T S I D F I D S F I A K I L G D V V S H S K L N G

F2365 2199 TGCAAAAGTGGTGTACTGGGATACAGCCAGCAGTTCGATTACACTAATGAACTCGGAATACGTTTAGCGGAGTACTTTGGCGATGAGACTTGA  
A K V V V T G I Q P A V A I T L I E L G I T F S G V L S A H D L E  
J1-194 2199 TGCAAAAGTGGTGTACTGGGATACAGCCAGCAGTTCGATTACACTAATGAACTCGGAATACGTTTAGCGGAGTACTTTGGCGATGAGACTTGA  
A K V V V T G I Q P A V A I T L I E L G I T F S G V L S A H D L E  
104035 2201 TGCAAAAGTGGTGTACTGGGATACAGCCAGCAGTTCGATTACACTAATGAACTCGGAATACGTTTAGCGGAGTACTTTGGCGATGAGACTTGA  
A K V V V T G I Q P A V A I T L I E L G I T F S G V L S A H D L E

rsbT  
F2365 2299 AGTGGTGTGAAAACCTTAAACAGGAATGGGGGATGAACTGACATTCACATTCCTGCTGTAAGATAAATTAATGAATGGGACATTTAGCTGCTAGGCA  
S G L E K L K Q E L G E \*  
J1-194 2299 AGTGGTGTGAAAACCTTAAACAGGAATGGGGGATGAACTGACATTCACATTCCTGCTGTAAGATAAATTAATGAATGGGACATTTAGCTGCTAGGCA  
S G L E K L K Q E L G E \*  
104035 2301 AGTGGTGTGAAAACCTTAAACAGGAATGGGGGATGAACTGACATTCACATTCCTGCTGTAAGATAAATTAATGAATGGGACATTTAGCTGCTAGGCA  
S G L E K L K Q E L G E \*  
H N M T F Q S C V K I I N E W D I V A A R Q

F2365 2399 ACTAGTAGAAAAATATCGAAAAGAAATGGCTTTGGACCGTTGACCAAGCAAGAAATACAACCTGCCACTGAGTAAATAGCTAGAAAATTTTCTTTAT  
L G R K I S K E I G F G T V D Q A R I T T A I S E L A R N I F L Y  
J1-194 2399 ACTAGTAGAAAAATATCGAAAAGAAATGGCTTTGGACCGTTGACCAAGCAAGAAATACAACCTGCCACTGAGTAAATAGCTAGAAAATTTTCTTTAT  
L G R K I S K E I G F G T V D Q A R I T T A I S E L A R N I F L Y  
104035 2401 ACTAGTAGAAAAATATCGAAAAGAAATGGCTTTGGACCGTTGACCAAGCAAGAAATACAACCTGCCACTGAGTAAATAGCTAGAAAATTTTCTTTAT  
L G R K I S K E I G F G T V D Q A R I T T A I S E L A R N I F L Y

F2365 2499 GGTGAGCAGAGAAATCTGTATCGAAAAGTAAATGAATCTGGTAAACAGGAGATGATTGTTGGCAAAGACAAAGGTCAGGTTATGTAGACATAA  
A G R G E I C I E K V N E S G K Q G M I I V A K D K G P G I V D I  
J1-194 2499 GGTGAGCAGAGAAATCTGTATCGAAAAGTAAATGAATCTGGTAAACAGGAGATGATTGTTGGCAAAGACAAAGGTCAGGTTATGTAGACATAA  
A G R G E I C I E K V N E S G K Q G M I I V A K D K G P G I V D I  
104035 2501 GGTGAGCAGAGAAATCTGTATCGAAAAGTAAATGAATCTGGTAAACAGGAGATGATTGTTGGCAAAGACAAAGGTCAGGTTATGTAGACATAA  
A G R G E I C I E K V S E S G K Q G M I I V A K D K G P G I V D I

