

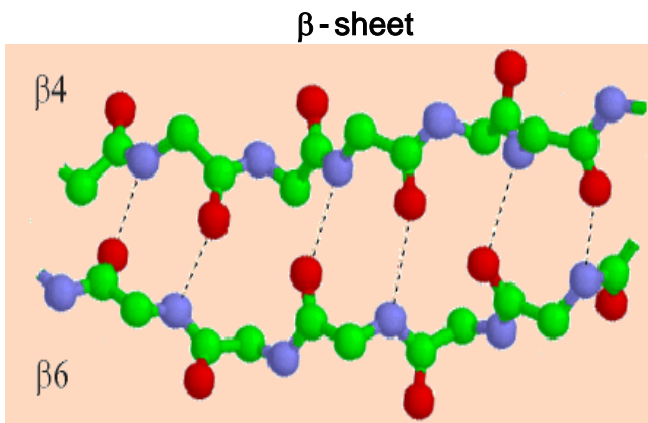
## (secondary structure)

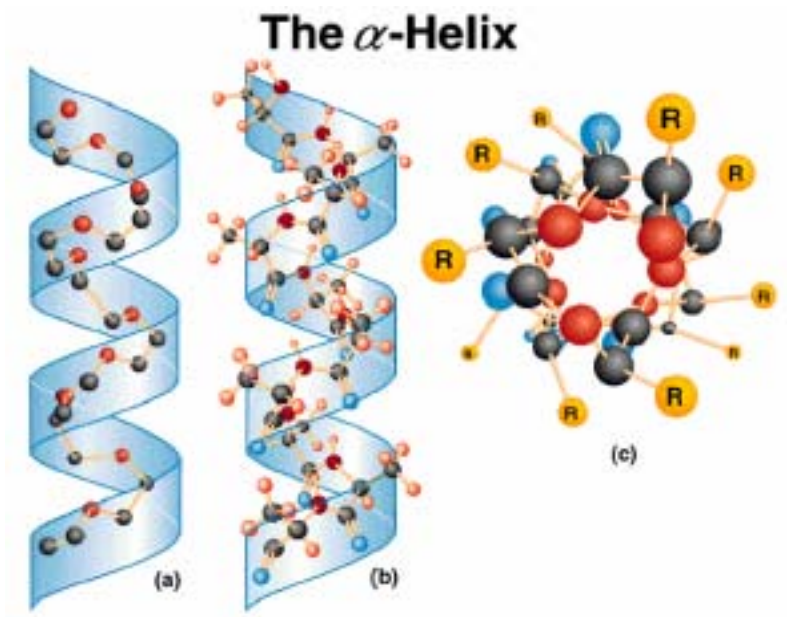
### 1. DSSP

(primary structure; DNA structure) ) (secondary structure)  
 (tertiary structure)

DSSP(dictionary of protein secondary structure) [1]. DSSP (solvent accessibility)

DSSP DSSP  
 "http://www.cmbi.kun.nl/gv/dssp/" DSSP  
 가 DSSP 가 (G: 3<sub>10</sub> helix, H: alpha helix, I: pi helix, B: residue in isolated beta-bridge, E: extended strand, participates in beta ladder, T: hydrogen-bonded turn, S: bend, X: otherwise)  
 가 가 (H: helix, E: extended, C: coil)  
 (G, H, and I → H; B and E → E; T, S, and X → C).





## 2. PSIPRED

가  
 PSIPRED [2]. PSIPRED (prediction accuracy) 80%  
 . PSIPRED Protein Structure Prediction  
 Server(<http://bioinf.cs.ucl.ac.uk/psipred/psiform.html>)  
 [3].

PSIPRED ( )  
 . PSIPRED  
 “<ftp://bioinf.cs.ucl.ac.uk/pub/psipred/>” . PSIPRED  
 PSI-BLAST PSIPRED 가 . PSI-  
 BLAST [4].

PSIPRED PSI-BLAST 가 “ ( )  
 ”(position-specific scoring matrix;  
 PSSM ) . PSSM  $n \times 20$  . n  
 , 20 20 가  
 . PSIPRED PSSM  
 15×20 , (input vector)  
 15 (window size) , 15 .

PSIPRED (David T. Jones)가 15 ,  
15 가 . PSIPRED  
(neural network) , (pattern recognition)  
(machine learning) 가 .

(training)  
(parameters) .  
가 . 15x20 가  
, 15 가  
(DSSP )

가

가

PSIPRED (PSI-BLAST  
) PSSM . PSSM

PSIPRED PSSM .

PSIPRED .

### 3.

(support vector machine)

(nearest neighbor) .

SVMpsi [5]. SVMpsi PSIPRED .

PREDICT PSIPRED SVMpsi [6,7].  
가 가 가  
가 가 가  
가 100 가 가  
가 helix 가 20 , extended 가 50 , coil 30 가  
extended extended 15x20

PSI-BLAST PSSM

( PSSM)

(<http://www.cheric.org>), PSSM

[ ]

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[3] L. J. McGuffin, K. Bryson, and D. T. Jones, The PSIPRED protein structure prediction server, *Bioinformatics* **16** (2000) 404-405.

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- [5] H. Kim and H. Park, Protein secondary structure prediction based on an improved support vector machines approach, *Protein Eng.* **16** (2003) 553-560.
- [6] K. Joo, J. Lee, S.-Y. Kim, I. Kim, J. Lee, and S. J. Lee, Profile-based nearest neighbor method for pattern recognition, *J. Korean Phys. Soc.* **44** (2004) 599-604.
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