

# Lab 2 Report

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## **1 Introduction**

This is a lab report for analysis of amino acid sequence in antibodies vs non-antibody proteins.

## **2 Results**

```
[14] plt.hist(X[0],25) #plots the composition of amino acids converted in unicodes in the protein as a histogram
```

```
(array([109.,  0.,  8., 70., 139., 38., 34., 11., 49.,  0., 75.,
        106., 16., 31.,  0., 104., 31., 29., 144., 61.,  0., 79.,
         4.,  0., 25.]),
 array([ 0. ,  0.96,  1.92,  2.88,  3.84,  4.8 ,  5.76,  6.72,  7.68,
         8.64,  9.6 , 10.56, 11.52, 12.48, 13.44, 14.4 , 15.36, 16.32,
        17.28, 18.24, 19.2 , 20.16, 21.12, 22.08, 23.04, 24.  ]),
<a list of 25 Patch objects>)
```

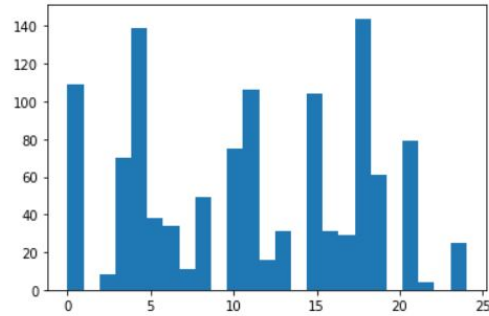


Figure 1: Figure showing distribution of amino acids of a sample antibody converted into Unicode values

```
[14] plt.hist(X[0],25) #plots the composition of amino acids converted in unicodes in the protein as a histogram
```

```
(array([109.,  0.,  8., 70., 139., 38., 34., 11., 49.,  0., 75.,
        106., 16., 31.,  0., 104., 31., 29., 144., 61.,  0., 79.,
         4.,  0., 25.]),
 array([ 0. ,  0.96,  1.92,  2.88,  3.84,  4.8 ,  5.76,  6.72,  7.68,
         8.64,  9.6 , 10.56, 11.52, 12.48, 13.44, 14.4 , 15.36, 16.32,
        17.28, 18.24, 19.2 , 20.16, 21.12, 22.08, 23.04, 24.  ]),
<a list of 25 Patch objects>)
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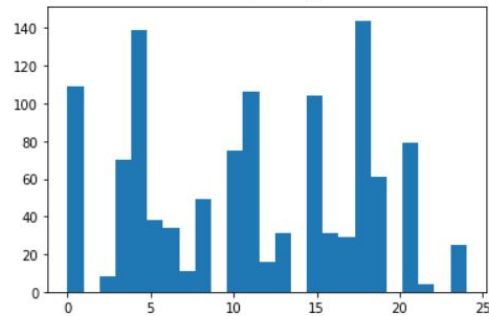


Figure 2: Figure showing distribution of amino acids of a non-antibody protein converted into Unicode values

```
[24] plt.hist(X_lengths,bins=1000,range=(0,5000)); #plots histogram of the protein lengths in the database
```

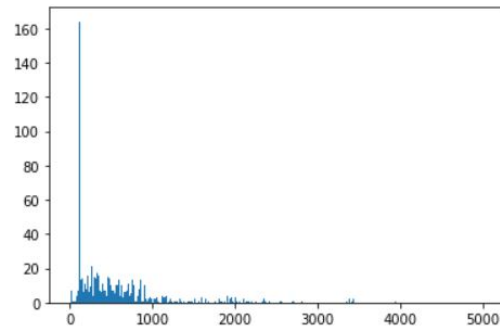


Figure 3: Figure showing distribution of sequence length of antibody proteins in the database

```
▶ plt.hist(Y_lengths,bins=1000,range=(0,5000)); #plots histogram of the non-antibody lengths in the database
```

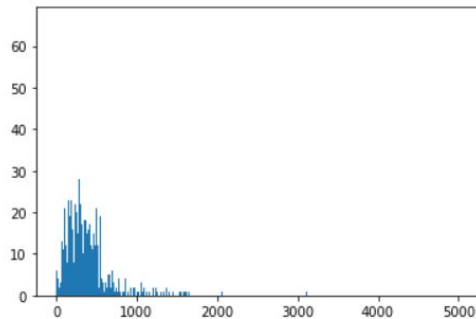


Figure 4: Figure showing distribution of sequence length of nonantibody proteins in the database