Supplementary Figures

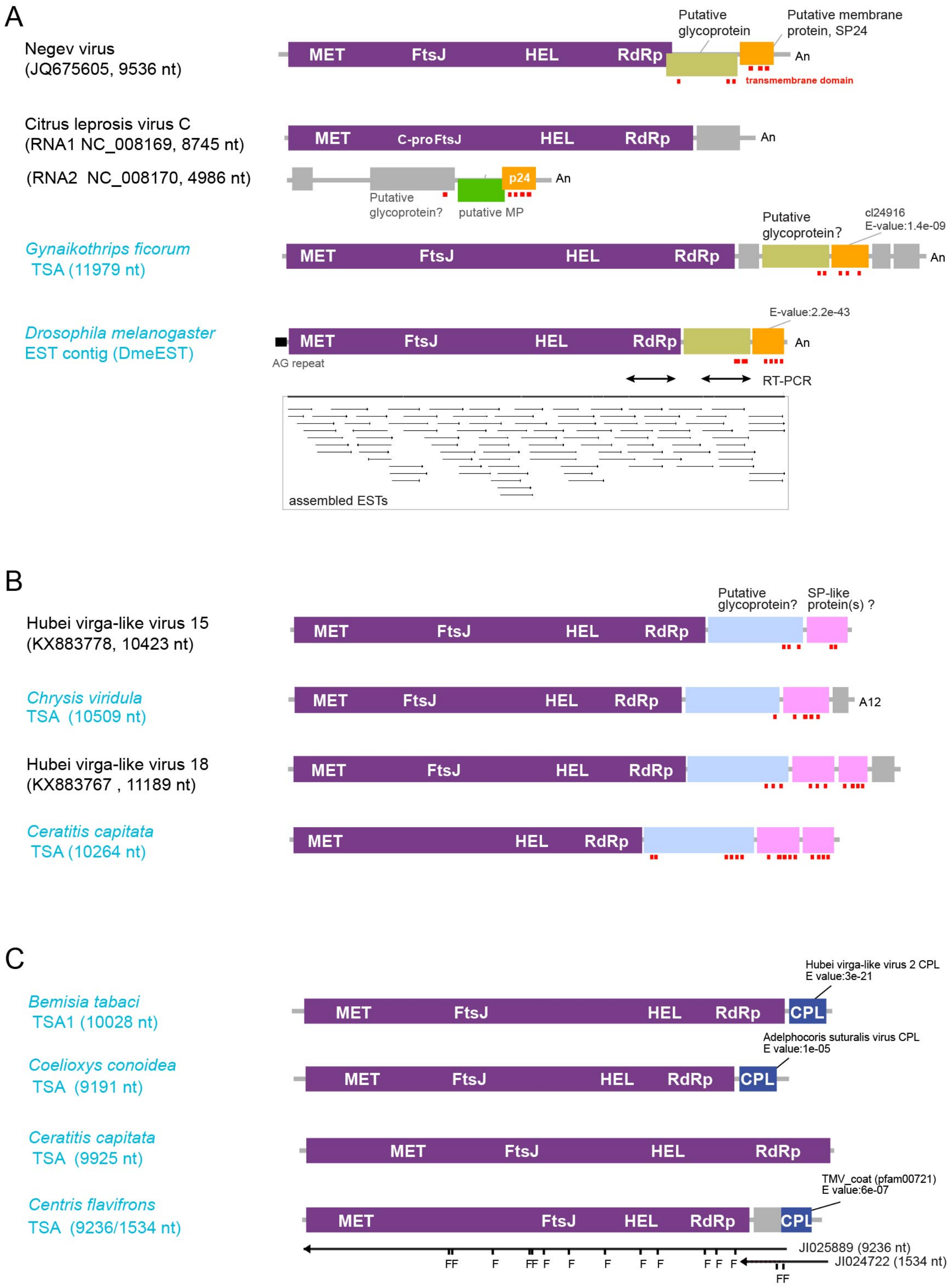
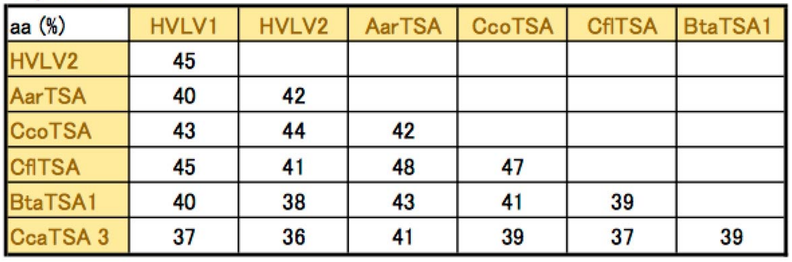


Fig. S1. Putative genome structure of insect virga/nege-related viruses and virus-like TSAs. (**A–C**) Schematic representations of virus-like insect TSAs (or an EST contig) related to nege- and cileviruses (A), Hubei virga-like virus 15 (B) and Hubei virga-like virus 1 (C, see also Fig. 3A). A virus-like sequence contig (named DmeEST) assembled from *Drosophila melanogaster* ESTs derived from Schneider L2 cell culture is shown in (A). List of the *D. melanogaster* ESTs for DmeEST construction (A): GenBank accession, BI638919, BG635657, BI638482, AI532995, AI534252, BG637461, BI141725, BI639062, BI638906, AI544395, BG640747, AI533274, BI636597,

BG635757, BG641116, AI542032, BI142081, AI532201, BI635191, BI639542, AI542337, AI533639, AI533639, BI141910, BG640612, AI543524, AI530962, BG635737, AI532854, BI636200, AI534776, AI532083, AI532473, AI542186, AI532583, AI542621, AI534897, AI530958, BI636474, AI533948, BI640491, BI639403, BI635232, BG635707, BI636250, AI541916, AI542073, AI531793, BG635866, BG635772, EL872030, EL872030, AI546576, AI532485, BI639356, AI534952, BI635674, BI640165, AI544345, BG640392, AI534985, BI639679, BI632687, BI641883, BI142109, BG635714, AI541862, BI636567, BI640187, AI534771, BI638192, BI641563, BG640363, BI635234, AI542213, BI637338, AI533282, BI636119, BI636730, BI636683, BI641632, BI636623, BI637714, AI533430, BI632540, BI633908, BI638733, BI640451, BG637012,BG640577, BG635825, BG640481, EL884146, BI141775 and AI531240. Two *Centris flavifrons* TSA sequences were used to construct CflTSA (C).

A

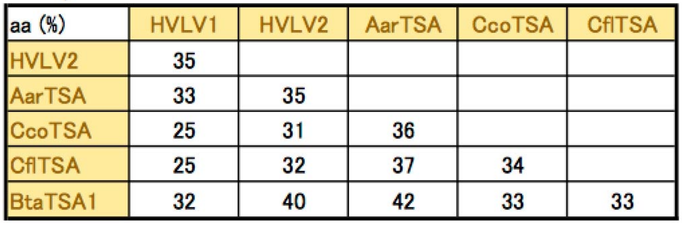
Replicase



aa (%)	HVLV1	HVLV2	AarTSA	CcoTSA	CflTSA	BtaTSA1
HVLV2	45					
AarTSA	40	42				
CcoTSA	43	44	42			
CflTSA	45	41	48	47		
BtaTSA1	40	38	43	41	39	
CcaTSA 3	37	36	41	39	37	39

B

Coat protein



aa (%)	HVLV1	HVLV2	AarTSA	CcoTSA	CflTSA
HVLV2	35				
AarTSA	33	35			
CcoTSA	25	31	36		
CflTSA	25	32	37	34	
BtaTSA1	32	40	42	33	33

C

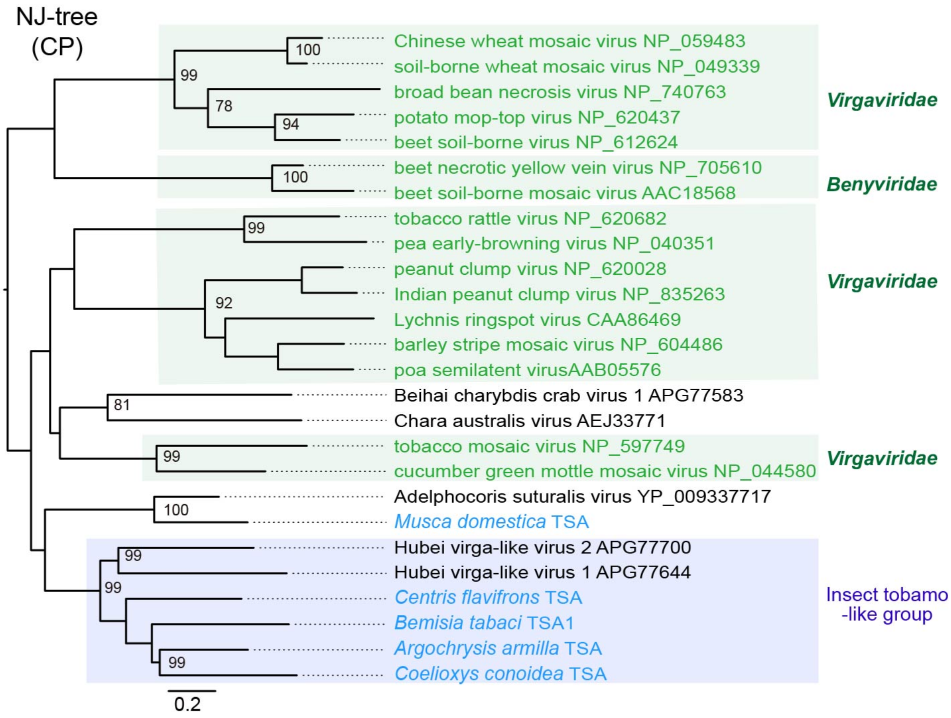
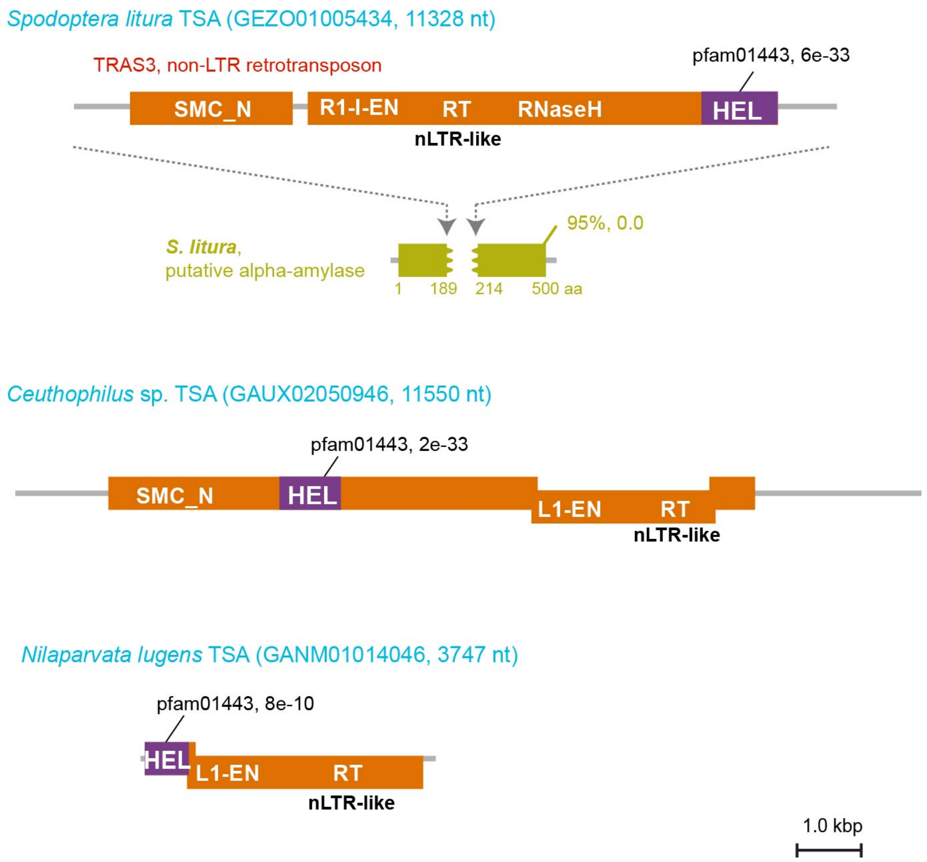


Fig. S2. Sequence identities among insect tobamo-like viruses. Replicase **(A)** and coat protein like (CPL) **(B)** amino acid sequences of insect viruses and virus-like TSA accessions were compared in pairs using BLAST. **(C)** The neighbor-joining (NJ) tree based on CP and CP-like (CPL) amino acid sequences of plant virga- and benyviruses (highlighted by green boxes), insect virga-like viruses and virus-like TSAs (highlighted by blue box).



Spodoptera litura TSA (GEZO01005434, 11328 nt)

Ceuthophilus sp. TSA (GAUX02050946, 11550 nt)

Nilaparvata lugens TSA (GANM01014046, 3747 nt)

Fig. S3. Schematic representations of insect TSAs derived from putative retrotransposons carrying HEL-like domains (highlighted by purple) in a lepidopteran species, *Spodoptera litura* (**A**), a cave cricket (*Ceuthophilus* sp.) (**B**), and a hemipteran (*N. lugens*) (**C**). The E-values against putative HEL domains are shown above each ORF. The retrotransposon are inserted into a putative alpha amylase coding region (yellow green) in the *S. litura* TSA.

