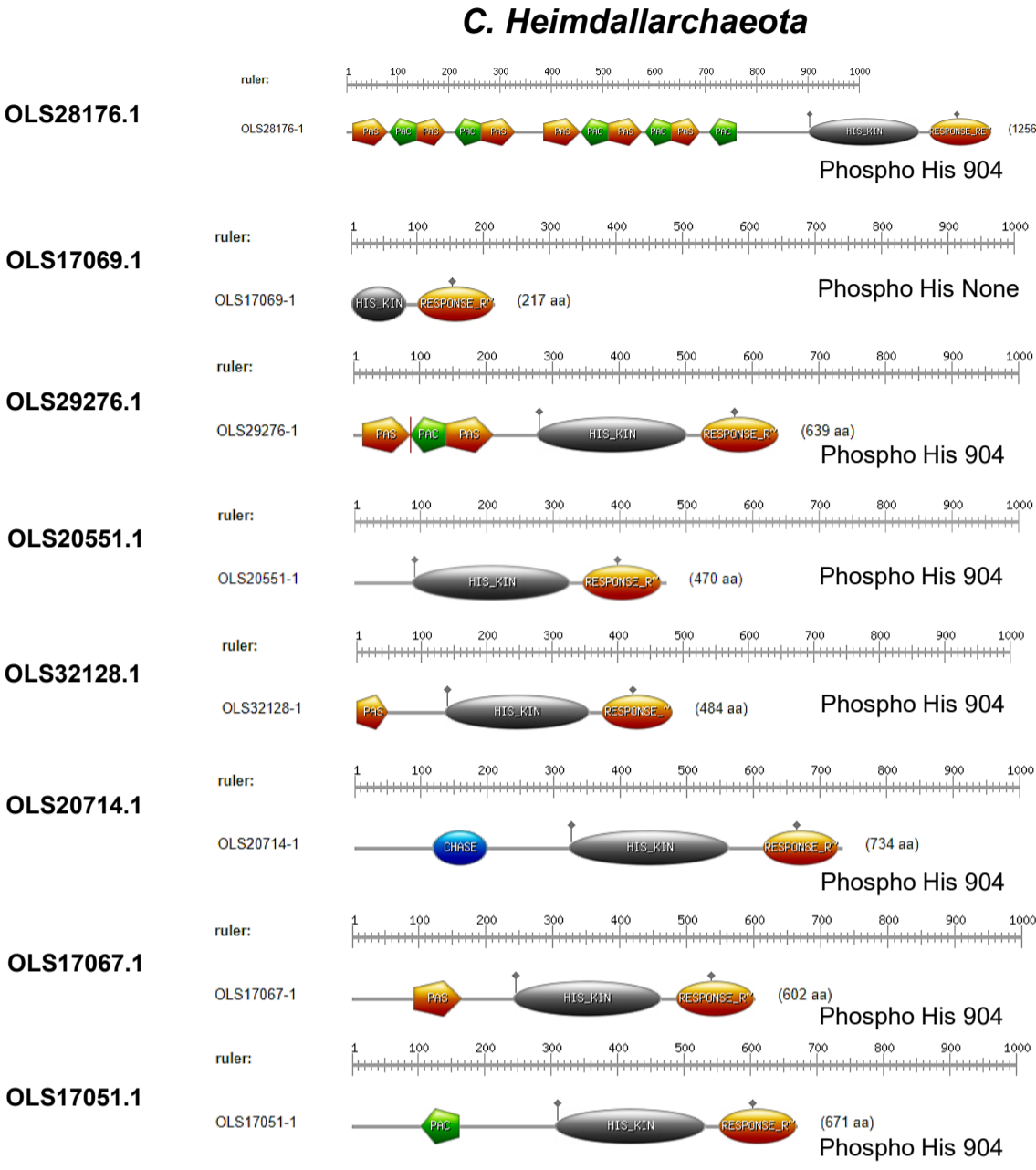
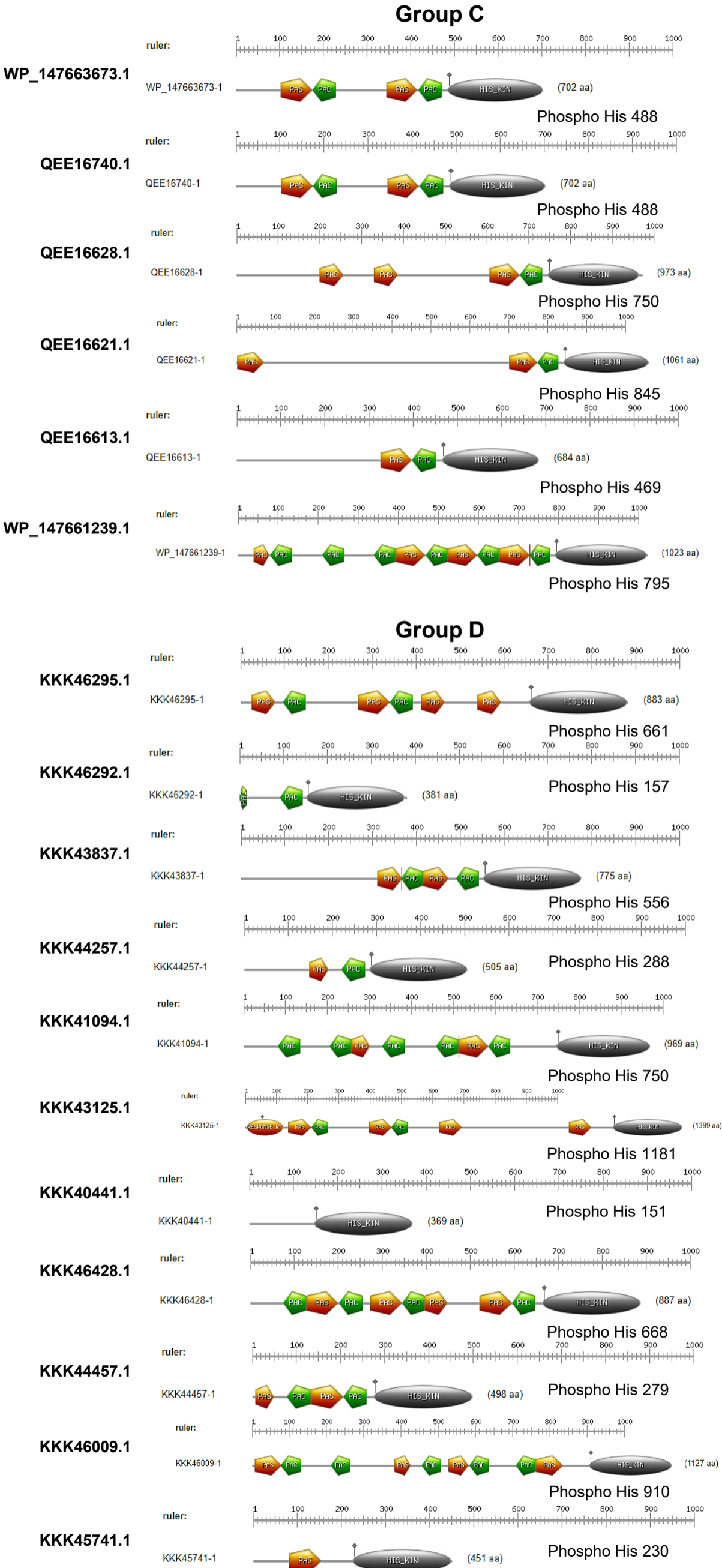
