

Figure S2. CoeEFV consensus genomic sequence. The ambiguous nucleotides were filled according to contig187425, contig187426, and contig178313 of coelacanth genome. The CoeEFV PBS is nearly identical to the PBS of extant foamy viruses. The CoeEFV PBS sequence is 5'-TGGCACCCAACGTGGGG-3'. The PBS sequence of human foamy virus is 5'-TGGCGCCCAACGTGGGG-3' (Baldwin and Linial, J. Virol. 1999, 73:6387-6393). There is only one substitution.

LTR

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AATGTAAGTACTAGTATAGGCTCCTTTTCTACTGTCTAGTTTCTATTGTCAGTTTGTAGCTTGTATATAAATTGATGTCTTAGAC
CTATTGGTATGGAAAGATCAGTAATCCTAGGTTAATTGCTTGCATGAAACTATGACGAATGTGTTACTTGC AAAATAGAA
GTTCCCTAGACCAGATGACCTTTTCAAAAAGGAAGTCTTGACCACAAAATGCAGTATGATTAACCTACTTTGTCACAGCTG
ATCTATACAGCTGATACTGTTATGCTAATGTTTAAAGTGACAGGAAAAATGTTATTTGTTAAGTTTGTCTAGACTAA
AGAAATGTATAAATTGTAATATCTTCTGCATGAAGAACCTTCTGGACATCCTGTGTAAGGACCAAGCCTAAGAGCCAG
AATATTGTATAAATACAACACCTAGTCCATAGCATGTCAGAACGATCTTCTCTGCTGAGAGACCAGGGGTGAGAACTG
CTGATTGCAGAATCTTTGCTATTGGACTAGGTGAGCACTGTTACTATCCTTCTATATTCTTAGATTGTGAGTTCTGGCC
TGGTCCCTTTATGCTTAAGTAAGATTGATATATTGAAATTGCTAGCCTTTGTAATTTTATACTATAACCCACTCTAGAG
CTAATTGTATGCTTTATATATATCATTAAATAAATATATAACATTTTAAGGACCACTCAAGCCTCTCTTTAATTCATTA
TTACTAGAAAATATGAACTTTTACTGTTGATTTAGCAATTATCAAGAGGGAGGTAAGTGGATCTACTCCTTTGA
TGTACTAAAGGATGGTTGCCTAGTACTAATTCAATGCTATCCCTATAACAGGGTAATAGTATTC AATTAGCGGGCAAT
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-----PBS-----

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ACCACTCCACATCACAGTTGGCACCCAACGTGGGGCTTGAGTGTCTTAATTATTCTTACTGTTAGAATCAAAACCAT
TTCCACTATATAGTGAATGTACTGTGATTATGGCTATTTTCGCTAACTGATCACTAGCAAATAAGAAAATAGAGTGAT
ACAATAAGTTCTCTCAGAAAGATCTGAGTTTAAAGAGTTAAGCTTAACTAAATAAAAGAACAAGCCCGAAAGTTTCCAT
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→Gag