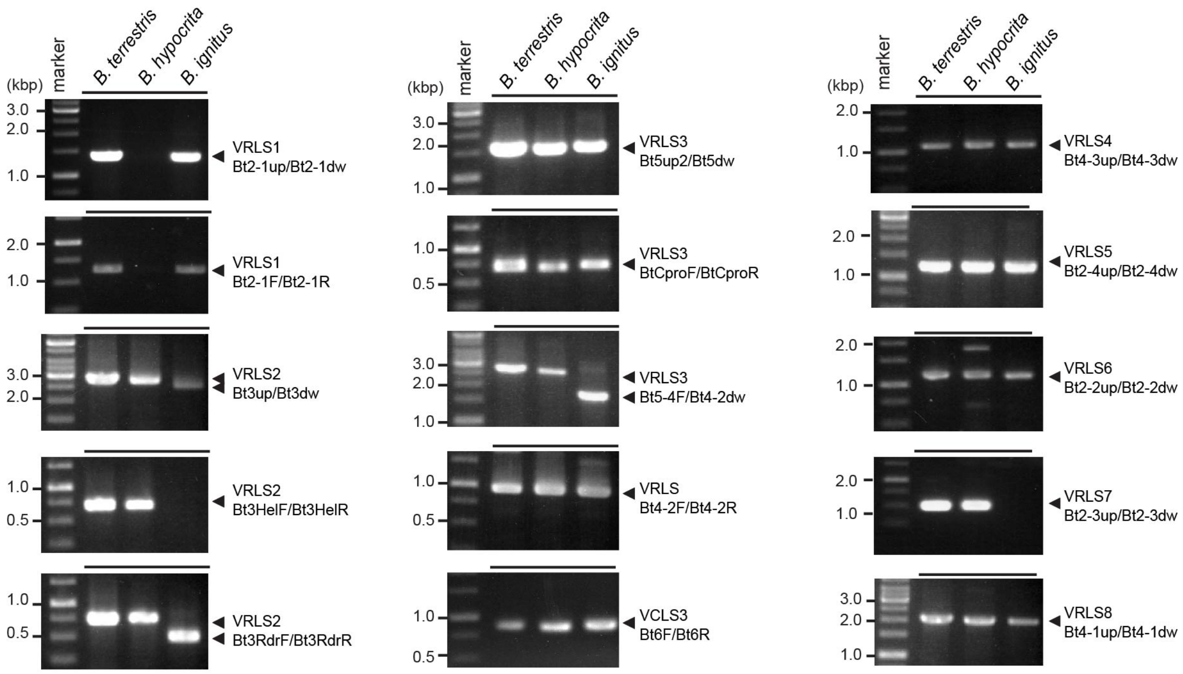


Fig. S4. PCR amplification of virga/negevirus-related EVE candidates in the genome of the *Bombus* genus. Genomic DNA from *B. terrestris*, *B. hypocrite* and *B. ignitus* were used for amplification of virgavirus replicase- or coat protein-related sequences (VRLSs/VCLSs). Primer positions for each VRLS/VCLS are shown in Fig. 5 and S1.

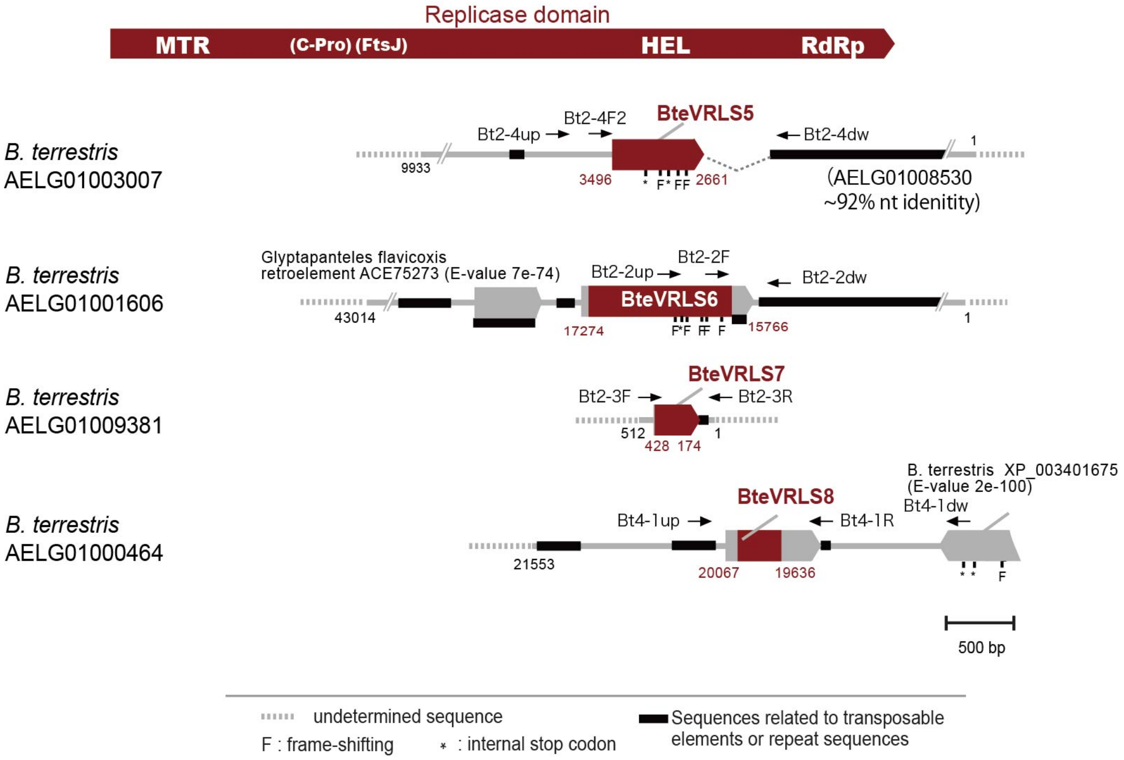


Fig. S5. Virgavirus replicase-related sequences (VRLS) identified in the *Bombus terrestris* genome. A schematic diagram of replicase sequence of Hubei virga-like virus 1 used as a query is shown in the top. VRLSs are positioned according to the corresponding sequences in the query and the potential coding regions of *Bombus* EVEs are shown as dark red colored boxes. The WGS-assembled sequences and undetermined sequences are represented with solid and dashed thin-lines, respectively. Arrows and the texts above indicate the position of primer used for PCR amplification. The symbols referring to nucleotide mutations are shown below the grey line.

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CLUSTAL format alignment by MAFFT (v7.310)


BteEVE1         agttgggagagcaatcttttaatttgtatgataatgttatcaagatgtggttagttaagg
BteEVE1*        agttgggagagcaatcttttaatttgtatgataatgttatcaagatgtggttagttaagg
BigEVE1a*       agttgggagagcaatcttttaatttgtatgataatgttatcaagatgtggttagttaagg
BigEVE1b*       agttgggagagcaatcttttaatttgtatgataatgttatcaagatgtggttagttaagg
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BteEVE1*        atggtgatctgaggaagtatatgtttggttatgtgaaggatgattatgttaaatttgatg
BigEVE1a*       atggtgatctgaggaagtatatgtttggttatgtgaaggatgattatgttaaatttgatg
BigEVE1b*       atggtgatctgaggaagtatatgtttgattatgtgaaggatgattatgttaaatttgatg
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BteEVE1*        aaaagaaccaacgtttggatacagaatttagatatattttggtttcacgtagaacggaag
BigEVE1a*       aaaagaaccaacgttttgatacagaatttagatatattttggtttcacgtagaacgaaag
BigEVE1b*       aaaagaaccaacgttttgatacagaatttagatatattttggtttcacgtagaacgaaag
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BigEVE1a*       ttatgctgaatcaacggatttcagataacattagaaatattgacgtatccactgttccgt
BigEVE1b*       ttatgctgaatcaacggatttcagataacattagaaatattgacgtatccactgttccgt
                ************************************************************

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BteEVE1*        tgcctaatattgtttgggttaacggaccgcttggttgcggaaagacatcgcatttaaaac
BigEVE1a*       tgctgaatattgtttgggtgaacggaccgttagggtgcggaaagataacgcatttaatac
BigEVE1b*       tgctgaatattgtttgcgttaacggaccgctagtgtgcggaaagataacgcatttaatac
                ***. *********** ** *********.* *  **********.* ********* **

BteEVE1         atcagtttgttgtacctgtttacctcagagacgatgatataattctaactatgacgaagg
BteEVE1*        atcagtttgttgtacctgtttacctcagagacgatgatataattctaactatgacgaagg
BigEVE1a*       atcagtttgttgtacctgtttacctcagagacgatgatataattctaactatgacgaagg
BigEVE1b*       atcagtttgttgtacctgtttatctcagagacgatgatataattctaactatgacgaagg
                *********************.**************************************

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BteEVE1*        aagagccgaaggaaatacgtgacaagttgataagaaggtacccgacggtgtcagaaaaaa
BigEVE1a*       aagagccgaaggaaatacatgacaagttgataagaaggtacccgacggtgtcagaaaaaa
BigEVE1b*       aagagccgaaggaaatacatgacaagttgataagaaggtacccgacggtgtcagaaaaaa
                ******************.*****************************************

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BigEVE1a*       tctgaacgcgtgatgtcagaacggctgcgtcggtattggtaaatggtgtgaaggaagagt
BigEVE1b*       tctgaacacgtgatgtcagaacggctgcgtcggtattggtaaatggtgtgaaggaagagt
                * *****.*****.**********.****************************** ****

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BteEVE1*        attcacgccgggacgattgggtttttgaatgcttcaacatccgcatcggaagtgtatatg
BigEVE1a*       attcacaccgggacgattgggtttttgaatgcttcaacatccgcatcggaagtgtatatg
BigEVE1b*       attcacaccgggacgattgggtttttgaatgcttcaacatccgcatcggaagtgtatatg
                ******.*****************************************************

BteEVE1         attggtgatgtgaatcagatttcgtatatcgatagagaccaaatatgtccaattagatat
BteEVE1*        attggtgatgtgaatcagatttcgtatatcgatagagaccaaatatgtccaattagatat
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BigEVE1b*       attggtgatgtgattcagatttcgtatatcgacagagaccaaatatgtccaattagatat
                ************* ******************.***************************

BteEVE1         tcgaagccgtcgtcgatcgctagggtgacgcagtcttagaaatgttcgtattgatgtccg
BteEVE1*        tcgaagccgtcgtcgatcgctagggtgacgcagtcttagaaatgttcgtattgatgtccg
BigEVE1a*       tcgaagccgtcgtcgatcgctagagtgacgcagtcttagaaatgttggtattgatgtccg
BigEVE1b*       tcgaagccgtcgtcgatcgctagagtgacgcagtcttagaaatgttggtattgatgtccg
                ***********************.********************** *************

BteEVE1         attgatatggtttatgccttgatgggtttatgccctataaattttatgatgatctttgca
BteEVE1*        attgatatggtttatgccttgatgggtttatgccctataaattttatgatgatctttgca
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BigEVE1b*       attgatattgtttatgccttgatgggtttatgctccataaattttatgatgatctttgca
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BteEVE1         gtagaaacccgacggtgaagtctctgacttataaaccctttactgaaaacgttactctga
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BigEVE1b*       gtagaaacccgacggtgaagtctctgacttataaaccctttactgaaaacgttactctga
                ************************************************************

BteEVE1         tacctaaggaacttgaaaacactttgtatttggttcgcttgcaagctgataaggagtatt
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BigEVE1a*       tacctacggaacttgaaaacactttgtatttggttcgcttgcaagctgataaggagtctt
BigEVE1b*       tacctatggaacttgaaaacactttgtatttggttcgcttgcaagctgataaggagtctt
                ****** ************************************************** **

BteEVE1         tgatacggcagggttttggagctgcaaaatcttctgaggtattaacagttaacgaagcgc
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BigEVE1a*       tgattcggcagggttttggagctgcaaaatcttctgaggtattaacagttaacgaagcgc
BigEVE1b*       tgattcggcagggttttggagctgcaaaatcttctgaggtattaacagttaacgaagcgc
                **** *******************************************************

BteEVE1         aaagtctcacttttaagcatactgatttaattaggaagaatcccaagcctcttttgatat
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BigEVE1a*       aaagtctcacttttaagcatactgatttaattaggctgaatcccaagcctcttttgatat
BigEVE1b*       aaagtctcacttttaagcatactgatttaattaggatgaatcccaagcctcttttgatat
                ***********************************  ***********************

