ARIES alignment module
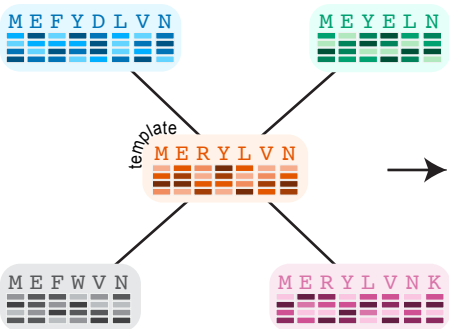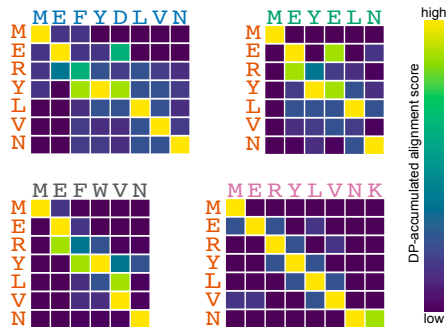
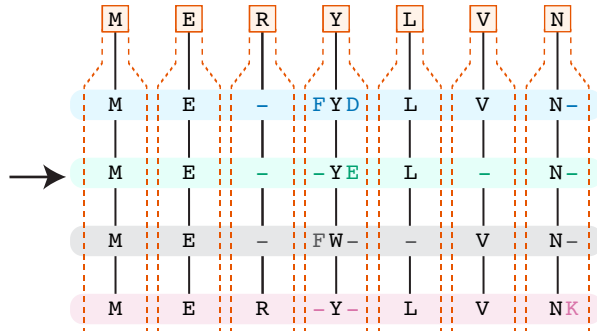Star alignment to template

DTW with reciprocal windowed scoring

Column construction
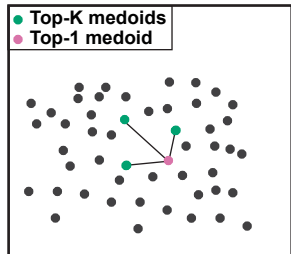
ARIES template synthesis module

Medoid selection from guide tree

- Top-K medoids
- Top-1 medoid

Alignment module

Align medoids to top-1 template

M E R Y L V X
M X R Y L X X
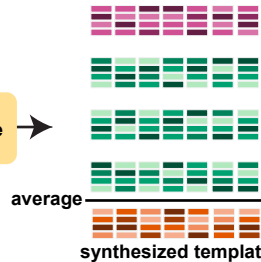M E X Y V V X
M E R Y L X N

Add X tokens in gap positions

Protein Language Model

Embeddings of aligned medoids

average

synthesized template

Final synthesized template for star alignment

- Top-K medoids
- Top-1 medoid
- ★ Synthesized template