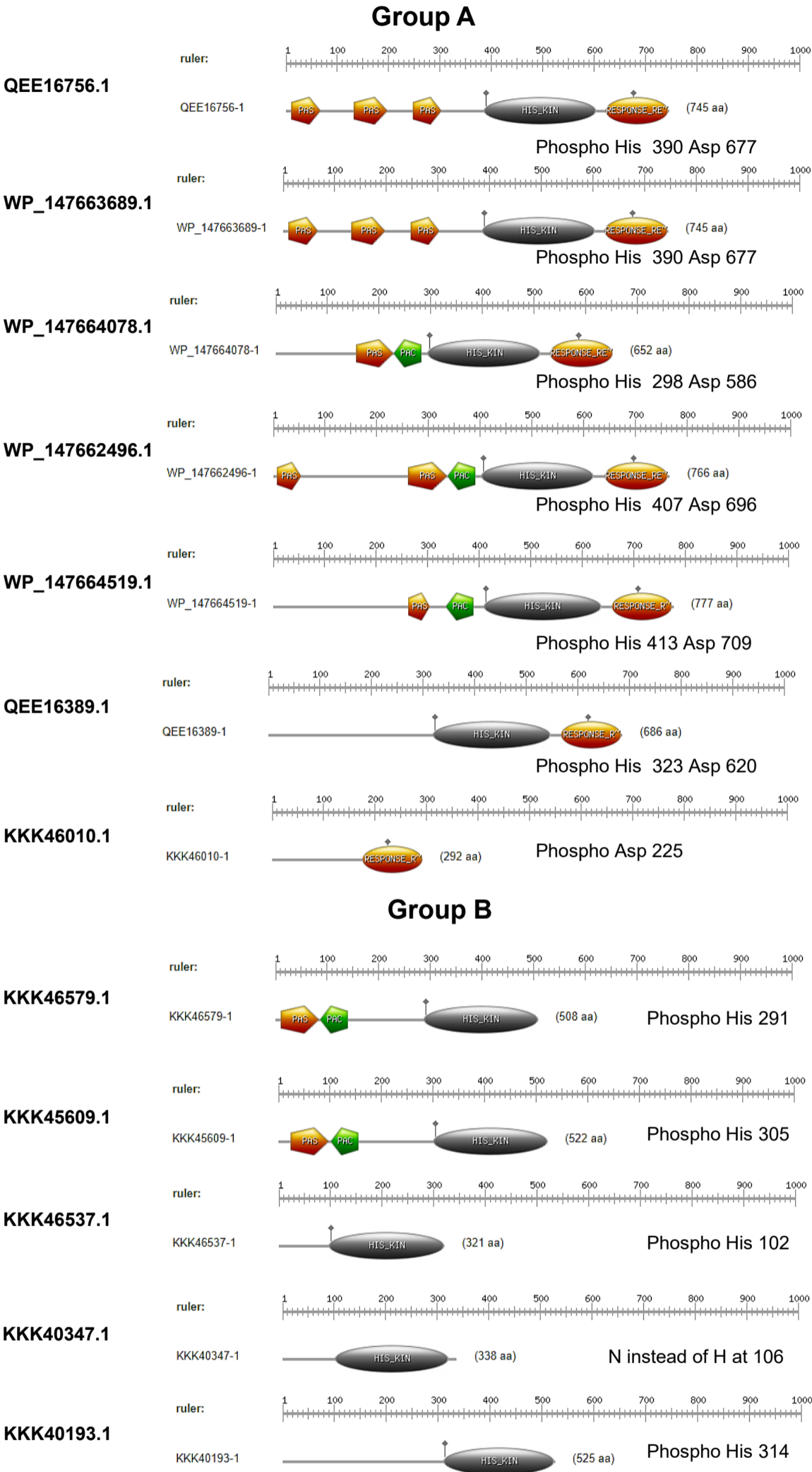