BteEVE1         acgataaagtagaatattcaataattgccgtatcgcgccatactgagacttttgtgtatt
BteEVE1*        acgataaagtagaatattcaataattgccgtatcgcgccatactgagacttttgtgtatt
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Fig. S6. Multiple alignments of the Bombus EVEs (EVE1, VRLS1; EVE2, VRLS2; EVE3, VRLS3+VCLS3, see Fig. 5). The Bombus EVEs and their variants sequenced in this study were labeled with “asterisks” and “a/b”, respectively.

```
BigEVE1a*       acgataaagtagaatactcaataattgccgtatcgcgccatactgagagttttgtgtatt
BigEVE1b*       acgataaagtagaatactcaataattgccgtatcgcgccatactgagagttttgtgtatt
                ****************.******************************* ***********

BteEVE1         acactgatgtacctgtagcggcactcgtcggtaaaattcattacggtttccgtccagtga
BteEVE1*        acactgatgtacctgtagcggcactcgtcggtaaaattcattacggtttccgtccagtga
BigEVE1a*       acgctgatgtacctgtagcggcactcgtcggtaaaattcataacggtttccgtccagtga
BigEVE1b*       acgctgatgtacctgtagcggcactcgtcggtaaaattcataacggtttccgtccagtga
                **.************************************** ******************

BteEVE1         acccgatacacaaaaaatcgtgtttacagatagatgagtttattatagatccgacaacct
BteEVE1*        acccgatacacaaaaaatcgtgtttacagatagatgagtttattatagatccgacaacct
BigEVE1a*       acccgctacacaaaaaatcgtgtttacagatagatgagtttattatagatccgacaactt
BigEVE1b*       acccgctacacaaaaaatcgtgtttacagatagatgagtttattatagatccgacaactt
                ***** ****************************************************.*

BteEVE1         taggcggttaccgaaggttaatcaaaatcc---------gtcgtgatcatatgccctcga
BteEVE1*        taggcggttaccgaaggttaatcaaaatcc---------gtcgtgatcatatgccctcga
BigEVE1a*       taggcggttatcgaaggttaatgaaaatccgtcgtttttgtcgtgatcatatgccctcga
BigEVE1b*       taggcggttatcgaaggttaatcaatatccgtcgtttttgtcgtgatcatatgccctcga
                **********.*********** ** ****         *********************

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BteEVE1*        gtcagctacccgaaaggccaacaattgtaaacaaggtcgagagtttagcgtccgttggga
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BigEVE1b*       gtcagctacccgaaaagccaacaattgtaaacaaggtcgagagtttcgagcccaacgcct
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BteEVE1         tgttttgagaacatcttcaaaattcaaatcccaacgccttttgtcaa
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BigEVE1a*       tttgtcaa---------------------------------------
BigEVE1b*       tttgtcaa---------------------------------------
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CLUSTAL format alignment by MAFFT (v7.310)


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BigEVE2a*       ggtatggcgcggcaacgtgaaacagcacgtttcccgctagcagaaactgcggagagtcgt
BigEVE2b*       ggtatggcgcggcaacgtgaaacagcacgtttcccgctagcagaaactgcggagagtcgt
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BigEVE2a*       ccactgctgctctgcttcacaactaagccataaatttattcttcgccacgctcattcctg
BigEVE2b*       ccactgctgctctgcttcacaactaagccataaatttattcttcgccacgctcattcctg
                ******************.*****************************************

BtEVE2          tctatcgataaattgtaaatagcttggcatgggtatgtcaaatttaacgagaaattaggt
BteEVE2a*       tctatcgataaattgtaaatagcttggcatgggtatgtcaaatttaacgagaaattaggt
BteEVE2b*       tctatcgataaattgtaaatagcttggcatgggtatgtcaaatttaacgagaaattaggt
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BigEVE2a*       tctatcgataaattgtaaatagcttgacatgggtatgccaaatttaacgagaaattaggt
BigEVE2b*       tctatcgataaattgtaaatagcttgacatgggtatgccaaatttaacgagaaattaggt
                **************************.**********.**********************

BtEVE2          cggtttgaaacggataataagtatgtgttggtttctcggaaaaccgaaattaagttgcat
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BteEVE2b*       cggtttgaaacggataataagtatgtgttggtttctcggaaaaccgaaattaagttgaat
BhyEVE2*        cggtttgaaacggataataggtatgtgttggtttctcggaaaaccgaaattacgttgaat
BigEVE2a*       cggtttgaaacggataataggtatgtgttggtttctcggaaaaccgaaattacgttgaat
BigEVE2b*       cggtttgaaacggataataggtatgtgttggtttctcggaaaaccgaaattacgttgaat
                *******************.******************************** **** **

BtEVE2          cagcaaatatatgataagattaagactatagacgtttctgccgttgttgtacccaataca
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BteEVE2b*       cagcaaatatatgataagattaagactatagacgtttctgccgttgttgtacccaataca
BhyEVE2*        cagcaaatatatgataagattaagactatagacgtttctgccgttgttatacccaataca
BigEVE2a*       cagcaaatatatgataagattaagactatagacgtttctgccgttgttatgcccaataca
BigEVE2b*       cagcaaatatatgataagattaagactatagacgtttctgccgttgttatgcccaataca
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BteEVE2a*       atctgggtgaatggcgcaccggtttgtggaaaggctactcatttaattagtcagttttca
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BigEVE2b*       atctgggtgaatggctcaacgggttgtgggaggactactcatttaattagtcagttttca
                *************** ** *** ******.*.*.**************************

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BigEVE2a*       atggctgttttccctgaactgagtgatattatattgactatgacgaaggaggaagctaag
BigEVE2b*       atggctgttttccctgaactgagtgatattatattgactatgacgaaggaggaagctaag
                *********.******************************************.*******

BtEVE2          gaaatacgaggacgattgtctcggagacaccccgaagtatcgcaaaagatttggt---tg
```

```
BteEVE2a*       gaaatacgaggacgattgtctcggagacaccccgaagtatcgcaaaagatttggt---tg
BteEVE2b*       gaaatacgaggacgattgtctcggagacaccccgaagtatcgcaaaagatttggt---tg
BhyEVE2*        gaaatacgaggacgattgtctcggagacaccccgaagtatcgcaaaagatttggt---tg
BigEVE2a*       gaaatacgaggacgattgtctcggagacaccccgaagtatcgcaaaagatttggttgatg
BigEVE2b*       gaaatacgaggacgattgtctcggagacaccccgaagtatcgcaaaagatttggt---tg
                *******************************************************   **

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BteEVE2b*       cgtgatgttcgaactgttgcatctgttttggttaatggcgcgaaggagaagtatgatgga
BhyEVE2*        cgtgatgttcgaactgttgcatctgttttggttaatggtgcgaaggagaagtatgatgga
BigEVE2a*       ttcgatgttcgaactgttgcatctgttttggttaatgatgtgaaggagaagtatgacgga
BigEVE2b*       cgcgatgttcgaactgttgcatctgttttggttaatgatgtgaaggagaagtatgacgga
                . .************************.*********..*.***************.***

BtEVE2          gtatttatagacgaggctattggttttgtggcggtgttgacatctgtttcgcaggtgtac
BteEVE2a*       gtatttatagacgaggctattggttttgtggcggtgttgacatctgtttcgcaggtgtac
BteEVE2b*       gtatttatagacgaggctattggttttgtggcggtgttgacatctgtttcgcaggtgtac
BhyEVE2*        gtatttatagacgaggctgttggttttgtggcggtgttgacatctgtttcggaggtgtac
BigEVE2a*       gtatttatagtcgaggctattggttttgtggcggtgttgacatctgtttcggaggtgtac
BigEVE2b*       gtatttatagtcgaggctattggttttgtggcggtgttgacatctgtttcggaggtgtac
                ********** *******.******************************** ********

BtEVE2          atgatcggagatgttgatcagatcccgcatattgatcgggatcagatctgcccgataagt
BteEVE2a*       atgatcggagatgttgatcagatcccgtacattgatcgggatcagatctgcccgataagt
BteEVE2b*       atgatcggagatgttgatcagatcccgtacattgatcgggatcagatctgcccgataagt
BhyEVE2*        atgatcggagatgttgatcagatcccgtacattgatcgggatcagatctgcccgataagt
BigEVE2a*       atgatcggagatgttgatcagatcccgtacgttgatcgggatcagatctgcccgataagt
BigEVE2b*       atgatcggagatgttgatcagatcccgtacattgatcgggatcagatctgcccgataagt
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BtEVE2          tattcccagctctcttcgttttccaaggtagctaggactttaaaatgttcgtacaggtgt
BteEVE2a*       tattccaagctctcttcgttttccaaggtagctaggactttaaaatgttcgtacaggtgt
BteEVE2b*       tattccaagctctcttcgttttccaaggtagctaggactttaaaatgttcgtacaggtgt
BhyEVE2*        tattcccagccctcttcgttttccaaggtaactaggactttaaaatgttcgtacaggtgc
BigEVE2a*       tattcccagccctcttcgttttccaaggtaactaggactttaaaatgttcgtacaggcgt
BigEVE2b*       tattcccagccctcttcgytttccaaggtaactaggactttaaaatgttcgtacaggcgt
                ****** ***.******* ***********.**************************.*.

BtEVE2          cc-tcttgatgttgcctatacttttcatagatgttacgatggattgtatagtaaaaacga
BteEVE2a*       cc-tcttgatgttgcctatacttttcatagatgttatgatggattgtatagtaaaaacga
BteEVE2b*       cc-tcttgatgttgcctatacttttcatagatgttatgatggattgtatagtaaaaacga
BhyEVE2*        cc-tgttgatgttgcgtatgctttgcatagatgttatgatggattgtatagtaaaaacga
BigEVE2a*       ccttcttgatgttgtgtatacttttcatagatgttatgatggattgtatagtaaaa----
BigEVE2b*       ccttcttgatgttgtgtatacttttcatagatgttatgatggattgtatagtaaaa----
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BtEVE2          gacaataaaatcggtgtcttataagccttatacggataatgttactgttatttcaaaaag
BteEVE2a*       gacaataaaatcggtgtctcataagccttattcggataatgttactgttatttcaaaaag
BteEVE2b*       gacaataaaatcggtgtctcataagccttattcggataatgttactgttatttcaaaaag
BhyEVE2*        gacaataaaatcggtgtcttataagccttatacggataatgttactgttatttcaaaaag
BigEVE2a*       -acaataaaatcggtgtcttataagccttatacgaataatgttactgttatttcaaaaag
BigEVE2b*       -acaataaaatcggtgtcttataagccttatacgaataatgttactgttatttcaaaaag
                 ******************.*********** **.*************************

BtEVE2          tatggacaataccttatatttagttcatttgcaagcggataaagaatatctgattagaca
BteEVE2a*       tatggacaataccttatatttagttcatttgcaagcggataaagaatatctgattagaca
BteEVE2b*       tatggacaataccttatatttagttcatttgcaagcgggtaaagaatatctgattagacg
BhyEVE2*        tatggacaatactttatatttagttcatttgcaagcggataaagaatatctgattagaca
BigEVE2a*       tatggacaataccttatatttagttcatttgcaagcggataaagaatatctgattagaca
BigEVE2b*       tatggacaataccttatatttagttcatttgcaagcggataaagaatatctgattagaca
                ************.************************.*********************.

BtEVE2          a-ggttatggaatagccactacatctaaggcgttgactataaatgaggcgcagggtctga
BteEVE2a*       agggttatggagtagccactacatctaaggcgttgactataaatgaggcgcagggtctga
BteEVE2b*       a-ggttatggagtagccactacatctagggcgttgactataaatgaggcgcagggtctga
BhyEVE2*        a-ggttatggagtagccactacatctagggtgttgactatcaatgaggcgcagggtctga
BigEVE2a*       a-ggttatggagcagccactacatctagggtgttgactatcaatgaggcgcagggtctga
BigEVE2b*       a-ggttatggagcagccactacatctagggtgttgactatcaatgaggcgctgggtctga
                * *********..**************.**.********* ********** ********

BtEVE2          ctttccagcatactgtgttgattaggatgaactctaaaccgttgtt-------gataaaa
BteEVE2a*       ctttccagcatactgtgttgattaggatgaactctaaaccgttgtt-------gataaaa
BteEVE2b*       ctttccagcatactgtgttgattaggatgaactctaaaccgttgtt-------gataaaa
BhyEVE2*        ctttccagtatactgtgttgattaggatgaactctaaaccgttgtt-------gataaaa
BigEVE2a*       ctttccagcatactgtgttgattaggatgaactctaaaccgttgttgatatacgataaaa
BigEVE2b*       ctttccagcatactgtgttgattaggatgaactctaaaccgttgttgatatacgataaaa
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BtEVE2          tagaattttcaatagtcgccatctcacgtcatacacattcgtttgtgtattatactgatg
BteEVE2a*       tagaattttcaatagtcgccatctcacgtcatacacattcgtttgtgtattatactgatg
BteEVE2b*       tagaattttcaatagtcgccatctcacgtcatacacattcgtttgtatattatactgatg
BhyEVE2*        tagaattttcaatagtcgccatctcacgtcatacacattcgtttgtgtattatactgatg
BigEVE2a*       tagaattttcaatagtcgccatctcacgtcatacacattcgtttg-----tatatcgatg
BigEVE2b*       tagaattttcaatagtcgccatctcacgtcatacacattcgtttg-----tatatcgatg
                *********************************************     ****..****

BtEVE2          tatctgatgcgactttgtctctcgttgggtcggtttcgtcgatggacgaccaaactttga
BteEVE2a*       tatctgatgcgactttgtctctcgttgagtcggtttcgtcgatggacgaccaaactttga
BteEVE2b*       tatctgatgcgactttgtctctcgttgggtcggtttcgtcgatggacgaccaaactttga
BhyEVE2*        tatctgatgcgactttgtctctcgttgggtcggtttcgtcgatggacgaccaagctttga
BigEVE2a*       tatctgatgcgactttgtctctcgttgggtcggtttcgtcgatggacgaccaagctttga
BigEVE2b*       tatctgatgcgactttgtctctcgttgggtcggtttcgtcgatggacgaccaagctttga
                ***************************.*************************.******

BtEVE2          ctctgatcaatctgataagagagatggaggacaaatcagttgggggggactattttccgg
BteEVE2a*       ctctgatcaatctgataagagagatggaggacaaatcagttgggggggactattttccgg
BteEVE2b*       ctctgatcaatctgataagagagatggaggacaaatcaattgggggggactattttccgg
BhyEVE2*        ctctgatcaatctgataagagagatggaggacaaatcagttgggggggactattttccgg
BigEVE2a*       ctctgatcaatctgataagagagatggaggacaaatcagtttgggggggactattttccgg
BigEVE2b*       ctctgatcaatctgataagagagatggaggacaaatcagttt-gggggactattttccgg
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BtEVE2          aagatatatcgatgcggcctgactctcatgcgttcttttatgaagagccattgttgagtg
BteEVE2a*       aagatatatcgatgcggcctgactctcatgcgttcttttatgaagagccattgttgagtg
BteEVE2b*       aagatatatcgatgctgcctgactctcatgcgttcttttatgaagagccattgttgagtg
BhyEVE2*        aagatatatcgatgctgcttgactctcatgcgttcttttatgaagagccattgttgagtg
BigEVE2a*       aagatatatcgatgctgcctgactctcatgcgttcttttatgaagagccattgttgagtg
BigEVE2b*       aagatatatcgatgctgcctgactctcatgcgttcttttatgaagagccattgttgagtg