F2365 2599 GAAAAGTAAAGCAAGTGTATACACATCGGCGGAGCTTGGAGCAGGCTCCAGAGTCAACGTTAATGGACGTTTGTATTAATGAATCCAGTAT  
R K V M Q D G Y T T S G G L G A G L P G V K R L M D S F D I E S S I  
J1-194 2599 GAAAAGTAAAGCAAGTGTATACACATCGGCGGAGCTTGGAGCAGGCTCCAGAGTCAACGTTAATGGACGTTTGTATTAATGAATCCAGTAT  
R K V M Q D G Y T T S G G L G A G L P G V K R L M D S F D I E S S I  
104035 2601 GAAAAGTAAAGCAAGTGTATACACATCGGCGGAGCTTGGAGCAGGCTCCAGAGTCAACGTTAATGGACGTTTGTATTAATGAATCCAGTAT  
R K V M Q D G Y T T S G G L G A G L P G V K R L M D S F D I E S S I

rsbU  
F2365 2699 TGAAGGCGATTTAAAGAGCGTAAATACACAAACGAAATGGTTCGTTAAGAGAGCTAGAAAAAATGGAAAAAGCTTTGAGGAGAAATACCGTGA  
E G D S K G T V I T T K W V R \* H E K A F E G K Y R D  
J1-194 2699 TGAAGGCGATTTAAAGAGCGTAAATACACAAACGAAATGGTTCGTTAAGAGAGCTAGAAAAAATGGAAAAAGCTTTGAGGAGAAATACCGTGA  
E G D S K G T V I T T K W V R \* H E K A F E G K Y R D  
104035 2701 TGAAGGCGATTTAAAGAGCGTAAATACACAAACGAAATGGTTCGTTAAGAGAGCTAGAAAAAATGGAAAAAGCTTTGAGGAGAAATACCGTGA  
E G D S K G T V I T T K W V R \* H E K A F E G K Y R D

F2365 2799 TATTCTATTCAGTATTAGACATCAAGATGAGAAATCTTTTACTTGGAAAAATATCCAGAGAGCTATGGAAGGCGAGTATCACCAGAGAA  
I L I Q V L E H Q D E E I L Y T C E K L S R E A M E E R V S P E E  
J1-194 2799 TATTCTATTCAGTATTAGACATCAAGATGAGAAATCTTTTACTTGGAAAAATATCCAGAGAGCTATGGAAGGCGAGTATCACCAGAGAA  
I L I Q V L E H Q D E E I L Y T C E K L S R E A M E E R V S P E E  
104035 2801 TATTCTATTCAGTATTAGACATCAAGATGAGAAATCTTTTACTTGGAAAAATATCCAGAGAGCTATGGAAGGCGAGTATCACCAGAGAA  
I L I Q V L E H Q D E E I L Y T C E K L S R E A M E E R V S P E E

F2365 2899 ATTGCTCATTTCAGTCTGGCTTGGCTTGGACTATACGAAAGAGTTCGCGGATTTTACAGTATCAATTTGATGACTACTAGAAATTAATGGTGGCT  
I V H L H R S V L E L Y G K E L P D F V R L S F D V L L E I M V G  
J1-194 2899 ATTGCTCATTTCAGTCTGGCTTGGCTTGGACTATACGAAAGAGTTCGCGGATTTTACAGTATCAATTTGATGACTACTAGAAATTAATGGTGGCT  
I V H L H R S V L E L Y G K E L P D F V R L S F D V L L E I M V G  
104035 2901 ATTGCTCATTTCAGTCTGGCTTGGCTTGGACTATACGAAAGAGTTCGCGGATTTTACAGTATCAATTTGATGACTACTAGAAATTAATGGTGGCT  
I V H L H R S V L E L Y G K E L P D F V R L S F D V L L E I M V G

F2365 2999 ACGGCTAGCTTATAGACATCTTACTGTAAGACCGGCAAAAGAAATACGTAAGTAAATCGCTCAAGCAGAGATATGCAAAAACGTTAATGAA  
Y G L A Y M E H L S L R T E Q K E L R S E I A Q A E D M Q K T L M K  
J1-194 2999 ACGGCTAGCTTATAGACATCTTACTGTAAGACCGGCAAAAGAAATACGTAAGTAAATCGCTCAAGCAGAGATATGCAAAAACGTTAATGAA  
Y G L A Y M E H L S L R T E Q K E L R S E I A Q A E D M Q K T L M K  
104035 3001 ACGGCTAGCTTATAGACATCTTACTGTAAGACCGGCAAAAGAAATACGTAAGTAAATCGCTCAAGCAGAGATATGCAAAAACGTTAATGAA  
Y G L A Y M E H L S L R T E Q K E L R S E I A Q A E D M Q K T L M K