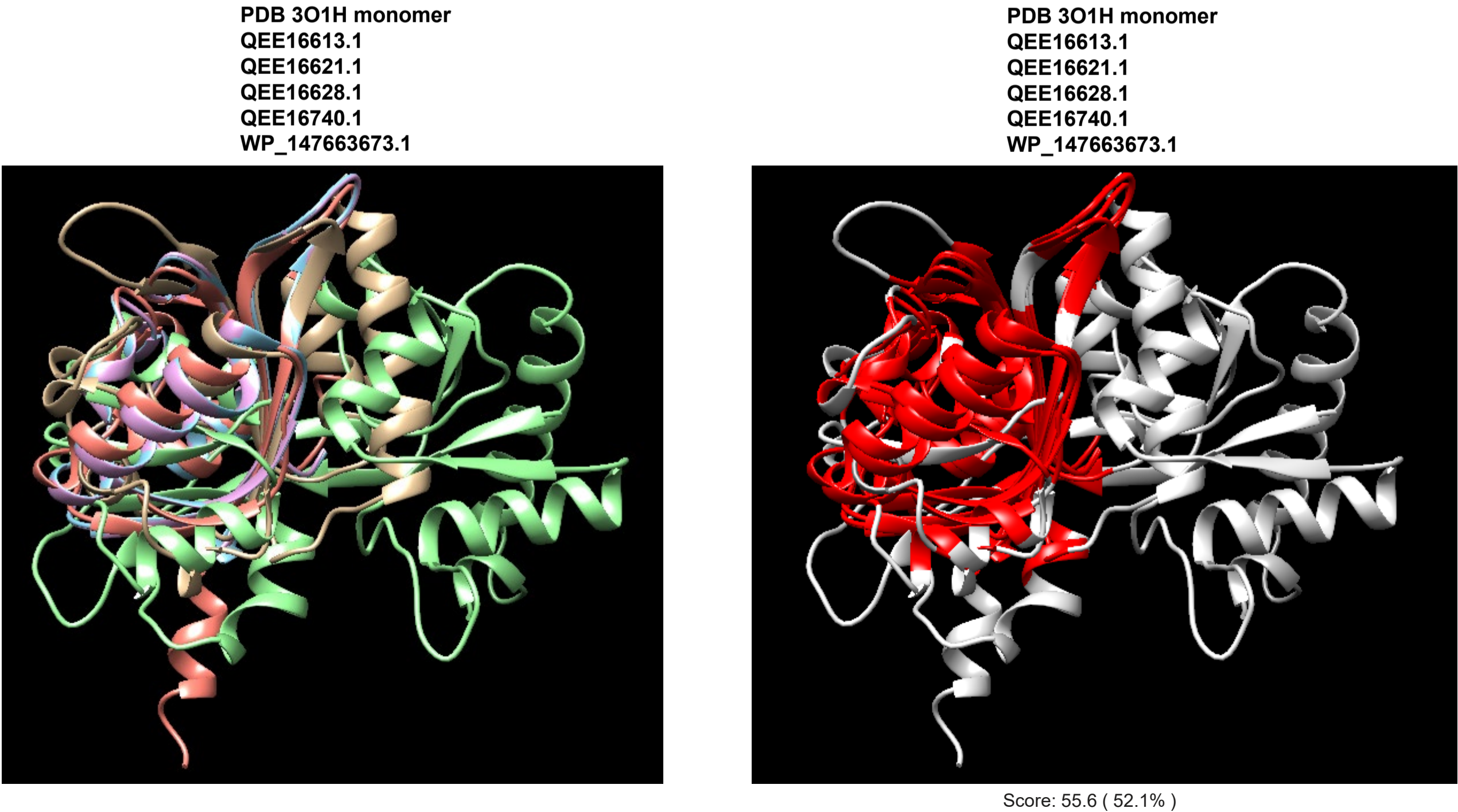
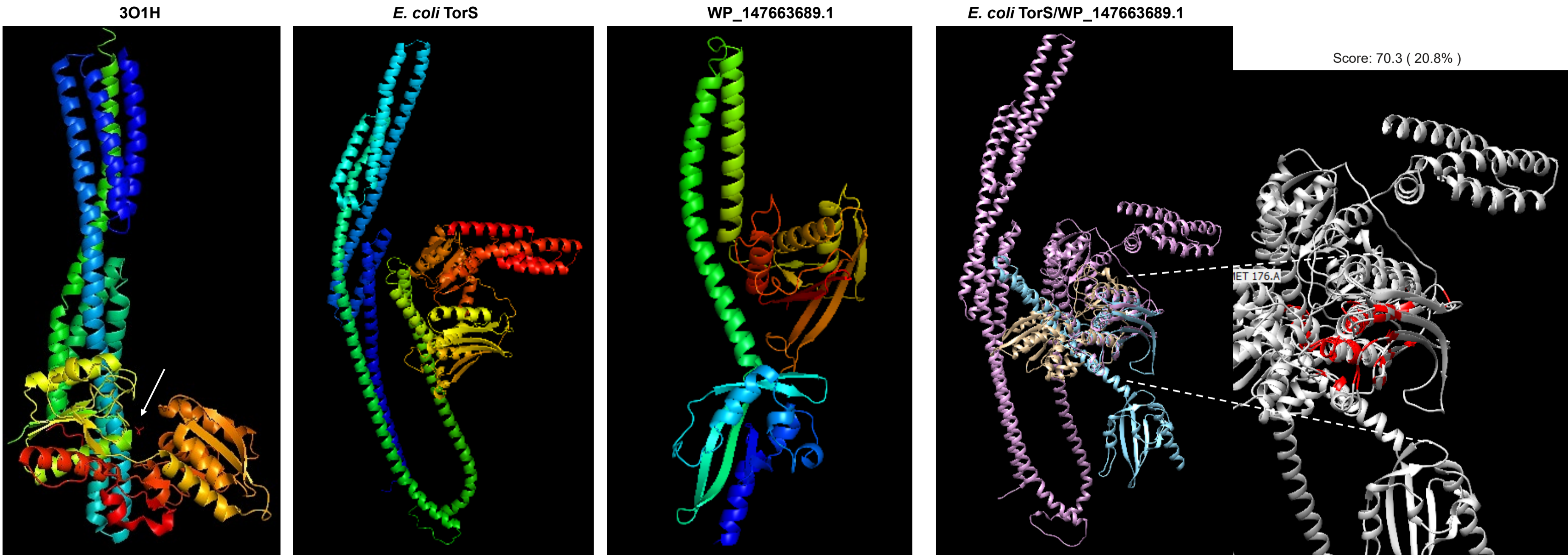