                *************** **.*****************************************

BtEVE2          taccgcatgcatcgcattcgttattaagacctaaatcggcgggcgtttagttgtctaatg
BteEVE2a*       tgccgcatgcatcgcattcgttattaagacctaaatcggcgggcgtttagttgtctaatg
BteEVE2b*       taccgcatgcatcgcattcgttattaagacctaaatcggcgggcgtctagttgtctaatg
BhyEVE2*        taccgcatgcatcgcattcgttattaagacctaaatcggcgggcgtctagttgtctaatg
BigEVE2a*       taccgcatgcatggcattcgttattaagacctaaatcggcgggcgtctagttgtctaatg
BigEVE2b*       taccgcatgcatggcattcgttattaagacctaaatcggcgggcgtctagttgtctaatg
                *.********** *********************************.*************

BtEVE2          agttaaaggatcgaccgtgggaggaaccttgtcattctgaagatat---acacttgcaat
BteEVE2a*       agttgtcccatcgaccgtgggaggaaccttgtcattctgaagatat---acacttgcaat
BteEVE2b*       agttgtcccatcgaccgtgggaggaaccttgtcattctgaagatat---acacttgcaat
BhyEVE2*        agttaaaggatcgaccgtgagaggaatcttgttattctgaagatattacacacttgcaat
BigEVE2a*       agttaaaggatcgaccgtgggaggaaccttgtcattctgaagatatcagacacttgcgat
BigEVE2b*       agttaaaggatcgaccgtgggaggaaccttgtcattctgaagatatcagacacttgcgat
                ****.    **********.******.*****.*************   ********.**

BtEVE2          tacggtatggcgataagtttgccagggttgcctgtaatgaatttgagaatactcaatcga
BteEVE2a*       tacggtatggcgataagtttgccagggttgcctgtaatgaatttgagaatactcaatcga
BteEVE2b*       tacgatatgacgttaagtttgccagggttgcctgtaatgaatttgagaatactcaatcga
BhyEVE2*        tacggtatgacgataagtttgccagggttgcctgtaatgaatttgagaatactcaatcga
BigEVE2a*       tatggtatgacgataagtttgccgggattgcctgtaatgaatttgagaatactcaatcga
BigEVE2b*       tatggtatgacgataagtttgccgggattgcctgtaatgaatttgagaatactcaatcga
                **.*.****.** **********.**.*********************************

BtEVE2          tggcggaaatgtcggacatacagctgtttacgggtagtattactgttgatccggtaaaag
BteEVE2a*       tggcggaaatgtcggacatacagctgtttacgggtagtattactgttgatccggtaaaag
BteEVE2b*       tggcggaaatgtcggacatacagctgtttacgggtagtattactgttgatccggtaaaag
BhyEVE2*        tggcggaattgtcggacatacagctgtttacgggtagtattactgttgatccggtaaaag
BigEVE2a*       tggcggaattgtcggacatacagctgtttacgggtagtattattgttgatccggtaaaag
BigEVE2b*       tggcggaattgtcggacatacagctgtttacgggtagtattattgttgatccggtaaaag
                ******** *********************************.*****************

BtEVE2          gtgcaataaagcaatcgaaatttgatcgtttacgcccggttttacgaacgatgataccgc
BteEVE2a*       gtgcaataaagcaatcgaaatttgatcgtttacgcccggttttacgaacgatgataccgc
BteEVE2b*       gtgcaataaagcaatcgaaatttgatcgtttacgcccggttttacgaacgatgataccgc
BhyEVE2*        gtgtaataaagcaatcgaaatttgatcgtttacgcccggttttacgaacgatgataccgc
BigEVE2a*       atgtgataaagcaatcgaaatttgatcgtttacgcccggttttacgaacgatgataccgc
BigEVE2b*       atgtgataaagcaatcgaaatttgatcgtttacgcccggttttacgaacgatgataccgc
                .**..*******************************************************

BtEVE2          cggatcgtttaccttcacaatcagaatcgttgttgggagcgattaaatggaatttgaatg
BteEVE2a*       cggatcgtttaccttcacaatcagaatcgttgttgggagcgattaaatggaatttgaatg
BteEVE2b*       cggatcgtttaccttcacaatcagaatcgttgttgggagcgattaaatggaatttgaatg
BhyEVE2*        cggatcgtttaccttcacaatcagaatcgttgttgggggcgattaaatggaatttgaatg
BigEVE2a*       cggatcgtttaccttcacaatcagaatcgttgttgggagcgattaaatggaatttgagtg
BigEVE2b*       cggatcgtttaccttcacaatcagaatcgttgttgggagcgattaaatggaatttgagtg
                *************************************.*******************.**

BtEVE2          ccccagaattttgtgaattccgcgattcctatagaaaaccgttccatgtttgatagtttc
BteEVE2a*       ccccagaattttgtgaattccgcgattcctatagaaaaccgttccatgtttgatagtttc
BteEVE2b*       ccccagaattttgtgaattccgcgattcctatagaaaaccgttccatgtttgatagcttc
BhyEVE2*        ccccagaattttgtgaattccacgattcctatagaaaaccgttccatgtttgatagtttc
BigEVE2a*       ccccagaattttgtgaattccgcgattcctatagaaaaccgttccatgtttgatagtttc
BigEVE2b*       ccccagaattttgtgaattccgcgattcctatagaaaaccgttccatgtttgatagtttc
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BtEVE2          agggataacccgatcgaatcgaatgctcagatagttgatgcgtggttggctaaacagcct
BteEVE2a*       agggataacccgatcgaatcgaatgctcagatagttgatgcgtggttggctaaacagcct
BteEVE2b*       agggataacccgatcgaatcgaatgctcagatagttgatgcgtggttggctaaacagcct
BhyEVE2*        agggataacccgattgaatcgaatgctcagatagttgatgcgtggttggctaaacagcct
BigEVE2a*       agggataacccgattgaatcgaatgctcagatagttgatgcgtggttggctaaacagcct
BigEVE2b*       agggataacccgattgaatcgaatgctcagatagttgatgcgtggttggctaaacagcct
                **************.*********************************************

BtEVE2          cccgccgtgcgaaagaatgccgtgagtgatgtgccgttgcacctgcggccttttaatcga
BteEVE2a*       cccgccgtgcgaaagaatgccgtgagtgatgtgccgttgcacctgcggccttttaatcga
BteEVE2b*       cccgccgtgcgaaagaatgccgtgagtgatgtgccgttgcacctgcggccttttaatcga
BhyEVE2*        cccgccgtgcgaaagaatgccgtgagtgatgtgccgttgcacctgcggccttttaatcga
BigEVE2a*       cccgccgtgcgaaagaatgccgtgaacgatgtgccgttgcacctgcggccttttaatcaa
BigEVE2b*       cccgccgtgcgaaagaatgccgtgagcgatgtgccgttgcacctgcggccttttaatcaa
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BtEVE2          tataattatatgataaaatcgaagataaaaccacctttggaaataagtgccgctttaaag
BteEVE2a*       tataattatatgataaaatcgaagataaaaccacctttggaaataagtgccgctttaaag
BteEVE2b*       tataattatatgataaaatcgaagataaaaccacctttggaaataagtgccgctttaaag
BhyEVE2*        tataattatatgataaaatcaaagataaaaccacctttggaaataagtgccgctttaaag
BigEVE2a*       tataattatatgataaaatcgaagataaaaccacctttggaaataagtgccgctttaaa-
BigEVE2b*       tataattatatgataaaatcgaagataaaaccacctttggaaataagtgccgctttaaa-
                ********************.**************************************

BtEVE2          tatgctagtgtccagactatagcttactatgcaaaaagtttcaatgttatttttcgtcct
BteEVE2a*       tatgctagtgtccagactacagcttactatgcaaaaagtttgaatgttatttttcgtcct
BteEVE2b*       tatgctagtgtccagactacagcttactatgcaaaaagtttgaatgttatttttcgtcct
BhyEVE2*        tatgctagtgtccagactatagcttactatgaaaaaagtttgaatgttatttttcgtcct
BigEVE2a*       ------------------------------------------------------------
BigEVE2b*       ------------------------------------------------------------


BtEVE2          gctcttaatttgatctccgagcgattattgtctgctattgacaacaaaattctggttttg
BteEVE2a*       gctcttaatttgatctccgagcgattattgtctgctattgacaacaaaattctggttttg
BteEVE2b*       gctcttaatttgatctccgagcgattattgtctgctattgacaacaaaattctggttttg
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BhyEVE2*        gctcttaatttgatctccgagcgattattgtctgttattgacaacaaaattttggttttg
BigEVE2a*       ------------------------------------------------------------
BigEVE2b*       ------------------------------------------------------------


BtEVE2          actaatatgtcaaatgttgaatttcaacgtgaaattaataaacgtacgaattcttttcaa
BteEVE2a*       actaatatgtcaaatgttgaatttcaacgtgaaattaataaacgtacgaattcttttcaa
BteEVE2b*       actaatatgtcaaatgttgaatttcaacgtgaaattaataaacgtacgaattcttttcaa
BhyEVE2*        actaatatgtcaaatgttgaatttcaacgtgaaattaataaacgtacgaattcttttcaa
BigEVE2a*       ------------------------------------------------------------
BigEVE2b*       ------------------------------------------------------------


BtEVE2          gtgacgatgatgcgacaagtcgaaaacgacatgtctaagtatgataaagcacaaggcgag
BteEVE2a*       gtgacgatgatgcgacaggtcgaaaacgacatgtctaagtatgataaagcacaaggcgag
BteEVE2b*       gtgacgatgatgcgacaggtcgaaaacgacatgtctaagtatgataaagcacaaggcgag
BhyEVE2*        gtgacgatgatgcgacaggtcgaaaacgacatgtctaagtatgataaagcacaaggcgag
BigEVE2a*       ------------------------------------------------------------
BigEVE2b*       ------------------------------------------------------------


BtEVE2          gtgttgcggtatttagagtctgagttgttatttttgttgggtttccctgaggatctattc
BteEVE2a*       gtgttgcggtatttagagtctgagttgttatttttgttgggtttccctgaggatttattc
BteEVE2b*       gtgttgcggtatttagagtctgagttgttatttttgttgggtttccctgaggatttattc
BhyEVE2*        gtgttgcggtatttagagtctgagttgttatttttgttgggtttccctgaggatttattc
BigEVE2a*       --------gtatttagagtctgagttgttgtttttgttgggtttccctgaggatttattc
BigEVE2b*       --------gtatttagagtctgagttgttatttttgttgggtttccctgaggatttattc
                        *********************.************************.*****

BtEVE2          gagatatggaagaattcgcacgtgaagtcggt-----------gagaaatgaatgagaaa
BteEVE2a*       gagatatggaagaattcgcacgtgaagtcggtgttgcgtgataggcaaacggctgagaaa
BteEVE2b*       gagatatggaagaattcgcacgtgaagtcggtgttgcgtgataggcaaacggctgagaaa
BhyEVE2*        gagatatggaagaattcgcacgtgaagtcggtgttgcgtgataggcaaacggctgagaaa
BigEVE2a*       gagatatggaagaattcgcacgtgaagtcggtgttgcgtgataggcaaacggctgagaaa
BigEVE2b*       gagatatggaagaattcgcacgtgaagtcggtgttgcgtgataggcaaacggctgagaaa
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BtEVE2          tttgaaacgaattatcagcgtaagtcaggggatgctagtacctttttttggtaatactta
BteEVE2a*       tttgaaacgaattatcagcgtaagtcaggggatgttagtacctttttttggtaatactta
BteEVE2b*       tttgaaacgrattatcagcgtragtcaggggatgytagtacctttttttggtratactta
BhyEVE2*        tttgaaacgaattatcagcgtaagtcaggggatgctagtacctttttttggtaatactta
BigEVE2a*       tttgaaacgaattatcagcgtaagtcaggggatgctagtacctttttttggtaatactta
BigEVE2b*       tttgaaacgaattatcagcgtaagtcaggggatgctagtacctttttttggtaatactta
                ********* *********** ************ **************** ********

BtEVE2          gttttgatggatgtattgttatctcgtcatgatatcaatagtattaatctacttttggct
BteEVE2a*       gttttgatggatgtattgttatctcgtcatgatatcaatagtattaatctacttttggct
BteEVE2b*       gttttgatggatgtattgttatctcgtcatgatatcaatagtattaatctacttttggct
BhyEVE2*        gttttgatggatgtattgttatctcgtcatgatatcaatagtattaatctacttttggct
BigEVE2a*       gttttgatggatgtattgttatctcgttatgatatcaatagtattagtctacttttggct
BigEVE2b*       gttttgatggatgtgttgttatctcgttatgatatcaatagtattagtctacttttggct
                **************.************.******************.*************

BtEVE2          gcgggagatgagtcggttattttctttaaacctggagttactgcgaattatgattcgtcg
BteEVE2a*       gctga-----------------tctttaaacctggagttactgcgaattatgattcgtcg
BteEVE2b*       gctga-----------------tctttaaacctggagttactgcgaattatgattcgtcg
BhyEVE2*        gcgggagatgagtcggttattttctttaaacctggagttactgcgaattatgattcgtcg
BigEVE2a*       gcgggagatgattcggttattttctttaaacctggagttactgcgaattatgattcgtcg
BigEVE2b*       gcgggagatgattcggttattttctttaaacctggagttactgcgaattatgattcgtcg
                ** *.                 **************************************

BtEVE2          tctagaccagtttaatttggaaagcaagttgatgactaggtactcagtaccttattttttg
BteEVE2a*       tctagaccagtttaatttggaaagcaagttgatgactaggtactcagtaccttattttttg
BteEVE2b*       tctagaccagtttaatttggaaagcaagttgatgactaggtactcagtaccttattttttg
BhyEVE2*        tctagacccgtttaatttggaaagcaagttgatgactaggtactcagtaccttattttttg
BigEVE2a*       tctagacccgtttaatttggaaagcaagttgatgactaggtactcagtaccttattttttg
BigEVE2b*       tctagacccgtttaatttggaaagcaagttgatgactaggtactcagtaccttattttttg
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BtEVE2          ttcgaaatttattgcggtgaatgaggatcggatttattttgttccggatcctgttaaatt
BteEVE2a*       ttcgaaatttattgcggtgaatgaggatcggatttattttgttccggaacctgttaaatt
BteEVE2b*       ttcgaaatttattgcggtgaatgaggatcggatttattttgttccggaacctgttaaatt
BhyEVE2*        ttcgaaatttattgtggtgaatgaggatcggatttattttgttccggatcctgttaaatt
BigEVE2a*       ctcgaaatttattgtggtgaacgaggatcggatttattttgttccggatcctgttaaatt
BigEVE2b*       ctcgaaatttattgtggtgaacgaggatcggatttattttgttccggatcctgttaaatt
                .*************.******.************************** ***********

BtEVE2          cttaacgaaattaggccgtagagatatggcaaattacgatcatgcagaagactatcgcat
BteEVE2a*       tttaacgaaattaggccgtagagatatggcaaattacgatcatgcagaagactatcgcat
BteEVE2b*       tttaacgaaattaggccgtagagatatggcaaattacgatcatgcagaagactatcgcat
BhyEVE2*        tttaacgaaattaggccgtagagatatggcaaattacgatcatgcagaagactatcgcat
BigEVE2a*       tttaacgaagttaggccgtagagatgtggcaaattacgatcatgcagaagactatcgcat
BigEVE2b*       tttaacgaagttaggccgtagagatgtggcaaattacgatcatgcagaagactatcgcat
                .********.***************.**********************************

BtEVE2          ttcatgtgccaatatgatttctccttcgtttaataacaggattcatagtaaattatctgt
BteEVE2a*       ttcatgtgccaatatgatttctccttcgtttaataacaggattcatagtaaattatctgt
BteEVE2b*       ttcatgtgccaatatgatttctccttcgtttaataacaggattcatagtaaattatctgt
BhyEVE2*        ttcatgtgccaatatgatttctccttcgtttagtaacaggattcatagtaaattatctgt
BigEVE2a*       ttcacgtgtcaatatgatttctccttcgtttaataacaggatttatggtaaattatctgt
BigEVE2b*       ttcacgtgtcaatatgatttctccttcgtttaataacaggatttatggtaaattatctgt
                ****.***.***********************.**********.**.*************

BtEVE2          gg-tgtagctgaaaggtataagggttctattaacgatgttcaaaattaatttctaaatag
BteEVE2a*       gg-tgtagctgaaaggtataagggttctattaacgatgttcaaaattaatttctaaatag
BteEVE2b*       gg-tgtagctgaaaggtataagggttctattaacgatgttcaaaattaatttctaaatag
