

# 多序列比对

总分: 30

\*此封面页请勿删除，删除后将无法上传至试卷库，添加菜单栏任意题型即可制作试卷。本提示将在上传时自动隐藏。

1. Install PSI-BLAST and nr database in your PC and run PSI-BLAST for at least one protein sequence randomly selected from PDB (e.g., from the first project).

PSI-BLAST is available at:

<ftp://ftp.ncbi.nlm.nih.gov/blast/executables/blast+/LATEST/>

nr database (~2G) is available at the course website: <https://share.weiyun.com/xOrvvYb0>

You should report **the MSA and the PSSM matrix** of your query sequence.

2. Deduce the formula of **weighted** profile-profile alignment:

$$S(i, j) = \vec{f_i} \cdot \vec{p_j}$$

3.\* (选做题) Write a program for profile-profile alignment (the inputs to your program are two MSAs)