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AATGGCATTAAATATATTTAGAAAGAGCATACAATGCTATAAGAAGGGGAGCTGCGGCAGCAGCCCCAAATGCAGATGAA
M A L N I F R R A Y N A I R R G A A A A A P N A D E
CAATTTTGTATTTGCATGATGGATTATAATGACTTTGGCATTAGAGAGTGTGTTGGTACCCTGGTATTAGATAATGCAG
Q F L I C M M D Y N D F G I R E C V G T L V L D N A G
GAGAGATAATTAACATCAACTGGCAGCCTAATGCTGCAGTACAAGTGGGGATGGAAATCTTACATTTGATTATCAGGA
E I I N I N W Q P N A A V Q V G M E I L T F D Y Q E
ACTAGTTAATGAGGGCTCCAGCCTCAGTTTGGGGCAGGATTAAGGAGGCATGGAAATTTAAGAGGAGTGTATATAC
L V N E G L Q P Q F G A G L R R H G N L R G V L Y H
CAAGGAGGGCCAGGATGGCAGTTTGGCCCTCTAGAACCTGCAGAATATCCCAATAATGTTCAAGACTGGCAGGTGCACT
Q G G P G W Q F A P L E P A E Y P N N V Q D W Q V H Y
ATGAGGCCCTTAAGGAACCAATACCAGGCTCTAAGGAGAGCGGCTCTAGGCTACAGGTCCAAGGACCAGGAGCCCTGT
E A L R N Q Y Q A L R R A A P R L Q V Q G P G A P V
GCCTCAAGCACTCGAGCCATATGAGCAATTAATATAGGGGCTATAAAAAACATACTGGGAGATCTCCCAATAGAGGA
P Q A L E P Y G Q L N I G A I K N I L G D P P N R G
GAAGATTTCTTGATTGGTTCCAAGCCAGGCACACTCAAATAGAAAACAATAACCGAGGGATACACTGCTGAACAAAGAA
E D F L D W F Q A R H T Q I E T I T E G Y T A E Q R R
GGCAGTTATACCAATATATCCTACTACTACATGGGCTTCAGTTCCGATAGCTCATTGTAATAATGTACAAGCCACTTT
Q L Y Q Y I L P T T W A S V P I A H C N N V Q A T L
GGATCATTGTATATCCAAATAACTGGTCAACCTCCCATTTATTCGTTTAAACCAACAATACTCTGATAACTGCTAGC
D H L Y I Q I T G Q P P I I R L T K Q I P L I T A S
CAAGGAATATTGGTAGCTTATGATCATGCATACAGAGGGTTGAGAGGAGACCATGTAATGGCGTTTGGATTAGTGGCTG
Q G I L V A Y D H A Y R G L R G D H V M A F E L V R E
AAGGATTCCAATGGCAGTAAGGCTCCAAATCACTGCTGCAGTCAAGCTTTGCCAACAAATCAGGAAAGGCACGCTCA
G I P M A V R L Q I T A A L Q A L P T N Q E R H A Q
GTTTGCAGATAGTAAGGCTCAATTACAATCTGGCCATGATACCATTAACTCCTACTCAGAAAACAGGGATATTTCCAAG
F A D I V R L N Y N L A M I P L T P T Q K Q G Y S K
ATACCTGGGCCCAAATCAAGAAGGCAATCAGAAAAAAGGCAACAGCGCCCTTAAGACCCAGGGTAGAGGCCAGG
I P G P P N Q E G N Q K K R Q Q R P L K T Q G R G Q V
TTAAATGGACTCCTAAGCAAGAAAAAGAGGAGTCCCGCCTCAAAGCTCCAAGGAGCTGACAGCCGCCAGATCCCTC
K W T P K Q E K E E S R P Q S S Q G A D S R P D P S
AGGAGAGATTCTAAGAAACATAGATATGATTTGAGACCCAGGCATGATGGGCCCTGGCAGCAACCATCAGGACAAAAAG
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G E I P K K H R Y D L R P R H D G P W Q Q P S G Q K
TCTGATGGTAATCAGGGAGGACAAAAATGGTGGAAAGAGGGCAGGACAAACAGCAACCTAAATATAAAAAAGAAGGAG
S D G N Q G G Q K W W K K G Q D K Q Q P K Y K K E G G

Gag ←

GGGATGTCAAGCATGTAAACATAAATACTGCTACCCAAACCAGTGAACGACAAGTCATCTCAGCAATAGGGGGGTGG
D V K H V N I N T A T Q T T E N D K S S Q Q *

