

**Data S2. Motifs identified in the RdRp domains of the novel RNA virus classes proposed in this work.** The conserved motifs G [GxS], F [long motif enriched in basic amino acids], A [DxxxxD], B [(S/T)Gxxx(T/G)xxxN], C [(S/G)DD], D[GxxxK], and E [FL] were manually inspected in multiple sequence alignments of the domain protein sequences, and their identity was supported by HHPred search. Sections of the alignments not containing motifs are not shown. Note the motif permutation (C-A-B, instead of A-B-C) in the class 42 (phylum *Kitrinoviricota*), and the unusual motif C [IDD] in the classes 66 and 67 (negarnaviricot subphylum *Haploviricotina*). Asterisks indicate domain motifs with less confidence.