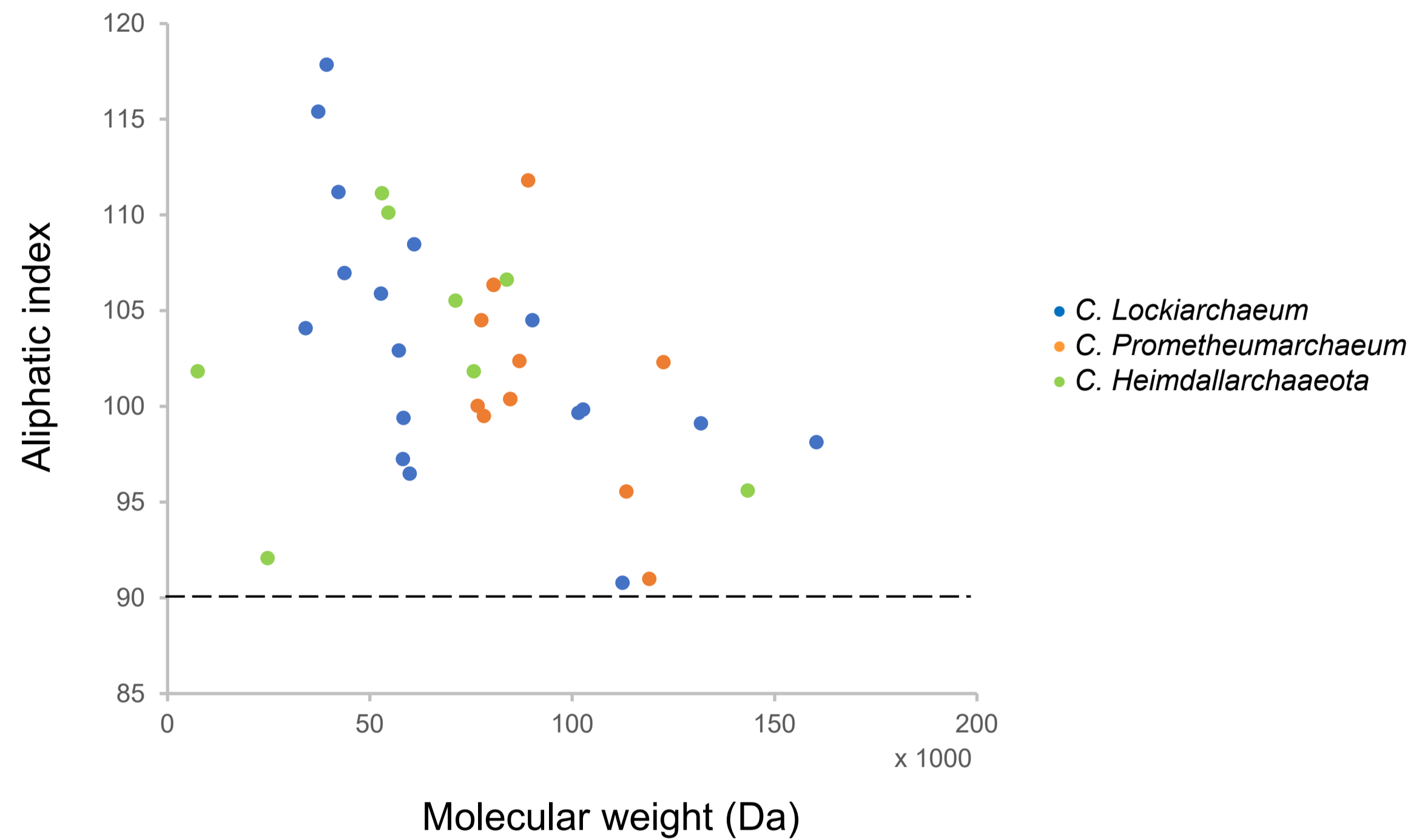
Supplementary Figure 1



Supplementary Figure 2

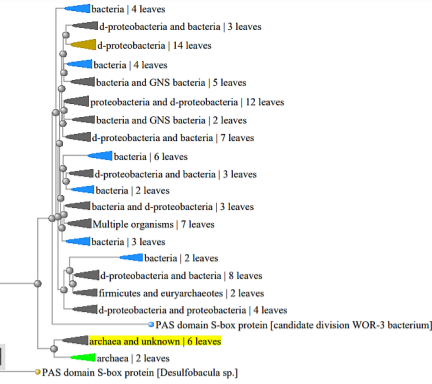


Supplementary Figure 3



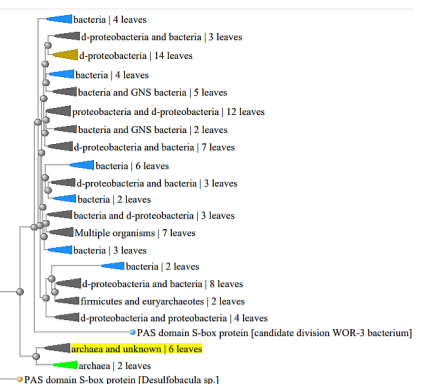
# Group A

- Query
- δ-proteobacteria
- Bacteria
- Firmicutes
- Euryarchaeotes
- proteobacteria
- GNS bacteria
- Archaea
- Unknown



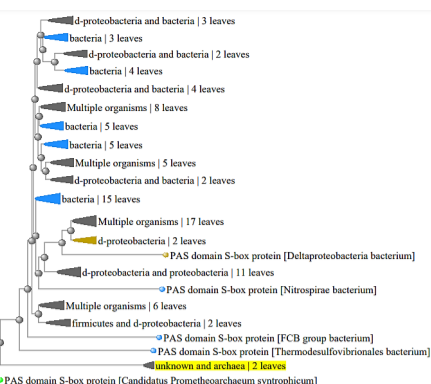
QEE16756.1

- Query
- δ-proteobacteria
- Bacteria
- Firmicutes
- Euryarchaeotes
- proteobacteria
- GNS bacteria
- Archaea
- Unknown