BhyEVE2*        ggttgtagctgaaaggtataagggttttattaacgatgttcaaaattaatttctaaatag
BigEVE2a*       gcgtgtagctgaaaggtataagggttctgttaacgatgttcaaaattaatttctaaatag
BigEVE2b*       gcgtgtagctgaaaggtataagggttctattaacgatgttcaaaattaatttctaaatag
                *  ***********************.*.*******************************
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BtEVE2          cttggcaactatccctttaaaaattcatacatttcgtcctttg
BteEVE2a*       cttggcaactatcccttcaaaaattcatacatttcgtcctttg
BteEVE2b*       cttggcaactatcccttcaaaaattcatacatttcgtcctttg
BhyEVE2*        cttggcaactatcccttcaaaaattcatacatttcgtcctttg
BigEVE2a*       cttggcaactatcccttcaagaattcatacatttcgtcctttg
BigEVE2b*       cttggcaactatcccttcaagaattcatacatttcgtcctttg
                *****************.**.**********************




BteEVE3         ctactgagtaataacatggtttccgtgatgttcttggatgcgcgtgtgggcggtttgggg
BteEVE3*        ctactgagtaataacatggtttccgtgaygttcttggatgcgcgtgatggcggtttgggg
BhyEVE3*        ------------------------------------------------ggcggtttgggg
BigEVE3*        ------------------------------------------------ggcggtttgggg
                                                                ************

BteEVE3         gataatgacgatcaagctatctgcgtgaatcaggggatggtcacttacgttcatttatgc
BteEVE3*        gataatgacgatcaagctatctgcgtgaatcaggggatggtcacttacgttcatttatgc
BhyEVE3*        gataatgacgatcaagctatctgcttgaatcaggggatggtcacttacgctcatttatgc
BigEVE3*        gataatgacgatcaagctatctgcgtgaatcaggggatggtcacttacgctcatttatgc
                ************************ ************************.**********

BteEVE3         gagacggaaggtcttaacctagaaacggcgctcgcggatgcttcaaaaagacacatacag
BteEVE3*        gagacggaaggtcttaacctggaaacggcgctcgcggatgcttcaaaaagacacatacag
BhyEVE3*        gagacggaaggtcttaacctggaaacggcgcaggcggatacttcaaaaagacacatacag
BigEVE3*        tagacggaaggtcttaacctggaaacggcgctcgcggatgcttcaaaaagacacatacag
                 *******************.**********  ******.********************

BteEVE3         tagagtgtacttgatagagagaaataacatcagatgaggtaacatgtttatcaagattac
BteEVE3*        tagagtgtacttgatagagagaaataacatcagatgaggtaacatgtttatcaagattac
BhyEVE3*        tagagtgtacttgatagagagaaataacatcagatgtggtaacatgtttatcaagattac
BigEVE3*        tagagtgcacttgatagagagaaataacatcagatgtggtaacatgtttatcaagtttac
                *******.**************************** ****************** ****

BteEVE3         gtattatagggtatcgccaatgacgaaacaattgaacgccgggtttggatactggactgg
BteEVE3*        gtattatagggtatcgccaatgacgaaacaattgaacgccgggtttggatactggactgg
BhyEVE3*        gtattatatggtatcgccaatgacgaaacaattgaacgccgggtttggatactggactgg
BigEVE3*        gtattatagggtatcgctaatgacgaaacaattgaacgccggatttggatactggactgg
                ******** ********.************************.*****************

BteEVE3         tgacacgactgtgtctgtcatcgctacatgggacagtagtcccactctgactctttttct
BteEVE3*        tgacacgactgtgtctgtcatcgctacatgggacagtagtcccactctgactctttttct
BhyEVE3*        tgacacgactgtgtctgtcatcgctacatgggacagtagtcccactctgactctttttct
BigEVE3*        tggcacgactgtgactgtcatcgctacatgggacagtagtcccactctgactctttttct
                **.********** **********************************************

BteEVE3         tttttcagaaagtaaatttaaaacgcgtgataacccggttgttagttttaccaggaaata
BteEVE3*        tttttcagaaagtaaatttaaaacgcgtgataacccggttgttagttttaccaggaaata
BhyEVE3*        ttttccagaaagtaaatttaaatcgcgtgataacccggttgttagttttaccaggaaata
BigEVE3*        tttttcagaaagtaaatttaaaacgcgtgataacccggttgttagttttaccaagaaata
                ****.***************** ******************************.******

BteEVE3         tatccaaatagacaatcgattttttgattattgtatggtcactgtttaagatttggtgat
BteEVE3*        tatccaaatagacaatcgattttttgattattgtatggtcactgtttaagatttggtgat
BhyEVE3*        tatccaaatagacaatcgattttttgattattgtatggtcactgtttaagatttggtgat
BigEVE3*        tattcaaatagataatcgattttttgattattatatggtcactgtttaagatttggtgat
                ***.********.*******************.***************************

BteEVE3         cgttcctttaatttaaatgaaattttctcggttgcattgacgttcaatacgcgtatggca
BteEVE3*        cgttcctttaatttaaatgaaattttctcggttgcattgacgttcaatacgcgtatggca
BhyEVE3*        cgttcctttaatttaaatgaaattttcttggctgcgttgacgttcaatacgcgtatggca
BigEVE3*        cgttcctttaatttaaatgaaattttctcggctgcgttgacgttcaatacgcgtatggca
                ****************************.**.***.************************

BteEVE3         ataaacgggaatgacatccgtacattgaacagagttccgtttactgacttgatggatgtg
BteEVE3*        ataaacgggaatgacatccgtacattgaacagagttccgtttactgacttgatggatgtg
BhyEVE3*        ataaacgggaatgacatccgtacattgaacagagttccgtttactgacttgatggatctg
BigEVE3*        ataaacgggaatgacatccgtacattgaacagagttccgtttactgacttgatggatgtg
                ********************************************************* **

BteEVE3         gttgtggcaatttatcgtattgcgtatcgggagaggtatgctgctgggaagaagattgag
BteEVE3*        gttgtggcaatttatcgtattgcgtatcgggagaggtatgctgctgggaagaagattgag
BhyEVE3*        gttgtggtaatttatcgtattgcgtatagggggaggtatgctgctgggaagaagattgag
BigEVE3*        gttgtggcaatttatcgtattgcgtatagggggaggtatgctgctgggaagaagattgag
                *******.******************* ***.****************************

BteEVE3         cggtttgtaaatgatgagaaggaaaagcgggtcctgcgacgggtgggattttcggatgtc
BteEVE3*        cggtttgtaaatgatgagaaggaaaagcgggtcctgcgacgggtgggattttcggatgtc
BhyEVE3*        cggtttgtaaatgatgagaaggaaaagcgggtcc---------tgggattttcggatgcc
BigEVE3*        cggtttgtaaatgatgagaaggaaaaacgggtcc---------tgggattttcggatgcc
                **************************.*******         ***************.*

BteEVE3         acgcgttgtttggtaaagattttcctccgtagttctgttcttgattcttttaaggagtgt
BteEVE3*        acgcgttgtttggtaaagattttcctccgtagttctgttcttgattcttttaaggagtgt
BhyEVE3*        acgcgttgtttggtaaagattttcctccgtagttctgttcttgattcttttaaggagtgt
BigEVE3*        acgcgttgtttggtaaagattttcctccgtagttctgttcttgattcttttaaggagtgt
                ************************************************************

BteEVE3         tggaaccgagtggtggatagttta---------------------------gacgcggat
BteEVE3*        tggaaccgagtggtggatagttta---------------------------gacgcggat
BhyEVE3*        tggaaccgagtggtggatagtttg---------------------------gacgcggac
BigEVE3*        tagaactgagtggtggatagtttggcacaagtgcgagccctttcctctttcgacgcggac
                *.****.****************.                           ********.
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BteEVE3         ttcttcgagagtatacgatgcgttaagatcgaggagttcatggagactaaaggggaatat
BteEVE3*        ttcttcgagagtatacgatgcgttaagatcgaggagttcatggagactaaaggggaatat
BhyEVE3*        ttcttcgagagtatacgacgcgttgagatcgaggagttcatggagactaaaggggaatat
BigEVE3*        ttcttcgagagtatacgatgcgttgagatcgaggagttcatggagattgaaggggaatat
                ******************.*****.*********************.*.***********

BteEVE3         actgttgagtctgagactattaatagtgtcagtactgatactgttgatgtacagatgtgt
BteEVE3*        actgttgagtctgagactattaatagtgtcagtactgatactgttgatgtacagatgtgt
BhyEVE3*        actgttgagtctgagactactaatagtgtcagtactgatactgttgctgtacaaatgcgt
BigEVE3*        actgttgagtctgagattattaatagtgtcagtactgatactgttgatgtacaaatgcgc
                ****************.**.************************** ******.***.*.

BteEVE3         gagggttttcttgatacccttatgaactatacgcgtcggaaatatgtcagtagagacgag
BteEVE3*        gagggttttcttgatacccttgtgaactatacgcgtcggaaatatgtcagtagagacgag
BhyEVE3*        gagggttttcttgataccattatgaactatgcgcgtcggaaatatgtcagtaaagacgag
BigEVE3*        gagggttttcttgatacccttgtgaactatacgcgtcggaaatatgtcagtaaagacgag
                ****************** **.********.*********************.*******

BteEVE3         gaacgagtagggtcgacacgtctgctgcagaaggaggcggaaaaggatatggatattctt
BteEVE3*        gaacgagtagggtcgacacgtctgctgcagaaggaggcggaaaaggatatggatattctt
BhyEVE3*        gaacgggtagggtcgacacgtctgctgcagaaggaggcggaaaaggatatggatattcta
BigEVE3*        gaacgagtagggtcgacacgtctgctgcagaaggaggcggaaaaggatatggatattcta
                *****.*****************************************************

BteEVE3         catccgactgaatcgattgaggcagatgcggaggaggttgttgttgagccgataacatca
BteEVE3*        catccgactgaatcgattgaggcagatgcggaggaggttgttgttgagccgataacatca
BhyEVE3*        actccgactgaatcgattgaggcagatgcggaggaggctgttgttgagccgataacatca
BigEVE3*        actccgactgaatcgattgaggcagatgcggaggaggctgttgttgagccgataacatca
                  ***********************************.**********************

BteEVE3         aaaaagaagagaaaggagagtgtgtacggtttgcataaggtgatggctacttgttcggtg
BteEVE3*        aaaaagaagagaaaggagagtgtgtacggtttgcataaggtgatggctacttgttcggtg
BhyEVE3*        aaaaagaagagaaaggagagtgtgtacggttttcataaggtgatggctacttgttcggtg
BigEVE3*        aaaaagaagagaaaggagagtgtatacggttttcataagatgatggctacttgttcggtg
                ***********************.******** ******.********************

BteEVE3         gctagtacgaaagagttggcagttgcacgaaaagaacctttggtgaagacatgctctgcc
BteEVE3*        gctagtacgaaagagttggcagttgcacgaaaagaacctttggtgaagacatgctctgcc
BhyEVE3*        gctagtacgaaagagttgacagttgcacgaaaagaacctttgattaaaacatgctctgcc
BigEVE3*        gctagtacgaaagagttgtcagttgcacgaaaagaacctttgattaaaacatgctctgcc
                ****************** ***********************.* **.************

BteEVE3         ggagaagtaattaaaatgcccggcgatggtcattgtttgttttggttactcggatatcat
BteEVE3*        ggagaagtaattaaaatgcccggcgatggtcattgtttgttttggttactcggatatcat
BhyEVE3*        ggagaagtaattaaaatgcctggcgatggtcattgtttgttttggttactcggatatcat
BigEVE3*        ggagaagtaattaaaatgcccggcgatggtcattgtttgttttggttactcggatatcat
                ********************.***************************************

BteEVE3         cttggtttgacggcgatagatatgcgtagggagttatggaaattatgtaccaatgaggag
BteEVE3*        cttggtttgacggcgatagatatgcgtagggagttatggaaattatgtaccaatgaggag
BhyEVE3*        cttgttttgacggcgatagatatgcgtagggagttatggaaattatgtaccaatgaggag
BigEVE3*        cttggtttcacggcgatagatatacgtagggagttatggaaattatgtaccaatgaggag
                **** *** **************.************************************

BteEVE3         aaggaagagatgcccttcgttaatatttttgatggatcgtttgaaggtttgggtaaggct
BteEVE3*        aaggaagagatgcccttcgttaatatttttgatggatcgtttgaaggtttgggtaaggct
BhyEVE3*        aaggaagagatgcccttcgttaatatttttgatggatcgtttgaagg-ttgggtaagact
BigEVE3*        aaggaagagaggcccttcgttaatatttttgatggatcgtttgaaggtttgggtaagact
                ********** ************************************ *********.**

BteEVE3         gactgtttgcgtgtgttttctcgtggttacggtcttaatgtgtgcgtgcatggcgtaatg
BteEVE3*        gactgtttgcgtgtgttttctcgtggttacggtcttaatgtgtgcgtgcatggcgtaatg
BhyEVE3*        gactgtttgcgtgtgttttctcatggttacggttttaatgtgtacgtgcacggcgtaatg
BigEVE3*        gactgtttgcgtgtgttttctcatggttacggttttaatgtgtgcgtgcatggcgtaatg
                **********************.**********.*********.******.*********

BteEVE3         gatggaaagccttttataaccgaggcatattcacatgaacagagatatgagaggactatt
BteEVE3*        gatggaaagccttttataaccgaggcatattcacatgaacagagatatgagaggactatt
BhyEVE3*        gatggaaagccttttataaccgaggcatattcacatgaacagagatacgagaggactatt
BigEVE3*        gatgggaaaccttttataaccgaggcacattcacatgaacagagatacgagaggactatt
                *****.**.******************.*******************.************

BteEVE3         catttggtgtggaccgtgccggagaagagtggtcatgttgacgtaatacgtgagattgaa
BteEVE3*        catttggtgtggaccgtgccggagaagagtggtcatgttgacgtaatacgtgagattgaa
BhyEVE3*        catttgttgtggatcgtgacgggacggaatggtcatgttgacgtaatacgtgagattgag
BigEVE3*        tatttggtgtggaccgtgccgaggcagagtggtcatgttgacgtaatacgtgagattgag
                .***** ******.**** **... .**.******************************.

BteEVE3         gtaaatgagggttcggcgttggagcaatttttgctcgatcatgatctacacgtgccgtta
BteEVE3*        gtaaatgagggttcggcgttggagcaatttttgctcgatcatgatctacacgtgccgtta
BhyEVE3*        gtaaatgagggttcggcgttggagcaatttttgctcgatcatgatctacacgtgccgtta
BigEVE3*        ctaaatgagggttcggcgttggagcaatttttgctcgatcatgatctacacgtgccgtta
                 ***********************************************************

BteEVE3         tatgagttggatgacactattgatccgattgacgctgtgcataattacgttcatgagaag
BteEVE3*        tatgagttggatgacactattgatccgattgacgctgtgcataattacgttcatgagaag
BhyEVE3*        tatgagttggatgacactattgatccgattgacgctgtgtataattacgttcatgagaag
BigEVE3*        tatgagttggacgacactattgatccgattgacactgtgtataattacgttcatgaggag
                ***********.*********************.*****.*****************.**

BteEVE3         aatctgaagagattttctataacgcgtgactataataagatgaacagatatattaatcgt
BteEVE3*        aatctgaagagattttctataacgcgtgactataataagatgaacagatatattaatcgt
BhyEVE3*        aatctgaagagattttctataacgcgtgactgtaataagatgaacagatatattaatcgt
BigEVE3*        aatctgaagagattttctataacgcgtgactgtaataagatgaacagatatattaatcgt
                *******************************.****************************

