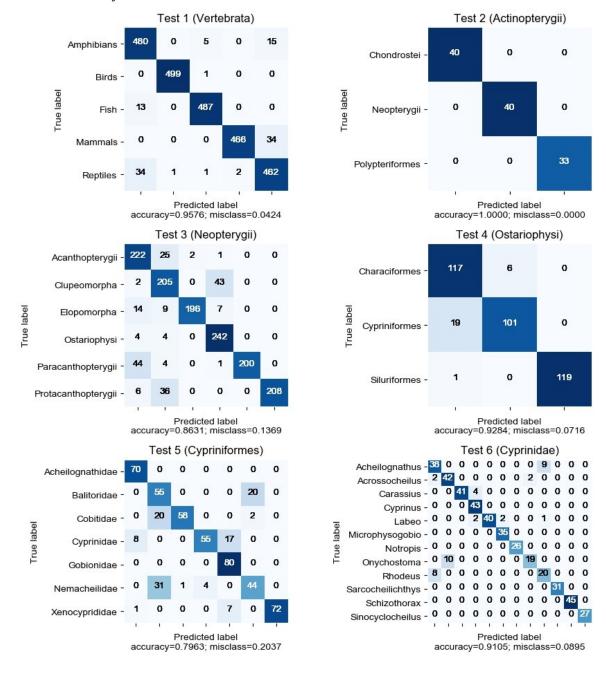
## S3 Appendix

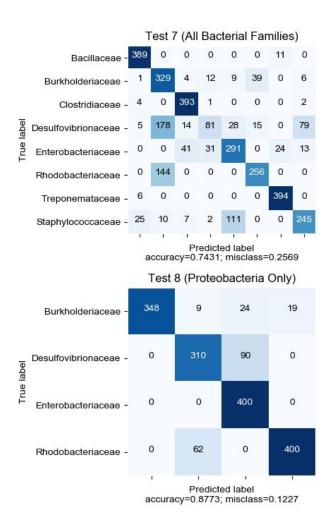
## **Confusion matrices**

**Figure 1 (Tests 1-6).** Confusion matrices of the assignment that maximizes the accuracy at each taxonomic level of the mtDNA dataset. Predicted labels are numeric cluster assignments, omitted here for readability.

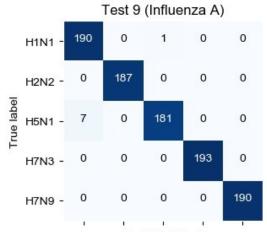


**Figure 2 (Tests 7, 8).** Confusion matrices of the assignment that maximizes the accuracy for both computational tests with the bacterial dataset at phylum level to families. (Top) All bacterial families

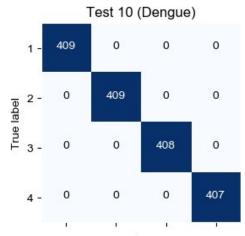
are considered. (Bottom) Only sequences in the phylum Proteobacteria are considered. Predicted labels are numeric cluster assignments, omitted here for readability.



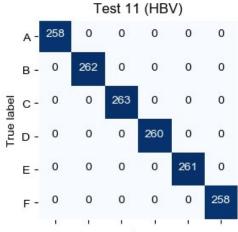
**Figure (Tests 9-11).** Confusion matrices of the assignment that maximizes the accuracy for the NA-encoding gene of the Influenza A virus, Dengue virus genomes, and HBV genomes. Predicted labels are numeric cluster assignments, omitted here for readability.



Predicted label accuracy=0.9916; misclass=0.0084



Predicted label accuracy=1.0000; misclass=0.0000



Predicted label accuracy=1.0000; misclass=0.0000