→ Pol

TCTACCTGTCCCCAAATACCCTGAAACCATGGTATGTGTAGGGGATACAGTGGTACTAGCATTGATTGACACTGGAGCT
M V C V G D T V V L A L I D T G A
GAACATTCTGTAATAGATAAATGCTTAGTCCCAAAAGGGTTAAGACCAGCACACCACCAAAAACTACAAGCCTTAATG
E H S V I D K C L V P K G L R P A H H Q K L Q G L N G
GTTCTCCAGTGTCAATTCAGTCTTTAATTTAACTATTAATATCTCAATACTGACATCCTTCTCAATGTGCTGTGAA
S P V S F P V F N L T I N I S N T D I L L K C A V K
AGCAAACCTTACAACCGTATAAACTTATAATCTCTACCAAGAGGTAAAAGATTGCATCTTGCCTTCTTCCCTCAGCCT
A N L Q P Y K L I I S H Q E V K D C I L P F F P Q E
CAAACCTCAGGTCAAAGTTGTAATAATCATCACAACCTGATGAGAGGCAAATTCATGTAATACTCAATTAGTGAACAA
Q T Q V K V V N I I T T D E R Q I H V N T Q L A E T M
TGCTCTACAAGCCAGCAAGCTTAAATAAAAGCTTACTGGAAAAACATTATGAGGTCCTCCAGAGGCATAAAAAATCA
L S Q A S K L K L K A L L E K H Y E V L Q R H K N Q
AACAGGGTTTAGAGATATAGAACCCTACCAACTTAAAGGTAAAATCCACCCAGCTCAGAAGCAGTACCCAATTAATACC
T G F R D I E P H Q L K G K I H P A Q K Q Y P I N T
AAGGCCATTCCTTATTCAAGTGGTAATTAATGAATTACTCGAACAAGGAGTGTGGTAAAGCAAACCTAGTCCAAACA
K A I P S I Q V V I N E L L E Q G V L V K Q T S P T N
ATATGGCTGTGCTACCAGTGCCAAAACCTGATGGAACCTTGGCGGTTGGTGCTAGACTATAGAGCCCTCAATAAACATTC
M A V L P V P K P D G T W R L V L D Y R A L N K H S
TGAACCAGTTAGGGCCAGAACCAGCACTCCTCTGGTATTCTAGCCAACATTGAGAGAAAAGCTTATAAATCCTCTGTG
E P V R A Q N Q H S S G I L A N I E R K A Y K S S V
GATTTGGCAAATGGGTTCTGGTCTCATCCCATTAGGGAAGAAGACTGGCCCAAGATGGCTTTCCTTGGTGGCGGCTTC
D L A N G F W S H P I R E E D W P K M A F T W C G F G Q
AGTATCTCTGGACACGCCTCCCCAGGGATTTTTAAACAGTCCAGCATTGTTTTCTGCTGATGTAATCAGTCTGGGG
Y L W T R L P Q G F L N S P A L F S A D V I S L V G
ACAACCTCCAGGAGTATATTGCTATGTTGATGACATATACTTGACACATGACACTGAAGAGGAACACCTTAAAATTTG
Q L P G V Y C Y V D D I Y L T H D T E E E H L K I I
GATCAAGTCTTAGAAATCCTCATCAAAGCTGGATATGTCATTAACATAAAGAAGTCCAAAACCTCTGTCGTAAAGTAGTGG
D Q V L E I L I K A G Y V I N I K K S K L C R K V V D
ATTTCTGGGATTTTCCCTTTCTGATGAGGGGAGGCCTCTCAGATCAGTATAGGGAAAACTGCAGCTATTAAC
F L G F S L S D E G R G L S D Q Y R E K L A A I K P
TCCTCAGACACTCAGACAGCTTCAATCTGTAATGGGGTTGTTGAATTTTTCAAGACTTTTTGTCAAAGGATTTTTCTGAA
P Q T L R Q L Q S V M G L L N F S R L F V K G F S E
CTGGCTAAGCCTCTGTATGACCTCATCAGTCAAGCCTTATCATTACCCACAGGCTCATGAAGCACTAACTAAAC
L A K P L Y D L I T V K P Y H F T P Q A H E A L T K L
TATTAAGTGCAATCAAACAGCCCTAATCTCACAATAGAGATAACACTAGAGCACTTGAATTAGGATAGTTACAAG
L S A I T Q T A P N L T N R D N T R A L V I R I V T S
CCCTAGATCAGCTGTAGCAGCTTATTACAATGTAGGGGATAAATGCCATTTCAGTATGTCTCTACAATTTTAGTCAA
P R S A V A A Y Y N V G D K L P I Q Y V S Y N F S Q
CCTGAAATGAAATTTCCAAAATAGAGAAAGTCTGTGTTATGGTAAATATGGCATTAAATAAAGGAAGGGTATTAGCCC
P E M K F S K I E K V C V M V N M A L I K G R V L A H
ACGAACAAGATATTGAAATACACACTGCCATACCAGCTCTGCAGACTTACACCAGAGCCAGTGAACCTAATGCCAAGGC
E Q D I E I H T A I P A L T Y T R A S E P N A K A
ATTGGCAACCAGGTGGGATCTCTGGGTACCCTATTCTCTGATCAAAGGTTGACTTTTAAGACAGTCACTAACATGCCT
L A T R W D L W C T L F S D Q R L T F K T V T N M E
GATCTCGATTGCCTACCACCCTTTGAGGATGAAGTGGCAGTAGCCAGTCTCTCTGCCACCCATCCTTCCATTGGAACAAT
D L D C L P P F E D E V A V A S P P A P I L P L E Q Y
ATGTGGAAGTATATTATCTGATGGCTCAGCCAAACGAAACCAAAAAAGAAATTAATGCAGGTATAGGGATAGTCAAAGG
V E V Y Y S D G S A C K A R N Q Q K N Y A G I G I V K G
AAAGTTACTATCCACACATTTTCGAGCAGAAGAAACAAAGCTGTACCATTGGGTCCAGTTCAGCACAGTATGTG
K F T T P T H F E P E E T K A V P L G P A S A Q Y A
GAAGTCATGGCCTTACTGGATGCTGTAAACAAGCAACAGATACTGGGCCAGTGTATATGCACAGACTCAGTATATG
E V M A L L D A V K Q A T D T G P V L I C T D S V Y A
CCCAAAGGGGATATACTGAAGATTTACACTATTGGGCTATAAGGAATTTCCATGACTCTAGGAATGCCAAAACCTCAATA
Q R G Y T E D L H Y W A I R N F H D S R N A K L K Y
TGCCGCAAAATGGAAACAACCTAGATCAGCTTAAAAGGGACAAGCCTCTAGTAAGGTAATACATGTGCCAGGGCATAAG
A D K W K Q L D Q L K R D K P L V R V I H V P G H T