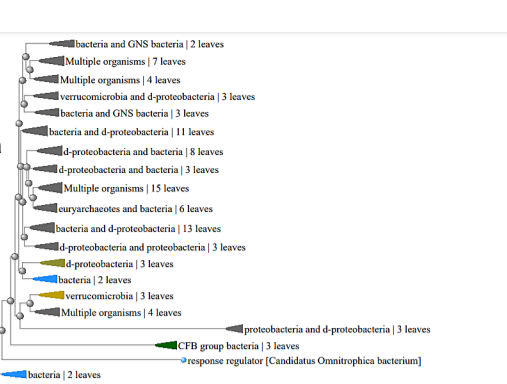
WP\_147663689.1

- Query
- Archaea
- Euryarchaeotes
- Bacteria
- δ-proteobacteria
- Firmicutes
- GNS bacteria
- Unknown



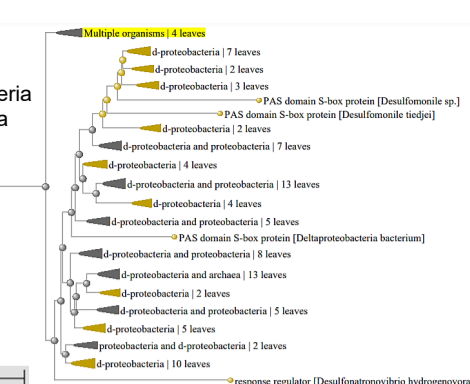
WP\_147664078.1

- Query
- Bacteria
- proteobacteria
- δ-proteobacteria
- Verrumicrobia
- GNS bacteria
- Firmicutes
- CFB group
- Euryarchaeotes
- Unknown
- Archaea



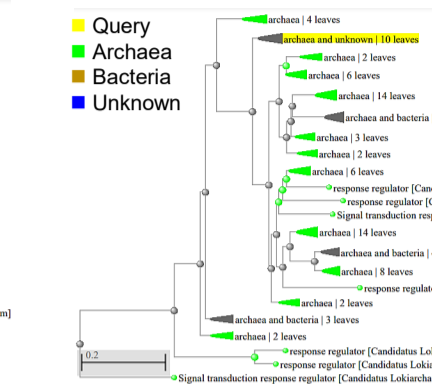
WP\_147662496.1

- Query
- δ-proteobacteria
- proteobacteria
- Archaea
- Unknown



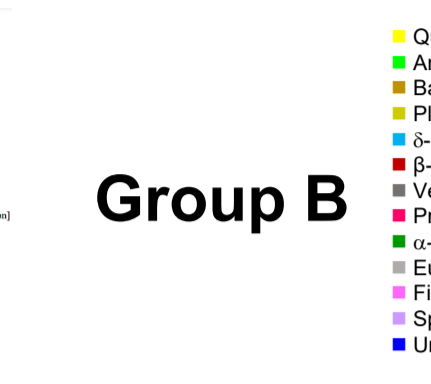
WP\_147664519.1

- Query
- δ-proteobacteria
- Bacteria
- GNS bacteria
- High G+C Gram positive
- γ-proteobacteria
- Proteobacteria
- CFB group
- Spirochetes
- Archaea
- Unknown



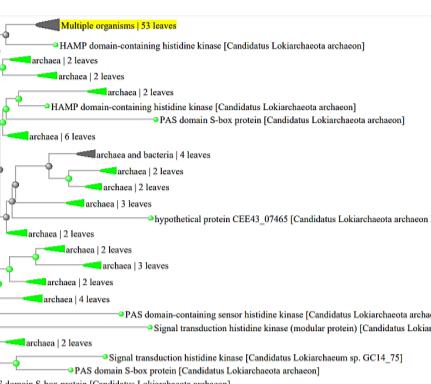
QEE16389.1

- Query
- Archaea
- Bacteria
- Unknown



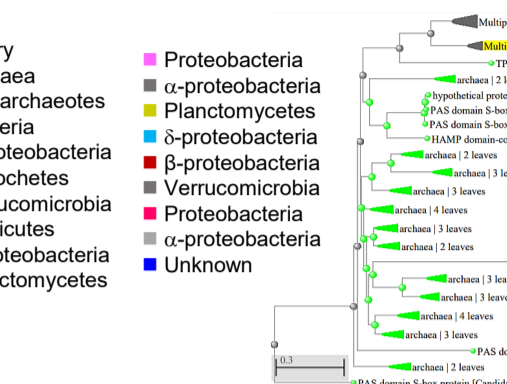
KKK46010.1

- Query
- Archaea
- Bacteria
- Planctomycetes
- δ-proteobacteria
- β-proteobacteria
- Verrucomicrobia
- Proteobacteria
- α-proteobacteria
- Euryarchaeotes
- Firmicutes
- Spirochetes
- Unknown



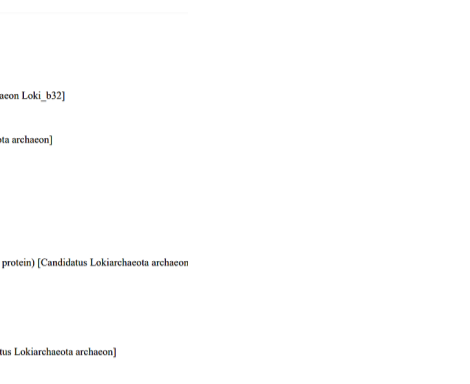
KKK46579.1

- Query
- Archaea
- Euryarchaeotes
- Bacteria
- β-proteobacteria
- Spirochetes
- Verrucomicrobia
- Firmicutes
- δ-proteobacteria
- Planctomycetes



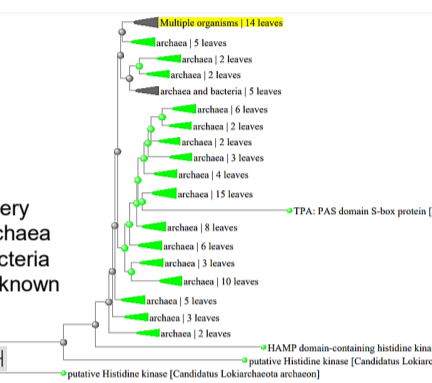
KKK45609.1

- Query
- Archaea
- Bacteria
- δ-proteobacteria
- β-proteobacteria
- Verrucomicrobia
- Proteobacteria
- α-proteobacteria
- Unknown



