

Supplementary Table S1- List of 25 poxviruses along with proteome IDs and number of proteins

| S. No. | Name of the Virus                      | Proteome ID | Number of Proteins |
|--------|--|-------------|--------------------|
| 1      | Lumpy skin Disease virus               | UP000315615 | 156                |
| 2      | Myxoma virus                           | UP000291359 | 158                |
| 3      | Orf virus                              | UP000693994 | 130                |
| 4      | Sealpox virus                          | UP000202998 | 119                |
| 5      | Pseudocowpox virus                     | UP000117145 | 125                |
| 6      | Sheeppox virus                         | UP000318262 | 129                |
| 7      | Ectromelia virus                       | UP000130118 | 180                |
| 8      | Squirrel pox virus                     | UP000144311 | 141                |
| 9      | Camelpox virus                         | UP000107153 | 261                |
| 10     | Yaba monkey tumor virus                | UP000008596 | 140                |
| 11     | Tanapox virus                          | UP000099606 | 155                |
| 12     | Swinepox virus                         | UP000000871 | 146                |
| 13     | Turkeypox virus                        | UP000142477 | 170                |
| 14     | Taterapox virus                        | UP000139570 | 220                |
| 15     | Vaccinia virus                         | UP000000344 | 218                |
| 16     | Variola Virus                          | UP000002060 | 198                |
| 17     | Cowpox virus                           | UP000097203 | 214                |
| 18     | Horsepox virus                         | UP000111173 | 228                |
| 19     | Monkeypox virus                        | UP000516359 | 183                |
| 20     | Molluscum contagiosum virus<br>subtype | UP000000869 | 163                |
| 21     | Fowlpox virus                          | UP000150838 | 232                |
| 22     | Bovine papular stomatitis virus        | UP000104372 | 130                |
| 23     | Canarypox virus                        | UP000168164 | 322                |
| 24     | Volepox virus                          | UP000203649 | 204                |

|    |               |             |     |
|----|---------------|-------------|-----|
| 25 | Goatpox virus | UP000134642 | 149 |
|----|---------------|-------------|-----|

Supplementary Table S2 – Antigen classification performance

|                           | Accuracy | Precision | Recall | F1 Score |
|---------------------------|----------|-----------|--------|----------|
| Random Forest             | 0.51     | 0.56      | 0.40   | 0.47     |
| Support Vector Machines   | 0.65     | 0.67      | 0.71   | 0.69     |
| Logistic Regression       | 0.63     | 0.65      | 0.67   | 0.66     |
| Gradient Boosting         | 0.49     | 0.53      | 0.42   | 0.47     |
| Extreme Gradient Boosting | 0.54     | 0.57      | 0.51   | 0.54     |
| K-Nearest Neighbors       | 0.62     | 0.63      | 0.69   | 0.66     |

Supplementary Table S3 – T cell epitopes classification performance

|                           | Accuracy | Precision | Recall | F1 Score |
|---------------------------|----------|-----------|--------|----------|
| Random Forest             | 0.66     | 0.67      | 0.68   | 0.67     |
| Support Vector Machines   | 0.53     | 0.55      | 0.38   | 0.45     |
| Logistic Regression       | 0.53     | 0.54      | 0.46   | 0.50     |
| Gradient Boosting         | 0.67     | 0.70      | 0.61   | 0.65     |
| Extreme Gradient Boosting | 0.68     | 0.69      | 0.67   | 0.68     |
| K-Nearest Neighbors       | 0.57     | 0.65      | 0.32   | 0.43     |