CCCGGAAGTGTACATTCATGTGGAAATGGTTTAGCTGACTCATTGGCACAAAGGTGCTGTAAAATGCCCTACAGTCAACG
P G T V H S C G N G L A D S L A Q G A V K C P T V N V
TGATTCTAACTAGAGCACAGGCCAGGACTCACATGGATAGTATTTTACAACAGTGTCTCGACCCAACTGTCCAACCC
I L T R A Q A R T H M D S I L Q Q C L D P T C P N P
TCCTGGGTATCCTACTGCTTATCAGTATGATACCAATGAACATGGGCAATGTGTGGTCACAATGCCTGGAGGAAGTAT
P G Y P T A Y Q Y D T N E H G Q C V V T M P G G T Y
GTCATACCTCCCATTCATGCCAGACCTGGGCTGATCAAGGAGGCCATTGTGGCATTGGGCATATACATCTTGGGGTA
V I P P I H A R P G L I K E A H C G I G H I H L G G N
ACAATACAGGCAAAACCTTGCGCCGCTTTACTGGTGCCAGGCTATACACTGAGTGTAAGAGTACGTGGCTAAGT
N T G K T L R R L Y W W P G L Y T E C K R Y V A N C
TCCTGAATGTTTGGCTGTTAATGTTACTCCCCTACTAGACCACCTAATTTACGCCACCCAGAGGAGCCCTTTTGGAC
P E C L A V N V T P T T R P P N L R P P R G A L F D
AAGTCTTTTTAGATTTTGTGGGCCCTTCCCGCTCCAATGGCTATACTGCCATTTTGTATTCTGTGCGAGTCTTAT
K I F L D F V G P L P R S N G Y T A I L I L V E S L S
CCTCTTTTACTGGTACTCCCCTGCGGGGACTGCTGCGTCCACCCTGTGACTGCTCTTTCTGCCCTTTCTTCC
S F T W L L P C R D Q S A S T T V T A L S A R F F P
GGGCTCTATTGAACCTAAATGTTTCCATTCTGACCAAGGGGGGGGGACTTTACCTCCCAACTTTTCAAAAAATGTGC
A S I E P K C F H S D Q G G G D F T S Q L F K K M C
TCAGAACGGAACATACGGGTTGAATATAGACTCCACACCATCCCAGAGTGCTGGGGTGGTGGAAAGAAAGAACAGAG
S E R N I R V E Y S T P H H P Q S A G V V E R K N R G
GTCTCAAAGCAGCGTCACTAAGCTGGTTCGCAACAGACCCCGCAAGTGGTTCAGGTTCTAGACATAGTTCAAACAG
L K A A L T K L V R N R P R K W F Q V L D I V Q T G
GCTTAAACAATACTCCAATAGCGAGGAATGAGCATGGGGCCACCCATTCTTTCTGATGTATGGTCAACATATGAATACA
L N N T P I A R N E H G A T P F F L M Y G Q H M N T
CCATTGACTAATGCTGAACCTAGTTTGAACATCCAGATAGAATGGAGGCCCTTGCAGCACTACAAGAAATACGTGATC
P L T N A E P S F E H P D R M E A L A A L O E I R D L
TAATGCCACAAGAGAGTAGAGGGATACAACAACAAGTCCAGAGTCCAATAGACTTTGGATCCCAAAGGTGGGAGAATG
M A Q E S R G I Q Q L P E S N R L W I P K V G E W
GGTCCAAGAAAAGCAGTTAGGGCAATCCTAGCTTAAGGGATAAGTATCATAAGCCACACAGATAATTGAAGTTTG
V Q E K A V R A N P S L R D K Y H K P T Q I I E V I
ACACCTAAGGCTGTGGTAATTGCTGCAACAGGAGCTAACCAACAACAAGTAAAGAACTGTTTCTGTAGACAATCTAA
T P K A V V I A A T G A N Q Q Q L R K T V S V D N L K

