



Comparison Tool

RCSB PDB's Comparison Tool facilitates the exploration of pairwise sequence and 3D structure alignments.

Structure alignment of two nucleotide-binding proteins (1VHRA vs. 2IHB.A). The Comparison Tool's jCE option can detect the circular permutations that are difficult for many alignment algorithms to detect.

The comparison tool is available from the **ANALYZE** menu on rcsb.org

Pairwise **SEQUENCE** alignment methods:

- » blast2seq
- » Needleman-Wunsch
- » Smith-Waterman

Special features include support for both rigid-body and flexible alignments (via jFATCAT) and detection of circular permutations (via jCE) in proteins that are difficult for many alignment algorithms to detect.

Pairwise **3D STRUCTURE** alignment methods:

- » jFATCAT
- » jCE
- » Mammoth
- » TM-Align
- » TopMatch

jFATCAT and jCE alignments are performed on RCSB PDB servers, while Mammoth, TM-Align, and Top Match comparisons are calculated through links to the corresponding sites.

Comparisons can be made for any protein in the PDB archive on **RCSB.ORG** and for customized or local files not in the PDB using a Java Web Start application.

The Comparison Tool is also integrated with the **SEQUENCE CLUSTERS** offered from each entry's Sequence Similarity tab. Users can select a pair of chains from a given sequence cluster (with similarity cutoffs of 100%, 95%, 90%, 70%, 50%, 40%, or 30%) and run alignment comparisons.