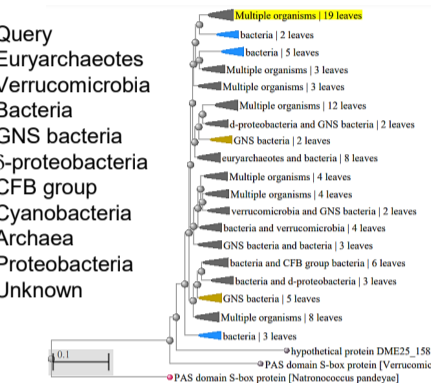
KKK45609.1

- Query
- Archaea
- Bacteria
- Unknown



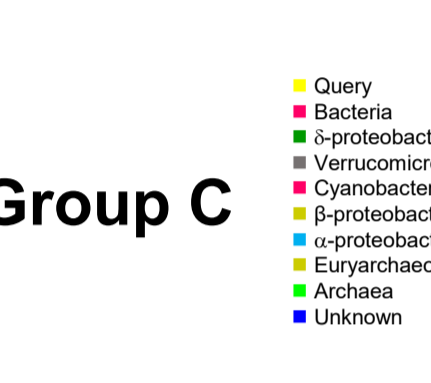
KKK46537.1

- Query
- Archaea
- Bacteria
- Unknown



KKK40347.1

- Query
- Euryarchaeotes
- Verrucomicrobia
- Bacteria
- GNS bacteria
- δ-proteobacteria
- CFB group
- Cyanobacteria
- Archaea
- Proteobacteria
- Unknown



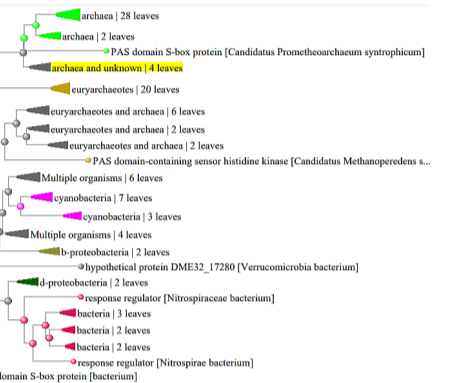
KKK40193.1

- Query
- Bacteria
- α-proteobacteria
- Euryarchaeotes
- Archaea
- Unknown



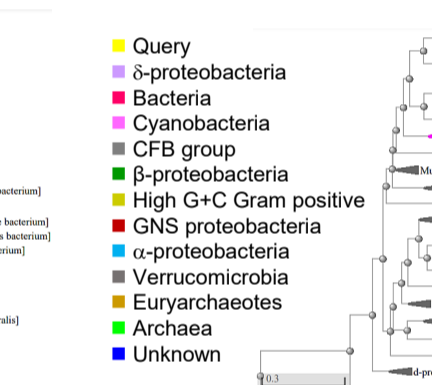
WP\_147663673.1

- Query
- Bacteria
- δ-proteobacteria
- Verrucomicrobia
- Cyanobacteria
- β-proteobacteria
- α-proteobacteria
- Euryarchaeotes
- Archaea
- Unknown



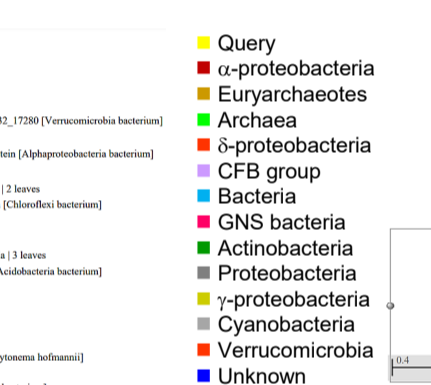
QEE16740.1

- Query
- Bacteria
- δ-proteobacteria
- β-proteobacteria
- γ-proteobacteria
- Proteobacteria
- Verrucomicrobia
- GNS proteobacteria
- High G+C Gram positive
- α-proteobacteria
- Cyanobacteria
- Planctomycetes
- Euryarchaeotes
- Archaea
- Unknown



QEE16628.1

- Query
- Proteobacteria
- Cyanobacteria
- CFB group
- β-proteobacteria
- High G+C Gram positive
- GNS proteobacteria
- α-proteobacteria
- Verrucomicrobia
- Euryarchaeotes
- Archaea
- Unknown



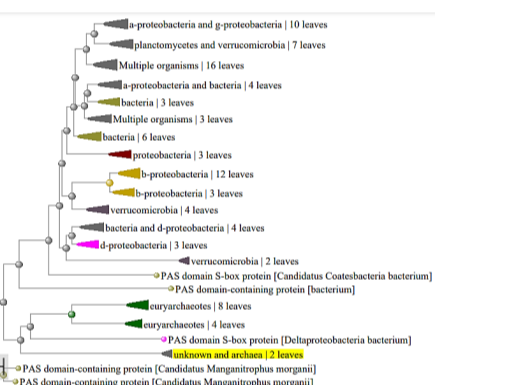
QEE16621.1

- Query
- α-proteobacteria
- Euryarchaeotes
- Archaea
- δ-proteobacteria
- CFB group
- Bacteria
- GNS bacteria
- Actinobacteria
- Proteobacteria
- γ-proteobacteria
- Cyanobacteria
- Verrucomicrobia
- Unknown



QEE16613.1

- Query
- Bacteria
- β-proteobacteria
- verrucomicrobia
- Proteobacteria
- δ-proteobacteria
- γ-proteobacteria
- Planctomycetes
- Cyanobacteria
- Euryarchaeotes
- unknown
- Archaea



WP\_147661239.1

- Query
- CFB bacteria
- GNS group
- Bacteria
- Cyanobacteria
- Archaea
- Unknown



