

# Attributes

**Talk to a Teacher**

<http://spoken-tutorial.org>

**National Mission on Education through ICT**

<http://sakshat.ac.in>

**Snehalatha Kaliappan**

**IIT Bombay**

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# Learning Objectives



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- ▶ Color atoms in a protein according to **Bfactor** values



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- ▶ Color residues according to **kdHydrophobicity** values



# Pre-requisites



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- ▶ **Chimera interface**



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- ▶ **Chimera interface**
- ▶ <http://spoken-tutorial.org>



# System Requirement



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- ▶ **Ubuntu OS version 14.04**



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- ▶ **Working internet connection**



# Attributes



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- ▶ **Attributes:** properties with names and values



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- ▶ **Attributes:** properties with names and values
- ▶ **Atoms, bonds, residues and molecule models have attributes**



# Bfactor



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- ▶ **Atoms with low Bfactor values** belong to a part of the structure that is well ordered



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- ▶ **Bfactor values** are a measure of mobility in the macromolecule
- ▶ Atoms with low **Bfactor values** belong to a part of the structure that is well ordered
- ▶ Atoms with large **Bfactor values** belong to part of the structure that is very flexible



# Bfactor



# Bfactor

- ▶ PDB file for a protein structure contains **Bfactor** information



# kdHydrophobicity



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- ▶ **kdHydrophobicity** scales are values that define relative hydrophobicity of amino acid residues



# kdHydrophobicity

- ▶ **kdHydrophobicity** scales are values that define relative hydrophobicity of amino acid residues
- ▶ **kdHydrophobicity** values are **positive** for hydrophobic residues and **negative** for polar residues



# Summary



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- ▶ Change **attributes** of atoms, residues and models
- ▶ Color atoms in a protein according to **Bfactor** values
- ▶ Color residues according to **kdHydrophobicity** values



# Assignment



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- ▶ Open a model of **hemoglobin** (PDB code: **2HCO**) on the panel
- ▶ Color the atoms according to **Bfactor values**
- ▶ Color the residues according to **kdHydrophobicity** values.



# About the Spoken Tutorial Project

- ▶ Watch the video available at [http://spoken-tutorial.org/What\\_is\\_a\\_Spoken\\_Tutorial](http://spoken-tutorial.org/What_is_a_Spoken_Tutorial)
- ▶ It summarises the Spoken Tutorial project



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- ▶ It summarises the Spoken Tutorial project
- ▶ If you do not have good bandwidth, you can download and watch it



# 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](mailto:contact@spoken-tutorial.org)



# Acknowledgements

- ▶ **Spoken Tutorial Project is a part of the Talk to a Teacher project**
- ▶ **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>

