

## Practical 4

### 14 Feb 2022

### Questions

1. a. Write a program to construct a dot plot for the alignment of human and chicken hemoglobin  $\beta$  chain. Identify the segments, which are same in both sequences.  
b. Construct the dot plot manually for the residues 1-20 and verify with the plot obtained using program

2. Calculate the score for the following alignments **using code**:

**AATCTATA**  
**AAG--ATA**

Assume that the match score is 1, mismatch score is 0, origination penalty is -2, and length penalty is -1.

3. Verify the Q2 **manually**
4. Using the Needleman and Wunsch dynamic programming method, construct the partial alignment score table and align the following two sequences (**using code**):

ACAGTCGAACG and ACCGTCCG

use the scoring parameters: match score: +2; mismatch score: -1 and gap penalty: -2

5. Verify Q4 **manually**

**Deadline: 20 Feb 2022**