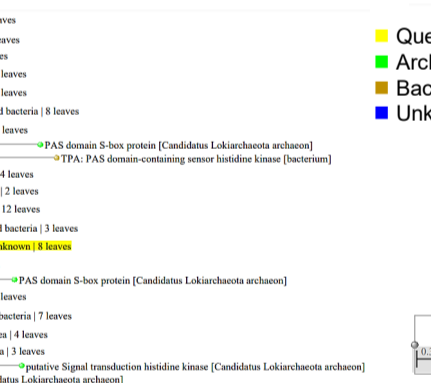
KKK41094.1

- Query
- Euryarchaeotes
- Archaea
- Bacteria
- Unknown



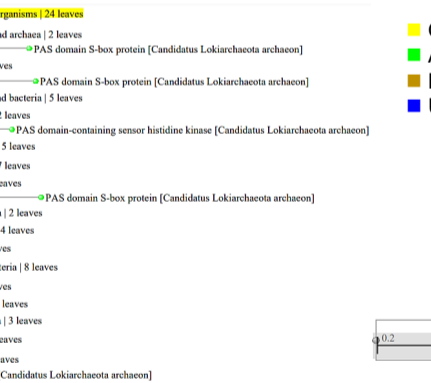
KKK46295.1

- Query
- Archaea
- Bacteria
- Unknown



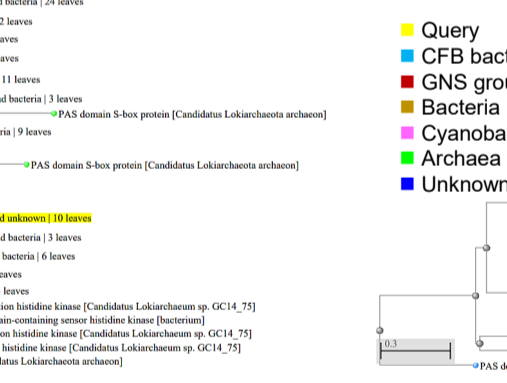
KKK46292.1

- Query
- Archaea
- Bacteria
- Unknown



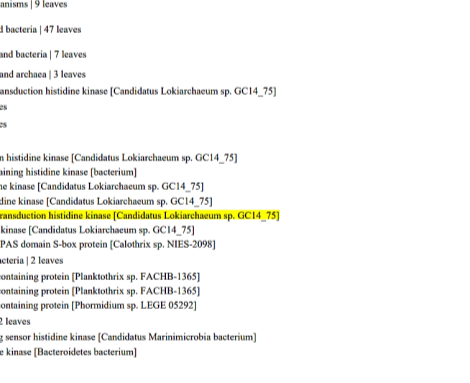
KKK43837.1

- Query
- Archaea
- Bacteria
- Unknown



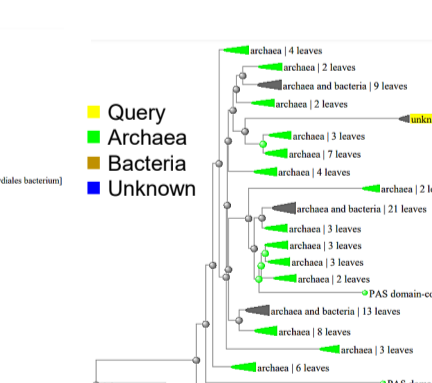
KKK44257.1

- Query
- CFB bacteria
- GNS group
- Bacteria
- Cyanobacteria
- Archaea
- Unknown



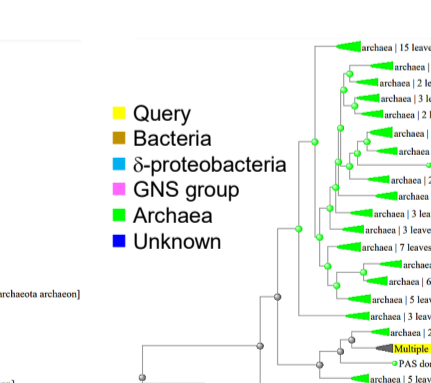
KKK41094.1

- Query
- GNS bacteria
- GNS group
- Bacteria
- δ-proteobacteria
- Archaea
- Euryarchaeotes
- Unknown



