# Question 1

## (i)

SARS-CoV2 is similar to MERS-COV rather than SARS-CoV1. This can be observed from the plots below.

## (ii)

It is easier to identify the similarity using protein sequences rather than DNA sequences. DNA only consists of 4 components, so the chance of accidentally being similar is much higher. On the other hand, there are 20 amino acids. Thus, only similar proteins will have similar protein sequences.

## (iii)

**Dottup Parameters**

- Word Size (k-tuple) = 10

**Dotmatcher Parameters**

- Window Size = 15
- Threshold Value = 50

**Plots**

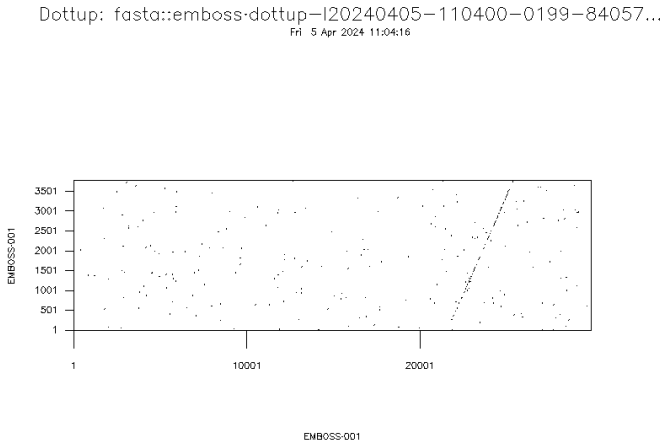


Figure 1: Dottup SARSCoV-SARSCoV2 DNA