→ Env

AGAGAACGCCAGCTGACTACAATGGCAACAACAAGTATCACCTAGCTTCCCAGAAGACTCAAGGGCCCCGCTCCAGTGA
R T P A D Y N G N K Q V S P S F P E D S R A P S S E
M A T N K Y H L A S Q K T Q G P R P V R
GACTGGAGGAAGTAAGGATACTACTAACCAACAGCAACAAGGACTCACCAGTGACCAGGTCTGCAGGCCCAAAGAAAAA
T G G S K D T T N Q Q Q Q G L T S D Q V C R P K E K
L E E V R I L L T N S N K D S P V T R S A G P K K K

Pol←

ACGCAAAAAGAAAAGGAAAACCAAGTAAGGTGGGGGGTGTCTATAAATTCCTTATTGCTTTGTTGATAATGGCTGGACTC
T Q K K R K T K *
R K R K G K P S K V G G C Y K F L I A L L I M A G I
ATAGCCCTAGGGACAGGTATCCTTAGGATACTTTGGGCTATGTGAAACCAAGATTCAGGTCCAATGGAGGATAACA
I A L G T G I L R I L W A Y A E T K I Q V P M E D N N
ATTCACCTACAATTATACTACTGGTCTGCACATGAGTCGAAGAACCTTGTCAAAGGAGAAGACAATGAAACCTGGA
S T Y N Y T T G L H M S R R T L S K G E D N E T L E
ATGGCATTCTTACCCTGGGGATGACAACCAGAGTAGTACCAATTCCATTGTCTTTGACCAGAGGCTGGTTCAAATA
W H S L P L G M T R V V P I P L S L T R G L V Q I
CCAGTTAAGTGTGCTGAATTCAAAACATTTGGCACAGGTTGCTGGGATTCAATCGGCCAAAGGAAAGAAAGATGCTCA
P V N L V L N S K H L A Q V A G I Q S A K G R K M L S
GTACAATTTGGTGTACTTATGGAACAAGCCAAACTTCAAATCCTTCTTTGAGGTGGCTTCAGGATCACCAGAACA
N N L V L L M E Q A K L Q N P S F E V A S G S P E Q
ACCTTCTTCATATTTAGCAGACCAGTGTCTTTGCCGAATTAGGACATTGCTATCTGATTGAATATAATCAACCAAGAACT
P S S Y L A D Q C F A E L G H C Y L I E Y N Q P R T
TTGCTGATCCTTATATAATGGCAGATGAATGCTTAAGACCTGATGGCATTGGCTAAGCAACAAGAAATCCACAT
L P D P Y I M A D E C L R P D G I W L S N K G I P Q W
GGTATCTGGCAGCTGATCAATACACTGCACATACCCTGGAAGAAATCTTCAGAAAGGATCCTGATGCCAGGATGAGGGA
Y L A A D Q Y T A H T L E E I F R K D P D A R M R E
ATACCGCATTCTGGAGGGCGACAACCTACACTGGAGCAATTATGTGTAGTCCATTACTCTACGGAAGCAAATGAAA
Y R I P G G R Q T Y T G A I M C S P L L Y G S K W K
GAAGAACAGCATCAATATGATGGAAGAGAGGAATTGGATATTCTTCAAATGATTGCATGCAAACACAGCACTGGGT
E E Q H Q Y D G R E E L D I L L N D C M Q N H S T G L