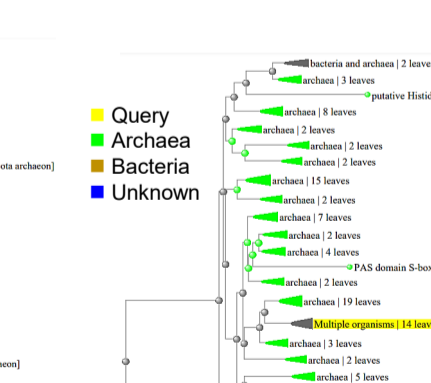
KKK43125.1

- Query
- Archaea
- Bacteria
- Unknown



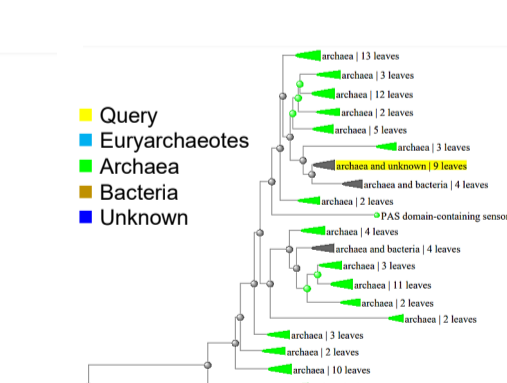
KKK40441.1

- Query
- Bacteria
- δ-proteobacteria
- GNS group
- Archaea
- Unknown



KKK46428.1

- Query
- Archaea
- Bacteria
- Unknown



KKK44457.1

- Query
- Euryarchaeotes
- Archaea
- Bacteria
- Unknown



KKK46009.1

- Query
- Archaea
- Bacteria
- Unknown

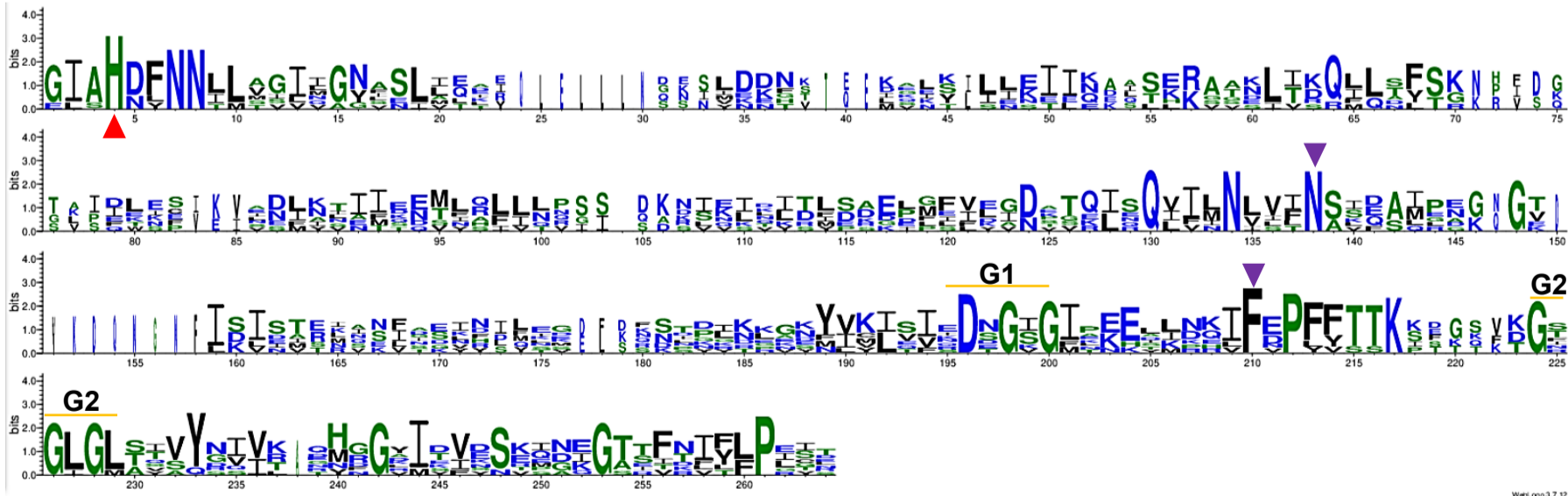
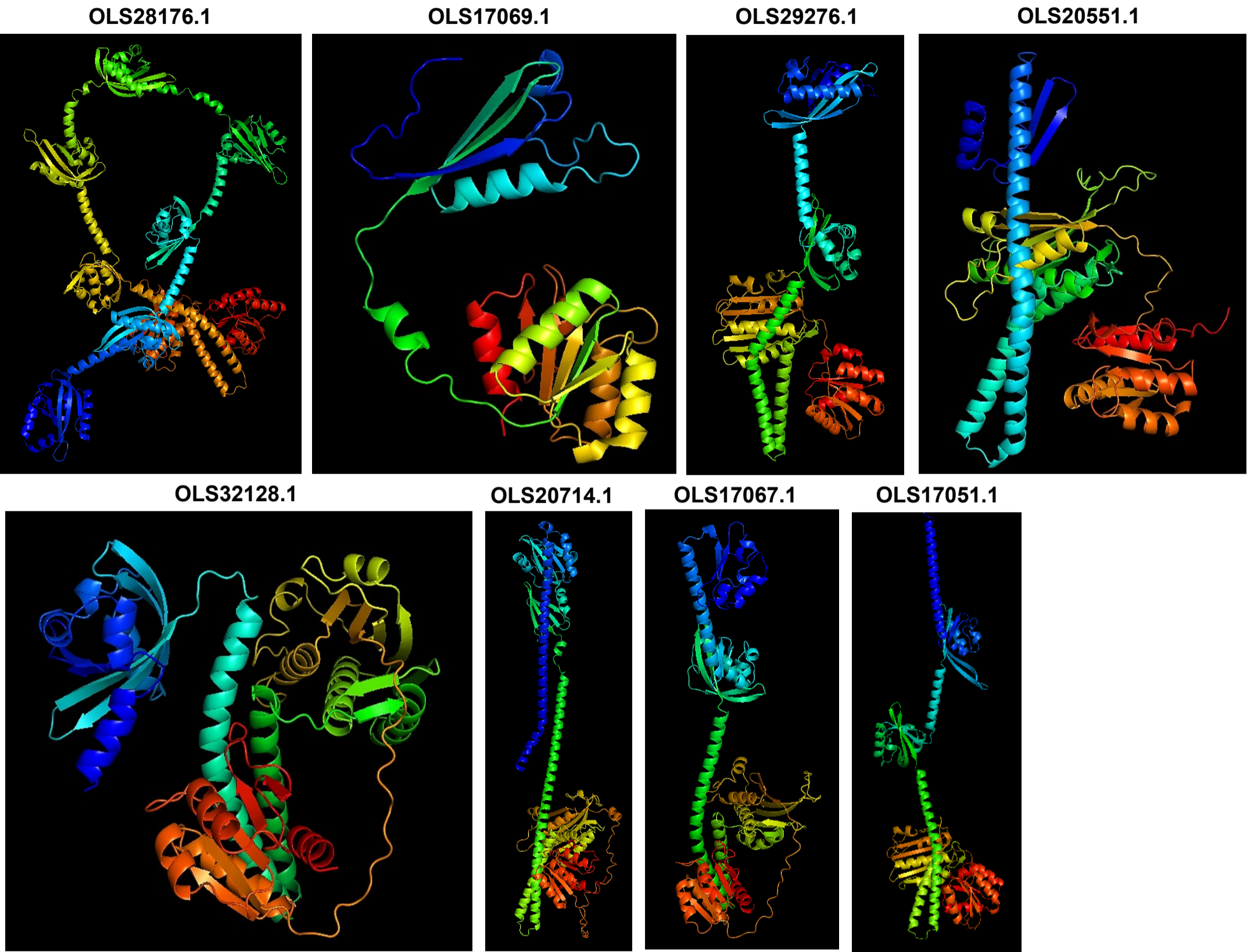


KKK45741.1

# Supplementary Figure 4

Supplementary Figure 5

*C. Heimdallarchaeota*



Supplementary Figure 6