BteEVE3         tctgcttataaacttagggagattgtcaagaatttttccctggagttgggagggaaaagg
BteEVE3*        tctgcttataaacttagggagattgtcaagaatttttccctggagttgggagggaaaagg
BhyEVE3*        tctgcttataaacttagggagattgtcaagaatttttccctggagttgggagggaaaagg
BigEVE3*        tctgcttataaacttagggagattgtcaagaatttttccctggagttgggagggaaaggg
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                    *********************************************************.**

BteEVE3             attggattggagctttgcgttgctccggacggtttcgtccaggtttggaggaaaaggcgg
BteEVE3*            attggattggagctttgcgttgctccggacggtttcgtccaggtttggaggaaaaggcgg
BhyEVE3*            attggattggagctttgcgttgctccggacggtttcgtccaggtttggaggaaaaggcgg
BigEVE3*            attggattggagctttgcgttgctccgggcggtttcgtccaggtttggaggaaaaggcga
                    ****************************.******************************.

BteEVE3             cgtatgtctcctctgtttcgttgggaaagtacgaggagagcttgatcactcatgacaatg
BteEVE3*            cgtatgtctcctctgtttcgttgggaaagtacgaggagagcttgatcactcatgacaatg
BhyEVE3*            cgtatgtctcctctgtttcgttgggaaagtacgatgagagcttgatcactcatgacaatg
BigEVE3*            cgtatgtctcctctgtttcgttgggaaagtacgaggagagcttgatcactcatgacaatg
                    ********************************* **************************

BteEVE3             tggttcttgtagtgagtgatctaatcgagaaaaattgtattatgattttgtgttggctga
BteEVE3*            tggttcttgtagtgagtgatctaatcgagaaaaattgtattatgattttgtgttggctga
BhyEVE3*            tggttcttgtagtgagtgatctaatcaagaaaaattgtattatgattttgtgttggctga
BigEVE3*            tggttcttgtagtgagtgatctaatcgagaaaaattttattatga---------------
                    **************************.********* ********

BteEVE3             tggtggaaacgccgaatcgtaccatgatttttcttgttggcttggaagtgatgaaagcga
BteEVE3*            tggtggaaacgccgaatcgtaccatgatttttcttgttggcttggaagtgatgaaagcga
BhyEVE3*            tggtggaaacgccgaatcgtaccatgatttttcttgttggcttagaagtgatgaaagcga
BigEVE3*            ------------------------------------------------------------


BteEVE3             agcaggccctccttcctggtgggactatgaaagttaagcatggaaatttctctaaattag
BteEVE3*            agcaggccctccttcctggtgggactatgaaagttaagcatggaaatttctctaaattag
BhyEVE3*            agcaggcccttcttcctggtgggactatgaaagttaagcatggaaatttctctaaattag
BigEVE3*            ------------------------------------------------------------


BteEVE3             atttatctccgttgtttggtttctttgagaaagttgtattttatactgataaattttata
BteEVE3*            atttatctccgttgtttggtttctttgagaaagttgtattttatactgataaattttata
BhyEVE3*            atttatctccgttgtttggtttctttgaaaaaatcgtattttatactgataaattttata
BigEVE3*            ------------------------------------------------------------


BteEVE3             tattatactgacgagtcggacgctattatttctcttgtcggatccgttatgtcgatggat
BteEVE3*            tattatactgacgagtcggacgctattatttctcttgtcggatccgttatgtcgatggat
BhyEVE3*            tattatactgacgagtcggacgctattatttctcttgtcggatccgttatgtcgatgggt
BigEVE3*            ------------------------------------------------------------


BteEVE3             gaacaatccttgaagactcattatctcattatctcaagaagaatctcattagagagatgg
BteEVE3*            gaacaatccttgaagactcattatctcattatctcaagaagaatctcattagagagatgg
BhyEVE3*            gaacaatccttgaagactcattatctcattatctcaagaagaatctcattagagagatgg
BigEVE3*            ------------------------------------------------------------


BteEVE3             aggataaaccggtaggttgcgattattttcctagtgacgttttgatgttgccgttctttt
BteEVE3*            aggataaaccggtaggttgcgattattttcctagtgacgttttgatgttgccgttctttt
BhyEVE3*            aggataaaccggtaggttgcgattattttcctagtgacgttttgatgttgccgttctttt
BigEVE3*            ------------------------------------------------------------


BteEVE3             atgaagaactttagttgaatgtgccgcatgccagtcactcgctcttgggaccaacgacca
BteEVE3*            atgaagaactttagttgaatgtgccgcatgccagtcactcgctcttgggaccaacgacca
BhyEVE3*            atgaagaactttagttgaatgtgccgcatgccagtcactcgctcttgggaccaacgacca
BigEVE3*            ------------------------------------------------------------


BteEVE3             ccggttcaatgttgtccaatgaattgagggagagaccttgggaggaaacaattcattcgg
BteEVE3*            ccggttcaatgttgtccaatgaattgagggagataccttgggaggaaacaattcattcgg
BhyEVE3*            ccggttcaatgttgtccaatgaattgagggagagaccttgggaggaaacaattcattcgg
BigEVE3*            ------------------------------------------------------------


BteEVE3             aggacatcagatatttacaattgtggtacgacaagtttctggaggtggcatgcaatgtat
BteEVE3*            aggacatcagatatttacaattgtggtacgacacgtttctggaggtggcatgcaatgtat
BhyEVE3*            aggacatcagatatttgcaattgtggtacgacaagtttccggaggtggcatgcaatgtat
BigEVE3*            ------------------------------------------------------------


BteEVE3             ttgaaaatgatcaactcgtggttgagttatccgatattcagttgtctacgaagttatcag
BteEVE3*            ttgaaaatgatcaactcgtggttgagttatccgatattcagttgtctacgaagttatcag
BhyEVE3*            ttgaaaatgatcaactcgtggttgagttatccgatattcagttgtctacgaagttatcag
BigEVE3*            ------------------------------------------------------------


BteEVE3             cgaagggggtgacgaagcaacctaaatttgataaattgcggccaagtattgaggacgatg
BteEVE3*            cgaagggggtgacgaagcaacctaaatttgataaattgcggccaagtattgaggacgatg
BhyEVE3*            tgaagggggtgacgaagcaacctaaatttgataaattgcggcc-agtattgaggacgatg
BigEVE3*            ------------------------------------------------------------


BteEVE3             ctcccagcggactgagtgccctcgcagtccaagtcattgttaggggcgattaagaaaaat
BteEVE3*            ctcccagcggactgagtgccctcgcagtccaagtcattgttaggggcgattaagaaaaat
BhyEVE3*            ctcccagcggactgagtgccctcgcagtccaagacattgttaggggcgattaagaaaaat
BigEVE3*            ------------------------------------------------------------


BteEVE3             cttgatgtaccagaattggtgaatgaaaacttatcgccgaggaggttggcggaagtcatg
BteEVE3*            cttgatgtaccagaattggtgaatgaaaacttatcgccgaggaggttggcggaagtcatg
BhyEVE3*            cttgatgtaccagaattggtgaataaaaacttatcgccgaggaggttggcggaggtcatg
BigEVE3*            ------------------------------------------------------------


BteEVE3             gtgaaaagctttattaactctgctatacctgaagaaaatagaacaatgtttgagagtttt
BteEVE3*            gtgaaaagctttattaactctgctatacctgaagaaaatagaacaatgtttgagagtttt
BhyEVE3*            gtgaaaagctttattaactctgctatacctgaagaaaatagaacaatgtttgagagtttt
```

```
BigEVE3*        ------------------------------------------------------------


BteEVE3         caggacaatccgatagaattaaatgttcaaatagtggatgcgtggctggcaaaacaaccg
BteEVE3*        caggacaatccgatagaattaaatgttcaaatagtggatgcgtggctggcaaaacaaccg
BhyEVE3*        caggacaatccgatagaattaaatgttcaaatagtggatgcgtagctggcaaaacaaccg
BigEVE3*        ------------------------------------------------------------


BteEVE3         tctgctgttcgaaaaaacgctgtaagtgacgtgcccctgcaattgagactttcaatcagt
BteEVE3*        tctgctgttcgaaaaaacgctgtaagtgacgtgcccctgcatttgagactttcaatcagt
BhyEVE3*        cctgctgttcgaaaaaacgctgtaagtgacgtgcccctgcatttgagacttttaaccagt
BigEVE3*        ------------------------------------------------------------


BteEVE3         ataattacatgattaaatctaaaataaaaccaccattttagattagtgcggcttttaaat
BteEVE3*        ataattacatgattaaatataaaatagaaccaccattttagattggtgcggcttttaaat
BhyEVE3*        ataattacatgattaaatctaaaataaaaccaccattttagattggtgcggcttttaaat
BigEVE3*        ----------------------------------------------------ttttaaat
                                                                    ********

BteEVE3         atgcgagcgttcagacaatagcgtattacgcgaaaagtcttaacgttattttg-gtccca
BteEVE3*        atgcgagcgttcagacaatagcgtattacgcgaaaagtcttaatgttattttgtgtccca
BhyEVE3*        atgcgagcgttcagacaatagcgtattacgcgaaaagtcttaatgttattttgtgtcaca
BigEVE3*        atgcgagcgttcaggcaatagcgtattacgcgaaaagtcttaatgttattttgtgtccca
                **************.****************************.********* *** **

BteEVE3         tatttaatgtgatttcggaacgttttctttctgttatgaggaaaaaaatccttattttga
BteEVE3*        tatttaatctgatttcggaacgttttctttctgttaygaggaaaaaaatccttattttga
BhyEVE3*        tatttaatctgatttcggaacgttttctttctgttacgaggaaaaaaatccttattttga
BigEVE3*        tatttaatctgatttcggaacgtcttctttctgttacgaggaaaaaaatccttattttga
                ******** **************.************ ***********************

BteEVE3         ctaacaagtctaatgttcattttggacgtgagataaatcgaaggatgaattcgttcgaag
BteEVE3*        ctaacaagtctaatgttsattttgracgtgagatraatcgaaggatgaattcgttcgaag
BhyEVE3*        ctaacaagtctaatgttgattttgaacgtgagatgaatcgaaggatgaattcgttcgaag
BigEVE3*        ctaacaagtctaatgttgattttgaacgtgagatgaatcgaaggatgaattcgttcgaag
                ***************** ****** ********* *************************

BteEVE3         tcaccataatgagacaaatagaaaatgacatgtcgaaatatgataaagcgcagggggaaa
BteEVE3*        tcaccataatgagacaaatagaaaatgacatgtcgaaatatgataaagcgcagggggaaa
BhyEVE3*        tcaccataatgagacaaatagaaaatgacatgtcgaaatatgataaagcgcagggggaaa
BigEVE3*        tcaccataatgagacaaatagaaaatgatatatcgaaatatgataaagcgcaaggggaaa
                ****************************.**.********************.*******

BteEVE3         ttttacgacacttaaaggatgagttacagcgtctgtttggtttcccggaggagttgctag
BteEVE3*        ttttacgacacttaaaggatgagttacagcgtctgtttggtttcccggaggagttgctag
BhyEVE3*        ttttacgacacttagaggatgagttacagcgtctgtttggttttccggaggagttgctag
BigEVE3*        ttttacgacacctagaggatgagttactgcgtctgtttggctttccggaggagttgctag
                ***********.**.************ ************.**.****************

BteEVE3         agatatggaagaactcgcatgttaaatcgaccctgcgtgatagacagacaggggtgaagt
BteEVE3*        agatatggaagaactcgcatgttaaatcgaccctgcgtgatagacagacaggggtgaagt
BhyEVE3*        agatatggaagaactcgcatgttaaatcgaccctgcgtgatagacagacagggctgaagt
BigEVE3*        agatatggaagaactcgcatattaaatcgaccctgcgtgatagacagacaggggtgaagt
                ********************.******************************** ******

BteEVE3         ttgagacagactatcagcataaatctggtgacgcgagcacatttttcggcaacactttct
BteEVE3*        ttgagacagactatcagcataaatctggtgacgcgagcacatttttcggcaacactttct
BhyEVE3*        ttgagacagactatcagcataaatgtggtgacgcgagcacatttttcgacaacactttct
BigEVE3*        ttgagacagactatcagcataaatctggtgacgcgagcacatt------------tttct
                ************************ ******************            *****

BteEVE3         tttatcatgttacaatattaacgatattagtttgttattggctgctggagacgattctgt
BteEVE3*        tttatcatgttacaatattaacgatattagtttgttattggctgctggagacgattctgt
BhyEVE3*        tttatcatgttacaatattaacgatattagtttgttattggctgctggagacgattctgt
BigEVE3*        tttatcgcgttacaatattaacgatattagtttgttattggctgctggagacgattctgt
                ******..****************************************************

BteEVE3         tgttttcttcgaatctggtgttaccattgattatgacccttcttccagggtagctgagct
BteEVE3*        tgttttcttcgaatctggtgttaccattgattatgacccttcttccagggtagctgagct
BhyEVE3*        tgttttcttcgaatctggtgttaccattgattatgacccttcttccagggtagctgagct
BigEVE3*        tgttttcttcgaatctggtgttaccattgattatgacccttcttccagggtagctgagct
                ************************************************************

BteEVE3         gtttaatttggaaagtaaacttatgacacgttattcggttccatatttttgctctaaatt
BteEVE3*        gtttaatttggaaagtaaacttatgacacgttattcggttccatatttttgctctaaatt
BhyEVE3*        gtttaatttggaaagtaaacttatgacacgttagtcggttccatatttttgctctaaatt
BigEVE3*        gttcaatttggaaagtgaacttatgacacgttggtcggttccatatttttgctctaaatt
                ***.************.***************. **************************

BteEVE3         tattatagtaacagatgattggatatattttgtaccagacccggtaaagtttttaaccaa
BteEVE3*        tattatagtaacagatgattggatatattttgtaccagacccggtaaagtttttaaccaa
BhyEVE3*        tattatagtaacagatgattggatatattttgtaccagacctggtaaagtttttaaccaa
BigEVE3*        tattatagtaacagatgattggatatattttgtaccagacccggtaaagtttttaaccaa
                ****************************************.*******************

BteEVE3         attaggtcgacgagatatgtcgaattatgatcacgtggaagattattgtatgtctcgtat
BteEVE3*        attaggtcgacgagatatgtcgaattatgatcacgtggaagattattgtatgtctcgtat
BhyEVE3*        attaggtcgacgagatatgtcgaattatgatcatgtggaagattatcgtatatctcgtat
BigEVE3*        attaggtcgacgagatatgtcgaattatgatcatgtggaagattatcgtatgtctcgtat
                *********************************.************.****.********

BteEVE3         tgatacgatgtctccgttatttaacaacagaatacatggtaagctttctttaggtgtggc
BteEVE3*        tgatacgatgtctccgttatttaacaacagaatacatggtaagctttctttaggtgtggc
BhyEVE3*        tgatacgatgtctccgttatttaacaacagaatacatggtaagctttctttgggtgtggc
BigEVE3*        tgatacgatgtctccgttatttaacaacagaatacatggtaagctttctttaggtgtggc
                ***************************************************.********

BteEVE3         cgaaagatataagggacgtatcaatgacgtccagaaacttatttctctttttaaaacgtt
BteEVE3*        cgaaagatataagggacgtatcaatgacgtccagaaacttatttctctttttaaaacgtt
```