F2365 3099 ACAGAGGTCACCGGACCGTAACTGATTTGGAGTATTAGCTGCGACAGTAAAGAAATGAGCGGTACTACTATAGCTTACAGAAAGAGTGC  
T E V P E H D E L D F G V I S V A A R Q M S G D Y Y S F T E E G D  
J1-194 3099 ACAGAGGTCACCGGACCGTAACTGATTTGGAGTATTAGCTGCGACAGTAAAGAAATGAGCGGTACTACTATAGCTTACAGAAAGAGTGC  
T E V P E H D E L D F G V I S V A A R Q M S G D Y Y S F T E E G D  
104035 3101 ACAGAGGTCACCGGACCGTAACTGATTTGGAGTATTAGCTGCGACAGTAAAGAAATGAGCGGTACTACTATAGCTTACAGAAAGAGTGC  
T E V P E H D E L D F G V I S V A A R Q M S G D Y Y S F T E E G D

F2365 3199 AAACAAATGGTATCGGCTGCTGATGATTTGGTAAAGAAATTCAGCGGCAATTTAGTATTCCATGATAAATACGCTAGCTGGAATGATCGGGG  
K Q I G I L A L A D V I G K G I P A A F S I S M I K Y A L A G M T G  
J1-194 3199 AAACAAATGGTATCGGCTGCTGATGATTTGGTAAAGAAATTCAGCGGCAATTTAGTATTCCATGATAAATACGCTAGCTGGAATGATCGGGG  
K Q I G I L A L A D V I G K G I P A A F S I S M I K Y A L A G M T G  
104035 3201 AAACAAATGGTATCGGCTGCTGATGATTTGGTAAAGAAATTCAGCGGCAATTTAGTATTCCATGATAAATACGCTAGCTGGAATGATCGGGG  
K Q I G I L A L A D V I G K G I P A A F S I S M I K Y A L A G M T G

F2365 3299 ACAGAAAGAACCTATGCTGCTGATTAACCAAGTACGAGAAAGAAATATACGAAATATGTTTACGAGTGTTCAGCGGCTTTATCA  
D D R K F S I V L E S L N Q V A E E N I N D N M F I T H F Y G L Y H  
J1-194 3299 ACAGAAAGAACCTATGCTGCTGATTAACCAAGTACGAGAAAGAAATATACGAAATATGTTTACGAGTGTTCAGCGGCTTTATCA  
D D R K F S I V L E S L N Q V A E E N I N D N M F I T H F Y G L Y H  
104035 3301 ACAGAAAGAACCTATGCTGCTGATTAACCAAGTACGAGAAAGAAATATACGAAATATGTTTACGAGTGTTCAGCGGCTTTATCA  
D D R K F S I V L E S L N Q V A E E N I N D N M F I T H F Y G L Y H

F2365 3399 CGAAGATACACATTTGTTGAATAGGTCAGCGGACATGACTGGGCTTATATACCAACATAAAGAAACAGCTTTTGTGATTTACGCCAAAGGT  
E D T H L F E Y G S A G H E L G L Y Y Q H K E N S F S D L Y A K G  
J1-194 3399 CGAAGATACACATTTGTTGAATAGGTCAGCGGACATGACTGGGCTTATATACCAACATAAAGAAACAGCTTTTGTGATTTACGCCAAAGGT  
E D T H L F E Y G S A G H E L G L Y Y Q H K E N S F S D L Y A K G  
104035 3401 CGAAGATACACATTTGTTGAATAGGTCAGCGGACATGACTGGGCTTATATACCAACATAAAGAAACAGCTTTTGTGATTTACGCCAAAGGT  
E D T H L F E Y G S A G H E L G L Y Y Q H K E N S F S D L Y A K G

F2365 3499 TTACACTGGGTAGATAAAATGCTGTACCTCAATTTGATAAGAAATGAAGTGGGGAGCGCTATATTTATGTCAGATGGTGAACAGAAA  
F L S V R K N A V R Q F D R I E V F I H S D G V T E  
J1-194 3499 TTACACTGGGTAGATAAAATGCTGTACCTCAATTTGATAAGAAATGAAGTGGGGAGCGCTATATTTATGTCAGATGGTGAACAGAAA  
L P L G V D K N A V Y R Q F D K K I E V G G D A I F I H S D G V T E  
104035 3501 TTACACTGGGTAGATAAAATGCTGTACCTCAATTTGATAAGAAATGAAGTGGGGAGCGCTATATTTATGTCAGATGGTGAACAGAAA  
L P L G V D K N A V Y R Q F D K K I E V G G D A V I F I H S D G V T E