TGTTAAAACTAGTTGCTCTCTCCCGAGTGGCATGTTAATGGTACCAAGGAAGGGAATATATTCCTTACCTTATGGA
L K S S C L S P E W H V N G T K E G N I F P Y L M E
GCAAAACCATGATACCTTCTGTTCTATGCCAGATTTCCCGCATTTTTAAACACCACCTTGTATCAGTAACTTGTGGT
Q N H D T F C S M P R F P A F L N T T L Y H V T C G
GCTGCAGAAGTCAGAAACCTCACTAATGAGGAACAAAGTAAATGTGTTAATGATACTGTTGCCAAGGAGAAAGGTATAT
A A E V R N L T N E E Q S K C V N D T V A K E K G I Y
ACTGGGATTGTGTACGAGGTTGTGGGGGTAGAAAAATGGTGTATTGTGACATCAAAAATACAACCTGCTATTTCAGAGAA
W D C V R G C G G R K M V Y C D I K N T T C Y S E K
ATATCCTACTACTCTGGTAATAAAAGATTTTTATGGGATACACAAGGACCTCTCAGTATAATAAATAAGACAGTTATC
Y P T T L G N K R F Y G I H K G P L S I I N K T V I
GACAGGCCAAATTTCTGTATATTTCTGTATCAGATCTGTAAGGACAGAGTTAAAATCTATCCCCTTACTGATGTAT
D R P N Y S V Y S L Y Q I C K D R V K I Y P L T D V L
TATCAGGATTGAAAAAATTGACTGTGGTCTCTAAAGGGAAATATGACTTCCCTTCTCTAAGCGTACTAATTGTACTGA
S G L K K L T V V S A K G K Y D F P C S K R A C T F N C T D
TGATATGCTGGATATGTTCCCTACTAAAGCCATTTGGGGAATTTATGTCACAATATCTGACTTAAACATAACTCAT
V Y V L D M V P T K A I W G T Y V T I S D L N I T H
TCTAAACATGCAGGAACTTTAATTGACAAACATTCATGATAATTGTCTCAGACGGCTGCCCAAGTGGGTGGCAACC
S K H A G N F N L T N I H D N C P Q T A A Q V G G N Q
AGAGGCGTCTGTTAGCGACAAATGATCAATACCTTACCCAATCAGCCACCCTTACGAATAAGGCTATTAACCTTCTTAG
R R L L A T N D Q Y L T Q S A T L T N K A I N L L S
CCAACTATGGATGACAACCTTGGCCAATTGGAGCAAGGTTTTAAAGTGCTTCAAAGTAGCCTGATGCACACATTAAGG
Q T M D N F A Q L E Q G F K V L Q S S L M H T L R
GTACTTACTAAAGATATGGCAACTTTAGGAGATGCCATTAAGTCAAACAAGTAGAAGCTCAGATACAGAGGGGATTGG
V L T K D M A T L G D A I K V K Q V E A Q I Q R G L A
CACTTTTAGAAAATAATAAGGTCCTTGGGCACCTCTAAATATTTCTAATATCTTAGAAAGGTTCAATCAAAGTGCAGA
L L E N N K V P W A L L N I S N I L E R F N Q S A E
AATGAACGCTGTGCATGCGTCATACTGCCACTGCCTATTTATATAATATCAAACAGGTTAAACAAGATTTCCACTACAAC
M N A V M R H T A T A Y L Y N I K Q V K Q D F H Y N
CAGGCTTGGATAATCTACCTGGATGGTGAACCAAGAGAAGTATATTATGCAATTCATTGTACAAATGCAATTCACCTG
Q A L D N P T W M V N Q E K Y I M Q F I V Q M Q L P V
TAACAGGAGGAATTTACTATAAAGTGTGGGAGATTTACAACCCTGGCTTTCTAGTAAAACTAATAACTTATTGGCATT
T G G I Y Y K V W E I Y N P G F L V K T N N L L A L
AGCTAAAGTAAGGCTCCTTACCAGTATATTGCTAAAGATAAATGTGGCAACATAAATTACCTTAAAGTAAAGGAATGC
A K V R P P Y Q Y I A K A D K C G N I N Y L K V K E C
TATTTAAGAGGATTTAGATATTGTGATAATTGGGAAAGCAATTTGCCCTGTGGAAAAGAACCACAGACAATCAATCAT
Y L R G F T R Y C D N W E K Q L P C G K E P Q T T Q S C
GTCCGATCACGGTAAAACCAATCTATTCTAGAACTTTTGCACAGGTTACCTCTTTAGGAAATGGCTCTTATATAATTAT
P I T V K P I Y S R T F A Q V T S L G N G S Y I I M
GGTATCCTACTCTGAATGCGACATTTCCAGTATGAGAAGTGTATAGTACACCCCAAGCACCCGAATGACTTGTACAAT
V S Y S E C C D I P S M R T V I V G T P S T R M T C Y N
ATGACCTTGTTSCECCTAATGTGTCACGAGTAAATGCTATGGCAGAGGAGGAGTCACACCATTCCATTTGACTTCC
M T L F P L N V S R V N A M A E E G V T P F H L D F P
CAATCTCGTTGCGATCATTGCACGCTTGAAGATTATGAAATTAACCTCTCATATACTCATGACAACATAACTGACT
I L V A V I A R L Q D Y E I T L S Y T H D N I T Q L
CTTGGCAGCTCTAGGCAATTGCTTTCAATGGTGAGATTTGAAGCAGCTGAAATACCACAATGGCTACAGCTGATAGGG
L A R S R Q L L S M V R F E A A E I P Q W L Q L I G
GAAGGACTAATTGAGCTCATACCACAAGTCAAGAGTGCTATAGAATGGGGCATAGACTTGGCAGCTAAGACTATAACAC
E G L I E L I P Q V K S A I E W G I D L A A K T I T Q
AGACAGTAACAAGTGTTTTGAATCATTAAACTTTCTAGTACCTGTTTGGATAATAGCAGGTGTAGCTTTTGTGCTAAT
T V T S V L Q S L N F L V P V L I I A G V V F V L I

