

Superimposing and Morphing

Talk to a Teacher

<http://spoken-tutorial.org>

National Mission on Education through ICT

<http://sakshat.ac.in>

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Learning Objectives



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- ▶ **Superimpose and compare different structures of the same protein**



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- ▶ **Morph conformations and create a trajectory**



Pre-requisites



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- ▶ **Chimera interface**



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System Requirement



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- ▶ **Working internet connection**



Structural alignment



Structural alignment

- ▶ **Structural alignment is a tool to compare two or more protein structures**



Structural alignment

- ▶ **Structural alignment is a tool to compare two or more protein structures**
- ▶ **The alignment is based on their shape and three-dimensional conformation**



Morphing



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- ▶ **Morphing** is calculating a series of intermediate structures between the original input structures



Morphing

- ▶ **Morphing** is calculating a series of intermediate structures between the original input structures
- ▶ The series of intermediate structures created can be saved as Molecular Dynamics Movie (MD Movie)



Summary



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- ▶ **Superimpose and compare different structures of the same protein**
- ▶ **Morph conformations and create a trajectory**
- ▶ **Save the trajectory as Molecular Dynamics Movie (MD Movie)**



Assignment



Assignment

- ▶ Open the structures of GTP binding proteins with pdb code: **1TAG and 1TND**
- ▶ Superimpose the structures using **MatchMaker** tool
- ▶ Using **Sequence Alignment** tool, find out the regions that are non-identical



About the Spoken Tutorial Project

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Spoken Tutorial Workshops

The Spoken Tutorial Project Team

- ▶ Conducts workshops using spoken tutorials
- ▶ Gives certificates to those who pass an online test
- ▶ For more details, please write to contact@spoken-tutorial.org



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- ▶ It is supported by the National Mission on Education through ICT, MHRD, Government of India
- ▶ More information on this Mission is available at

<http://spoken-tutorial.org/NMEICT-Intro>