F2365 5299 GAAAGTTCCTCCCTGTTTATAGTAGCGAGACAGAAAGATTTTGAATTTACATTTATTGAAATTCGCAGTCAAAAAGAAACGGGTGAAGTCTCGATATA  
 J1-194 5299 GAAAGTTCCTCCCTGTTTATAGTAGCGAGACAGAAAGATTTTGAATTTACATTTATTGAAATTCGCAGTCAAAAAGAAACGGGTGAAGTCTCGATATA  
 10403S 5301 GAAAGTTCCTCCCTGTTTATAGTAGCGAGACAGAAAGATTTTGAATTTACATTTATTGAAATTCGCAGTCAAAAAGAAACGGGTGAAGTCTCGATATA  
 K V L P V L D E R E Q K I L Q F T F I E N R S Q K E T G E L L D I  
 K V L P V L D E R E Q K I L Q F T F I E N R S Q K E T G E L L D I

rsbX

F2365 5399 TCACAATGCATGTGTTAGATCCACAGTCAAGCTATTAAAAAAGCTTCGAGAGCCCTTCAGAAATGAGGAATGGAGTAAATGAAACAGGCGAGTTGAAAT  
 J1-194 5399 TCACAATGCATGTGTTAGATCCACAGTCAAGCTATTAAAAAAGCTTCGAGAGCCCTTCAGAAATGAGGAATGGAGTAAATGAAACAGGCGAGTTGAAAT  
 10403S 5401 TCACAATGCATGTGTTAGATCCACAGTCAAGCTATTAAAAAAGCTTCGAGAGCCCTTCAGAAATGAGGAATGGAGTAAATGAAACAGGCGAGTTGAAAT  
 S Q M H V S R I Q R Q A I K K L R E A L Q N E E V E \* M N K A V E  
 S Q M H V S R I Q R Q A I K K L R E A L Q N E E V E \* M N K A V E

F2365 5499 CAATAATATTATTGTTTCAAGCTTCTAAGCATTACAACAATCTGCGGGGATTTTATTATACCCATGAAGAGAAATGGTTTTCTGTATGTTCT  
 J1-194 5499 CAATAATATTATTGTTTCAAGCTTCTAAGCATTACAACAATCTGCGGGGATTTTATTATACCCATGAAGAGAAATGGTTTTCTGTATGTTCT  
 10403S 5501 CAATAATATTATTGTTTCAAGCTTCTAAGCATTACAACAATCTGCGGGGATTTTATTATACCCATGAAGAGAAATGGTTTTCTGTATGTTCT  
 S N N L F V F Q R S K A L Q Q Y C G D V Y Y T H E D E N G F L Y V L  
 S N N L F V F Q R S K A L Q Q Y C G D V Y Y T H E D E N G F L Y V L

F2365 5599 TTCTGATGGACTTGGAGCGGCTCGAAGCTAATAGAGCTGCCAAGCGACCGCTTGCATCAAAAAGAGGATATCCATCGAGATATACCGATATGCTC  
 J1-194 5599 TTCTGATGGACTTGGAGCGGCTCGAAGCTAATAGAGCTGCCAAGCGACCGCTTGCATCAAAAAGAGGATATCCATCGAGATATACCGATATGCTC  
 10403S 5601 TTCTGATGGACTTGGAGCGGCTCGAAGCTAATAGAGCTGCCAAGCGACCGCTTGCATCAAAAAGAGGATATCCATCGAGATATACCGATATGCTC  
 S D G L G S G L E A N R A A K A T V D A I K E D I H A D I T D M L  
 S D G L G S G L E A N R A A K A T V D A I K E D I H A D I T D M L

F2365 5699 GAAAAAGCAACCGAGCTGTTTCAGGACTTCGAGCTGCTCGATAGCTATTATTAAAGTGACTACTTAAAGAGCCCTTTAATTAATCGATGGGTA  
 J1-194 5699 GAAAAAGCAACCGAGCTGTTTCAGGACTTCGAGCTGCTCGATAGCTATTATTAAAGTGACTACTTAAAGAGCCCTTTAATTAATCGATGGGTA  
 10403S 5701 GAAAAAGCAACCGAGCTGTTTCAGGACTTCGAGCTGCTCGATAGCTATTATTAAAGTGACTACTTAAAGAGCCCTTTAATTAATCGATGGGTA  
 E K A N Q A V S G L R G A A I A I I K G D Y L T K T L Y Y T G M G  
 E K A N Q A V S G L R G A A I A I I K G D Y L T K T L Y Y T G M G