Env ←

→ ORF1

TTTAGTACTCAAGTTTTTTTCTCAGAAAGATGGATCCTCATAAGCTGATAAAAGAAAGTCTCAGCATTAAACCAGAGAT
L V L K F F S Q K D G S S *
Y S S F F L R K M D P H K L I K E S L S I K P E M

ORF2 →

GGTATTGAGGAGATTTCTGAAGATAGAACAGATGATCCTGTGCAAAACCTGTTGAAAATCACTCAGTGCACGTATAAAG
V L R R F L K I E Q M I L S K P V E N H S R A R I K
S

ORF2 ←

TGGTGTGAAAGGAAACAAGACTTTTGTGTGATAACGACTGGAATTTGGGATTGTTATCGCATAGAGGACATTGTTGAA
W C E R K Q D F V V Y N D W N L G L L S H R G H C *
G V K G N K T L L C I T T G I W D C Y R I E D I V E

AGTATAAAGCCGCTTATATTCATAGGGCAGAGCCATAAATCTAAAGACTGATAAACACCTGCCAATTCAGCTGTTTATG
S I K P L I F I G Q S L N L K T D K H L P I P A V Y V
TGCCCGAGGGCTACTGCTCCCGTTTGGCATAACATATATCATATTTTGGATATGGATAAAGGAGCTTCAGCTCAACAAAA
P E G Y C S R L A Y I Y H I F D M D K G A S A Q Q N
TTACTACTCCAATGAAAAGAACCTGGAAGGACAACCTATGAGAATGATTCTCCACCTTCTTATAAATCCTTATTGAGGATG
Y T P M K R T W K D N Y E N D S P P S Y K S L L R M
CATGCTCTGCGCAGTTTACCCACTCAGAATTACTTCTCTTCGCATATCAATACTAAGAGATGCTGTTGTTATTTAAAAAC
H A L R S L P T Q N Y F S S H I N T K R C C C Y L K H

ORF2←

LTR

ATACATGTTATGGCACCATTAACCACACTCTTTAAATAAGAATATTTTTCTGCCCCGGGGGGGGGGTTAATGTACTAG
T C Y G T I N H T L *
TAGAGGCTCCTTTTCTACTGTCAGTTTAGCTTGTATATAAATTGATGTCCTAAACCTATTGGCATGAAAAGATCAGCA
ATCCAAGGTAAATTGCTTGCATGGAACCTGACGAATGTGTTATTTACAAGTAGAAGCTTCTAGACCTCCTGTGTACAGCC
TAATTGTCACAGCTGATACTGTTATGCTAACATTTAAGGTGACAGGAAAAATATTTGTTAAGTTTTGTCCTAGACTAAA
GAAATGTAATAATTAATATATCTTCTGCACATCCTGTGTAGGACCAAGCCTTAGAGCCAGAATATGTATAAATACAAC
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AG