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BhyEVE3*        cgaaagatataagggacgtatcaatgacgtccagaaacttatttctctttttaaaacgtt
BigEVE3*        cgaaagatataagggacgtatcaatgacgtccagaaacttatttctctttttaaaacgtt
                ************************************************************

BteEVE3         gtgttctgatgaagctttttttcaaaattatttgtccaggaggaaggaatgaaattatgt
BteEVE3*        gtgttctgatgaagctttttttcaaaattatttgtccaggaggaaggaatgaaattatgt
BhyEVE3*        gcgttctgatgaagctttttttcaaaattatttgtccaggagaaaggaatgaaattatgt
BigEVE3*        gtgttctgatgaagc-ttttttcaaaattatttatccaggaagaaggaatgaaattatgt
                *.************* *****************.*******..*****************

BteEVE3         tatgacccccctcgaagtaaattagattaatctgacgataggttaagataacactaacta
BteEVE3*        tatgacccccctcgaagtaaattagattaatctgacgataggttaagataacactaacta
BhyEVE3*        tatgatccctctcgaagtaaattagattaatctgacgataggttaagataatactaactc
BigEVE3*        tatgatccctctcgaagtaagttagattaatctgacgataggctaagataatactaactc
                *****.***.**********.*********************.********.*******

BteEVE3         tgttatattcgataaatgagtactgtgtgtggaatttgtaaaacgagtgcatgtagttgt
BteEVE3*        tgttatattcgataaatgagtactgtgtgtggaatttgtaaaacgagtgcatgtagttgt
BhyEVE3*        tgttatactcgataaatgagtac----------------------------tgtagttgt
BigEVE3*        tgttatattcgataaatgagtactgtgcgtggaatttgtaaaacgagtgcatgtagttgt
                *******.***************                            *********

BteEVE3         gaccgctcgccaactgcacagggtttgtcgactgcgggactcttggccccaacaaaatcg
BteEVE3*        gaccgctcgccaactgcacagggtttgtcgactgcggga--------cccaacaaaatcg
BhyEVE3*        gaccgctcgccaactccacagggtttgtcgactgcgggactcttggccccaacaaaatcg
BigEVE3*        gaccgctcgccaactgcacagggtttgtcgactgcgggactcttggccccaacaaaatcg
                *************** ***********************        *************

BteEVE3         ccggctaaaagtttgattccgaaaagttcgactcttagatcgaagagtaaatactcgcga
BteEVE3*        ccggctaaaagtttgattccgaaaagttcgactcttagatcgaagagtaaatactcgcga
BhyEVE3*        ccggctaaaagtttgattccgaaaagttcgactcttagatcgaagagtaaatactcgcga
BigEVE3*        ccggctaaaagtttgattccgaaaagttcgactcttagatcgaagagtacatactcgcga
                ************************************************* **********

