

## Unit 10 - Week 8

### Course outline

How does an NPTEL online course work?

### Prerequisite Assignment

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

Stabilizing residues

Thermodynamic database

Stability of proteins upon mutations

Stability of proteins upon mutations II

Demo: ProTherm

Quiz : Assignment 8

Quiz : Practice Assignment 8

Bio-Informatics:Algorithms and Applications : Week 8 Feedback Form

Week 9

Week 10

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Week 12

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## Assignment 8

The due date for submitting this assignment has passed.  
As per our records you have not submitted this assignment.

**Due on 2020-03-25, 23:59 IST.**

1) Major factors for identifying the stabilizing residues in protein structures are 1 point

- Hydrophobic behaviour, long-range contacts and conservation
- Hydrophobic behaviour, hydrogen bonds and van der Waals interactions
- Hydrophobic character, conservation and electrostatic interactions
- Hydrophobicity, stabilization center and hydrogen bonds

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*Hydrophobic behaviour, long-range contacts and conservation*

2) Which type of residues is dominant in stabilizing residues? 1 point

- Aromatic
- Aliphatic
- Polar
- Charged

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*Aliphatic*

3) ProTherm stands for 1 point

- Thermodynamic database for proteins and mutants
- Thermodynamic database for proteins and interactions
- Thermodynamic database for proteins and ligands
- Protein Thermodynamic database

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*Thermodynamic database for proteins and mutants*

4) Which type of mutation is dominant in ProTherm? 1 point

- Polar to polar
- Polar to hydrophobic
- Hydrophobic to polar
- Hydrophobic to hydrophobic

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*Hydrophobic to hydrophobic*

5) In a protein, if hydrophobic residues are crowded in the core and Ala is mutated to Val, what will happen to the stability? 1 point

- Increase
- Decrease
- Remain the same
- Not able to predict

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*Decrease*

6) In a protein, if hydrophobic residues are crowded in the core and Ala is mutated to Val, what will happen to the structure? 1 point

- Enhance packing and hydrophobic environment
- Creates steric interactions
- No change in the structure
- Some hydrogen bonds will be removed

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*Creates steric interactions*

7) If the hydrophobicity of Ala is 0.85 and Val is 2.15 and Ala is mutated to Val, what is the change in hydrophobicity? 1 point

- 1.40
- 0.85
- 2.15
- 1.30

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*1.30*

8) In exposed coil mutations, which of the following is correct? 1 point

- Inverse relationship between flexibility and stability
- Inverse relationship between polarity and stability
- Inverse relationship between hydrophobicity and stability
- Direct relationship between hydrophobicity and stability

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*Inverse relationship between hydrophobicity and stability*

9) Which features are generally used in structure based methods 1 point

- Secondary structure
- Solvent accessibility
- Distance potentials
- All the above

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*All the above*

10) Including the information on secondary structure and solvent accessibility, the performance of a prediction method for classifying the stabilizing and destabilizing mutants will 1 point

- Increase
- Decrease
- No change
- Secondary structure increases and solvent accessibility decreases

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*Increase*