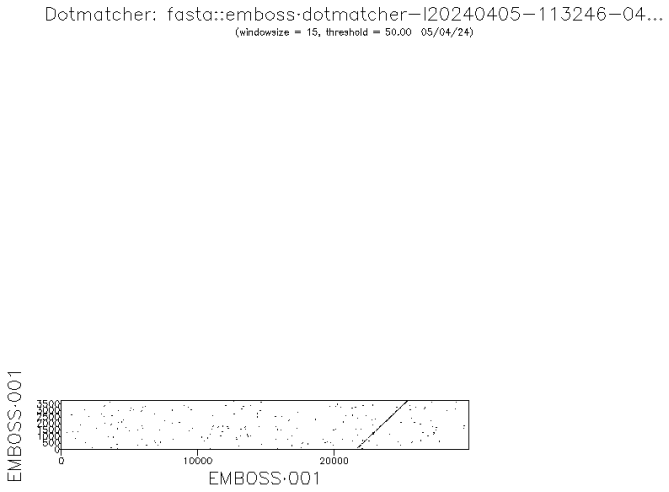


Figure 2: Dotmatcher SARSCoV-SARSCoV2 DNA

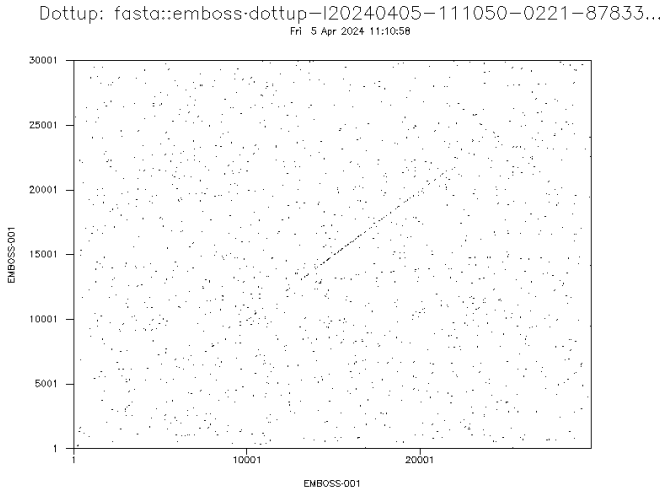


Figure 3: Dottup MERSCoV-SARSCoV2 DNA

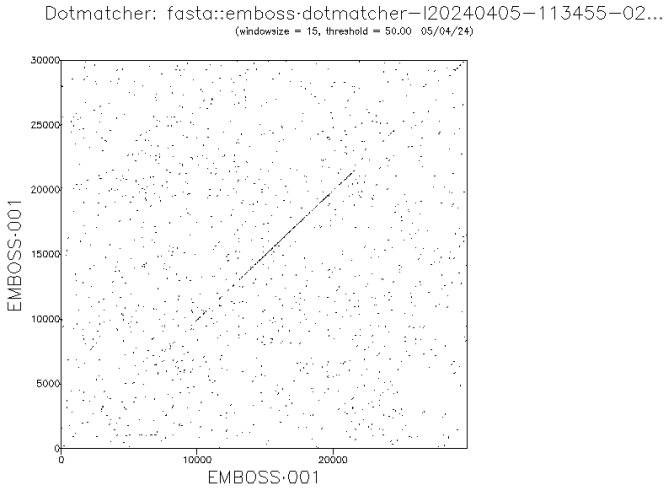


Figure 4: Dotmatcher MERSCoV-SARSCoV2 DNA

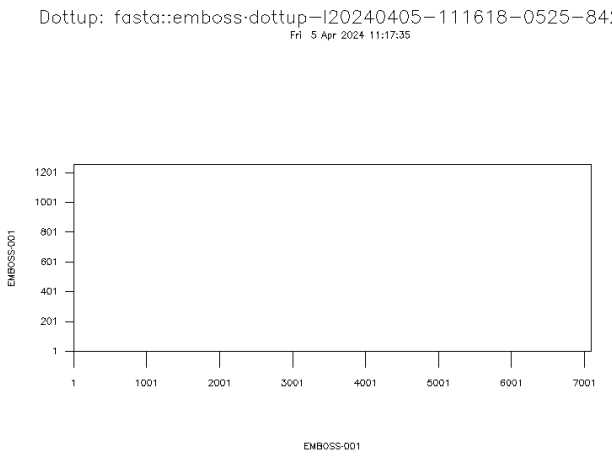


Figure 5: Dottup SARSCoV-SARSCoV2 Protein

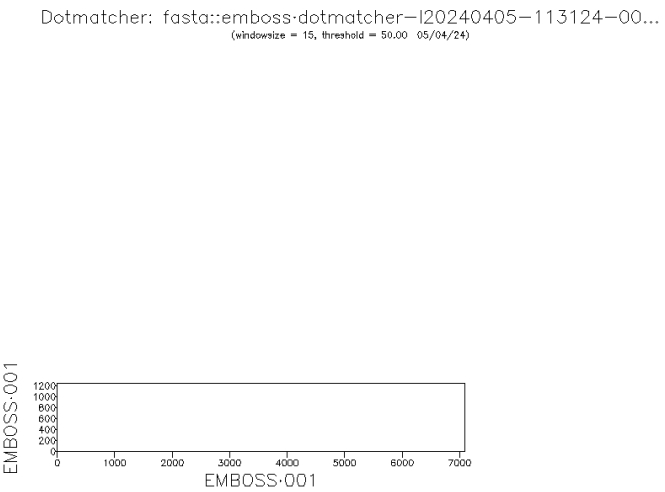


Figure 6: Dotmatcher SARSCoV-SARSCoV2 Protein

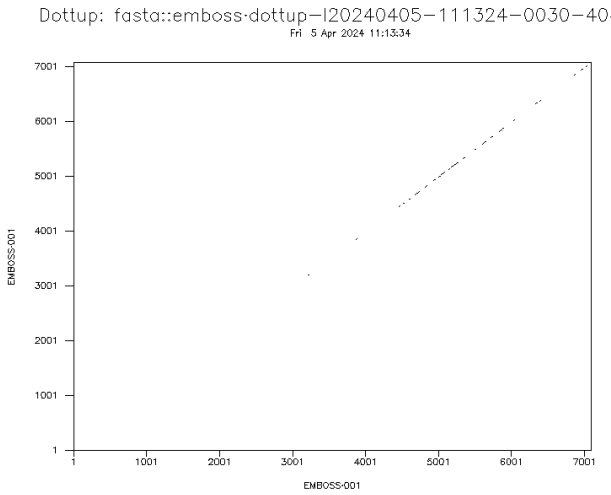


Figure 7: Dottup MERSCoV-SARSCoV2 Protein

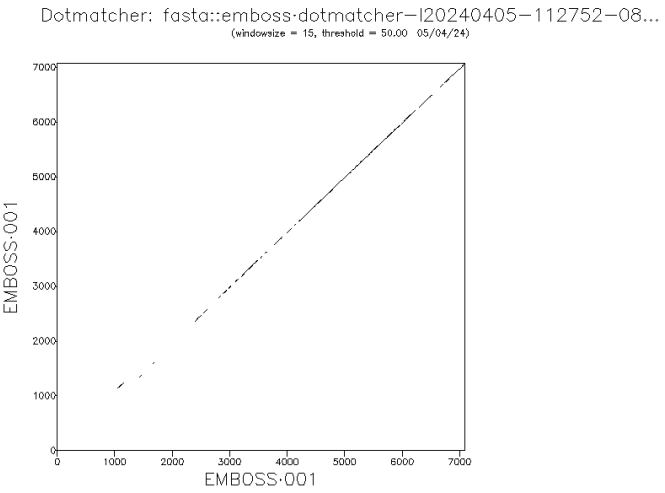


Figure 8: Dotmatcher MERSCoV-SARSCoV2 Protein

## Question 2

## Question 3

## Question 4

## Question 5