F2365 5799 ATATTGTTTTTATGATGGGATGGAAGATAAGCTTATTTTCCGCTTCTGGCTCTGGATTTTTGTCGGCTCGAAAACAGAAATATCGGTTGCAATC  
 J1-194 5799 ATATTGTTTTTATGATGGGATGGAAGATAAGCTTATTTTCCGCTTCTGGCTCTGGATTTTTGTCGGCTCGAAAACAGAAATATCGGTTGCAATC  
 10403S 5801 ATATTGTTTTTATGATGGGATGGAAGATAAGCTTATTTTCCGCTTCTGGCTCTGGATTTTTGTCGGCTCGAAAACAGAAATATCGGTTGCAATC  
 N I R F Y M I G M E D K L I F P L S G S G F L S G R K Q R Y R L Q S  
 N I R F Y M I G M E D K L I F P L S G S G F L S G R K Q R Y R L Q S

F2365 5899 GTTTAAATATAACCCAGGCAAGTTTTTAAATGATTCAGATGAGCTTGTCTTCTCGCTTAGAAAAGCCCTAGAAATCGCCACTTTGTGTAGTGA  
 J1-194 5899 GTTTAAATATAACCCAGGCAAGTTTTTAAATGATTCAGATGAGCTTGTCTTCTCGCTTAGAAAAGCCCTAGAAATCGCCACTTTGTGTAGTGA  
 10403S 5901 GTTTAAATATAACCCAGGCAAGTTTTTAAATGATTCAGATGAGCTTGTCTTCTCGCTTAGAAAAGCCCTAGAAATCGCCACTTTGTGTAGTGA  
 F K Y K F G S K F L M H S D G L V L S R V R K S L E S P L C V V K  
 F K Y K F G S K F L M H S D G L V L S R V R K S L E S P L C V V K

transcription

F2365 5999 ATCGGGCATTTAATCGAGCTAATATATAGATATCCACAGATGATGTTACTTTTATGGTTGGGAAATTCGGGATAACAAAAACACCTTTAABATG  
 J1-194 5999 ATCGGGCATTTAATCGAGCTAATATATAGATATCCACAGATGATGTTACTTTTATGGTTGGGAAATTCGGGATAACAAAAACACCTTTAABATG  
 10403S 6001 ATCGGGCATTTAATCGAGCTAATATATAGATATCCACAGATGATGTTACTTTTATGGTTGGGAAATTCGGGATAACAAAAACACCTTTAABATG  
 I G H L I E R N I L D I P T D D V T F M V G K F P E \*  
 I G H L I E R N I L D I P T D D V T F M V G K F P E \*

terminator

F2365 6099 ATTCCTAGTTTTAAAAGGTTTTTTTT  
 J1-194 6099 ATTCCTAGTTTTAAAAGGTTTTTTTT  
 10403S 6101 ATTCCTAGTTTTAAAAGGTTTTTTTT

**Supplemental Figure 1.** Nucleotide sequence alignment of the *rsb* operon and two upstream genes from F2365, FSL J1-194 and 10403S. The two upstream genes LMOF2365\_0906 and LMOF2365\_0907 were included because no rho-independent transcription terminator was identified between LMOF2365\_0907 and *rsbR* suggesting that a run-through transcript may encode these two upstream genes within the *rsb* genes. Coding regions are indicated by colored bars above the alignment. Promoter regions and transcription start were identified based on unpublished RNA sequencing data (Orsi et al. *in preparation*). The -35 and -10 promoter regions are colored in red and underlined. Transcription start sites are underlined and indicated by a "1" above them. The rho-independent transcription terminator downstream *rsbX* is indicated and underlined. Start codons are colored in red. Stop codon are indicated by the symbol "\*". The exact location of the transcription start site upstream *rsbV* was not unequivocally identified and, therefore is not marked. The -35 and -10 promoter regions upstream *rsbR* were not unequivocally identified and, therefore are not shown. Mismatches in the nucleotide and amino acid sequences are shaded in gray.