BteEVE3         cgaactccagagccggagtatcggactagctcttcaccgtcgccggaacaaactggggag
BteEVE3*        cgaactccagagccggagtatcggactagctcttcaccgtcgccggaacmaactggggag
BhyEVE3*        cgaactccagagccggagtatcgtactaactcttcaccgtcgccggaaccaaatggggag
BigEVE3*        cgaacgccagagccggagtatcgtactaactcttcaccgtcgccggaaccaactggagag
                ***** ***************** ****.******************** ** ***.***

BteEVE3         attgagaaactgcgtgtgtcgatagcccaggagggtgaggtcttgggcatgtcgatactc
BteEVE3*        attgagaaactgcgtgtgtcgatagcccaggagggtgaggtcttgggcatgtcgatactc
BhyEVE3*        attgagggattgcgtgtgtcgatagcccaggagggtgaggtgttgggcatgtcgatgctc
BigEVE3*        attgagaaactgcgtgtgtcgatagcccaggagggtgaggtcttgggcatgtcgatgctc
                ******..*.******************************* **************.***

BteEVE3         gatgagagtgtgagtgaaactactttgctgcaatctttaaagattgatatagctgatttg
BteEVE3*        gatgagagtgtgagtgaaactactttgctgcaatctttaaagattgatatagctgatttg
BhyEVE3*        gatgagagtgtgagtgaaactactttgctataatctttaaggattgatatagctgatttg
BigEVE3*        gatgagagtgtgagtgaaactactttgctacaatctttaaagattgatatagctgatttg
                *****************************..*********.*******************

BteEVE3         ttcccaaatttggacgattttggtacgctcgcttccagtaataccttgagagcgagtgat
BteEVE3*        ttcccaaatttggacgattttggtacgctcgcttccagtaataccttgagagcgagtgat
BhyEVE3*        ttcccaaatttggacgattttggtacgctcgcttccagtaataccttgagagcgagtgat
BigEVE3*        ttcccaaatttggacgattttgatacgctcgcttccagtaataccttgagagcgagtgat
                **********************.*************************************

BteEVE3         ttgctgaccgaaggttgtgaggttgtgaagagtatggtttatcacaatttttctatgaag
BteEVE3*        ttgctgaccgaaggttgtgaggttgtgaagagtatggtttatcacaatttttctatgaag
BhyEVE3*        ttgctgaccgaaggttgtgaggttgtgaagaggatggtttatcacaatttttctgtgaag
BigEVE3*        ttgctgaccgaaggttgtgaggttgtgaagaggatggtttatcacaatttttccgtgaag
                ******************************** ********************..*****

BteEVE3         cataggttgcttgttgcgcagggttggtgtagtttcgctgactttgctcaatttgttgtt
BteEVE3*        cataggttgcttgttgcgcagggttggtgtagtttcgctgactttgctcaatttgttgtt
BhyEVE3*        cataggttgcttgttgcgcagggttggtgtagtttcgctgactttgctcgatttgttatc
BigEVE3*        cataggttgcttgttgcgcagggttggtgtagtttcgctgactctgctaaatttgtta--
                *******************************************.**** .*******.

BteEVE3         gatca--tcagtttcttggtttccatgtcgttgccaaccggaacaggatccgcgaagctt
BteEVE3*        gatca--tcagtttcttggtttccatgtcgttgccaaccggaacaggatccgcgaagctt
BhyEVE3*        gatcatgttggtttcttggtttccacgtcgttgccaaccggaacaggatccgtgaagctt
BigEVE3*        ---------------ttggtttccacgtcgttgccaaccggaacaggatccgtgaagctt
                               **********.**************************.*******

BteEVE3         acgctaagttgcgtggtctgcgccgttttcgttggcggcgcgtttcccggatgatttctt
BteEVE3*        acgctaagttgcgtggtctgcgccgttttcgttgacggcgcgtttcccggatgatttctt
BhyEVE3*        gcgctaagttgcgtggtctgcgccgttttcgttgacggcgcgtttcccggatgatttctt
BigEVE3*        acgctaagttgcgtggtctgcgccgttttcgtcgacggcgcgtttcccggatgatttctt
                .*******************************.*.*************************

BteEVE3         cgtttcgttaggcgggccgttgcgctcatactttgaacaacttatgggt-----------
BteEVE3*        cgtttcgttaggcgggccgttgcgctcatactttgaacaacttatgggt-----------
BhyEVE3*        cgtttcgttaggcgggccgttgcgctcatactttgaacaacttatgggttgtcgcttgtc
BigEVE3*        cgtttcgttaggcgggccgttgcgctcatactttgaacaacttatgggt-----------
                *************************************************

BteEVE3         -------------gctgtcgatttgccggaccgagctcttgagcgtagtaataccgggac
BteEVE3*        -------------gctgtcgatttgccggaccgagctcttgagcgtagtaataccgggac
BhyEVE3*        gacaacttatgccgctgtcgatttgccggaccgagctcttgagcgtagtaataccggggc
BigEVE3*        -------------gctgtcgatttgccggaccgagctcttgagcgtagtaataccggggc
                             *********************************************.*

BteEVE3         tgagcatggtgtaactagcatcactgatgctaaaagatcttttgatgttgctatacctcc
BteEVE3*        tgagcatggtgtaactagcatcactgatgctaaaagatcttttgatgttgctatacctcc
BhyEVE3*        tgagcatggtgtaactagcatcactgttgctaaaagatcttttgatgttgctatacctcc
BigEVE3*        tgagcatggtgtaactagcatcactgattctaaaagatcttttgatgttgctatacctcc
                ************************** * ******************************

BteEVE3         aaagcctacccgaccaatcttagccaacactgccttttacacatgc-----acacccaaa
```

```
BteEVE3*        aaagcctacccgaccaatcttagccaacactgccttttacacatrc-----acacccaaa
BhyEVE3*        naagcctacccgaccaatcgtagccaacactgccttttacacatgc-----acatccaaa
BigEVE3*        aaagcctacccgaccaatcgtagccgacactgccttttacacatgcagtgtaatcccaaa
                 ****************** *****.****************** *     *  .*****

BteEVE3         tcagtaatacaccacacatatttcctaaaaggtttagacaatagttatactgaggcagaa
BteEVE3*        tcagtaatacaccacacatatttcctaaaaggtttagacaatagttatactgaggcagaa
BhyEVE3*        tcagtaaaacaccacacatatttcctaaaaggtttagacaatagttataccgaggcag-a
BigEVE3*        tcagtaaaacaccacacatatttcctaaaaggtttagacaatagttatactgaggcagaa
                ******* ******************************************.******* *

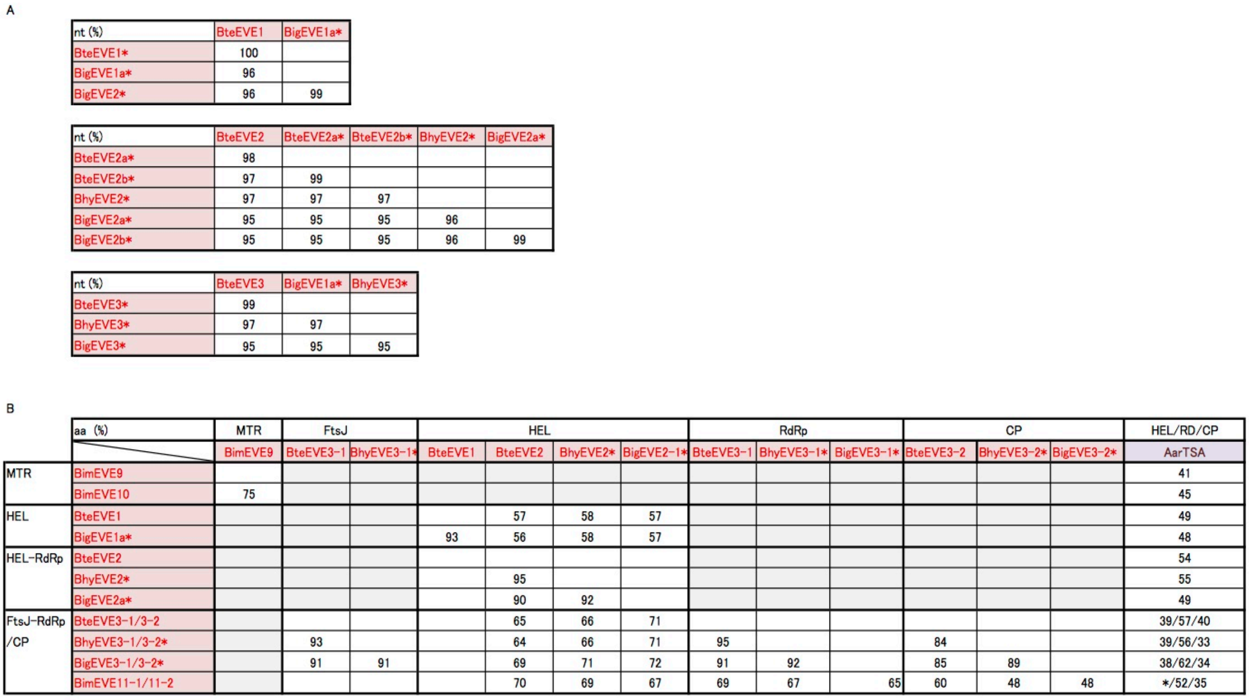
BteEVE3         atacttgcagacttacaagctttacaaataagaactgaagttcgccgatgtagtaaaaca
BteEVE3*        atacttgcagacttayaagctttacaaataagaactgaagttcgccgatgtagtaaaaca
BhyEVE3*        ntacttgcaractt----------------------------------------------
BigEVE3*        atacttgcagactcacaagctttacaaataagaactgaagttcscgga------------
                 ******** ***.

BteEVE3         aggaacaagtctaaaccaggccatcgagaaccctccacaatcatacttctgcctaaacca
BteEVE3*        aggaacaagtctaaaccaggccatcgagaaccctccacaatcatacttctgcctaaacca
BhyEVE3*        ------------------------------------------------------------
BigEVE3*        ------------------------------------------------------------


BteEVE3         ccccacaaccgaaattcattgtttattgagaacaacaaaccaatgtaatacccaagtact
BteEVE3*        ccccacaaccgaaattcattgtttattgagaacaacaaaccaatgtaatacccaagtact
BhyEVE3*        ------------------------------------------------------------
BigEVE3*        ------------------------------------------------------------


BteEVE3         ggcaataaacgttattaaaaaaaaagaacattatgaaagaaagcactcgttctcgtccggt
BteEVE3*        ggcaataaacgttattaaaaaaaaagaacattatgaaagaaagcactcgttctcgtccggt
BhyEVE3*        ------------------------------------------------------------
BigEVE3*        ------------------------------------------------------------


BteEVE3         cacgaaagttaagcagcgtcgggcacagacagtacttggatgagtacccaatctcttta
BteEVE3*        cacgaaagttaagcagcgtcgggcacagatagtacttggatgagt---------------
BhyEVE3*        ------------------------------------------------------------
BigEVE3*        ------------------------------------------------------------
```



A

nt (%)	BteEVE1	BigEVE1a*
BteEVE1*	100	
BigEVE1a*	96	
BigEVE2*	96	99

nt (%)	BteEVE2	BteEVE2a*	BteEVE2b*	BhyEVE2*	BigEVE2a*
BteEVE2a*	98				
BteEVE2b*	97	99			
BhyEVE2*	97	97	97		
BigEVE2a*	95	95	95	96	
BigEVE2b*	95	95	95	96	99

nt (%)	BteEVE3	BigEVE1a*	BhyEVE3*
BteEVE3*	99		
BhyEVE3*	97	97	
BigEVE3*	95	95	95

B

	aa (%)	MTR	FtsJ		HEL				RdRp			CP			HEL/RD/CP
		BimEVE9	BteEVE3-1	BhyEVE3-1*	BteEVE1	BteEVE2	BhyEVE2*	BigEVE2-1*	BteEVE3-1	BhyEVE3-1*	BigEVE3-1*	BteEVE3-2	BhyEVE3-2*	BigEVE3-2*	AarTSA
MTR	BimEVE9														41
	BimEVE10	75													45
HEL	BteEVE1					57	58	57							49
	BigEVE1a*				93	56	58	57							48
HEL-RdRp	BteEVE2														54
	BhyEVE2*					95									55
	BigEVE2a*					90	92								49
FtsJ-RdRp /CP	BteEVE3-1/3-2					65	66	71							39/57/40
	BhyEVE3-1/3-2*		93			64	66	71	95			84			39/56/33
	BigEVE3-1/3-2*		91	91		69	71	72	91	92		85	89		38/62/34
	BimEVE11-1/11-2					70	69	67	69	67	65	60	48	48	*/52/35

Fig. S7. Sequence identities among virga/negevirus-related EVE candidates. Nucleotide (**A**) and amino acid sequences **(B**) of the selected *Bombus* EVEs (EVE1, VRLS1; EVE2, VRLS2; EVE3, VRLS/VCLS3; EVE9, VRLS9; EVE10, VRLS10; EVE11, VRLS/VCLS11, see Fig. 5) were compared in pairs using BLAST. The *Bombus* EVEs and their variants sequenced in this study were labeled with "asterisks" and "a/b" (see Fig. S6), respectively. Sequence identity scores are shown in %. A wasp virgavirus-like TSA (*Argochrysis armilla,* AarTSA) was also included in B.