

Table S17: Results of statistical significance tests on the 13 SARS-CoV-2 datasets with balanced scaffold split, where numbers represent the p-values (one-sided significance level) of the McNemar's test between the models in the table (CHEM-BERT, GROVER, MolCLRGIN and MolCLRGCN, RNN_LR, RNN_MLP, RNN_RF, TRFM_LR, TRFM_MLP and TRFM_RF) and ImageMol. The numbers in green background indicate statistically different models, using a significance threshold of 0.05.

| | CHEM-BERT | GROVER | MolCLRGIN | MolCLRGCN | RNN_LR |
|----------------------|-----------|----------|-----------|-----------|----------|
| 3CL | 0.221 | 0.683 | 0.221 | 0.221 | 1 |
| ACE2 | 0.48 | 0.134 | 0.48 | 0.48 | 0.009 |
| HEK293 | 0.024 | 0.576 | 0.073 | 0.001 | 0.014 |
| hCYTOX | 0.043 | 0.382 | 0.07 | 0.539 | 0.013 |
| MERS-PPE | 0.002 | 0.64 | 0.0001 | 0.0004 | 0.002 |
| MERS-PPE_cs | 0.062 | 0.232 | 0.185 | 0.845 | 0.016 |
| CoV-PPE | 0.012 | 0.562 | 0.05 | 0.185 | 0.057 |
| CoV-PPE_cs | 0.064 | 0.042 | 0.136 | 0.245 | 0.054 |
| CPE | 0.462 | 0.349 | 0.482 | 0.319 | 0.834 |
| Cytotox | 0.017 | 1.72E-06 | 1.22E-08 | 1.22E-08 | 0.07 |
| AlphaLISA | 1.35E-07 | 0.65 | 0.671 | 0.252 | 3.28E-05 |
| TruHit | 2.42E-06 | 0.456 | 0.511 | 0.002 | 0.0001 |
| TMPRSS2 | 0.003 | 0.353 | 0.29 | 0.011 | 4.25E-05 |
| ----- continue ----- | | | | | |
| | RNN_MLP | RNN_RF | TRFM_LR | TRFM_MLP | TRFM_RF |
| 3CL | 0.505 | 0.371 | 0.289 | 0.45 | 0.371 |
| ACE2 | 0.009 | 0.077 | 0.016 | 0.016 | 0.852 |
| HEK293 | 3.12E-05 | 0.046 | 0.03 | 0.0004 | 0.523 |
| hCYTOX | 0.012 | 0.128 | 0.196 | 0.001 | 0.855 |
| MERS-PPE | 0.001 | 0.018 | 0.0008 | 0.0006 | 0.142 |
| MERS-PPE_cs | 0.0002 | 0.09 | 0.0271 | 0.011 | 0.775 |
| CoV-PPE | 0.011 | 0.002 | 0.022 | 2.20E-05 | 0.153 |
| CoV-PPE_cs | 2.33E-06 | 0.01 | 0.043 | 0.056 | 0.651 |
| CPE | 0.293 | 0.079 | 0.38 | 0.025 | 0.154 |
| Cytotox | 0.053 | 0.0003 | 1.39E-05 | 0.004 | 3.71E-07 |
| AlphaLISA | 4.96E-08 | 0.019 | 0.318 | 1.16E-05 | 0.043 |
| TruHit | 1.22E-07 | 0.0006 | 0.032 | 1.23E-04 | 0.014 |
| TMPRSS2 | 1.53E-06 | 0.007 | 0.004 | 1.15E-06 | 0.246 |