Supporting Table ML-Performance Rev

Daniel Stern

2025-03-04

## Results of ML testing

Supporting Table. Performance parameters for tested ML-algorithms stratified by seropanel used for training and testing and antibody isotypes.

| Seropanel (traing test) | Antibody Isotypes | Performance parameter | LDA | RF | GBC | FRBC | LDA+FRBC | LDA+RF |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| acute acute | IgG | accuracy | 0.81 ±0.03 | 0.83 ±0.02 | 0.86 ±0.03 | 0.77 ±0.02 | 0.76 ±0.03 | 0.8 ±0.03 |
| acute acute | IgG | precision | 0.79 ±0.05 | 0.85 ±0.05 | 0.84 ±0.04 | 0.75 ±0.06 | 0.51 ±0.07 | 0.79 ±0.05 |
| acute acute | IgG | recall | 0.77 ±0.06 | 0.73 ±0.03 | 0.81 ±0.05 | 0.7 ±0.06 | 0.54 ±0.03 | 0.76 ±0.06 |
| acute acute | IgG | F1 score | 0.78 ±0.05 | 0.76 ±0.04 | 0.82 ±0.04 | 0.71 ±0.04 | 0.52 ±0.04 | 0.77 ±0.05 |
| acute acute | IgM IgG | accuracy | 0.87 ±0.03 | 0.85 ±0.03 | 0.87 ±0.02 | 0.83 ±0.03 | 0.83 ±0.02 | 0.87 ±0.03 |
| acute acute | IgM IgG | precision | 0.83 ±0.06 | 0.88 ±0.03 | 0.85 ±0.05 | 0.78 ±0.09 | 0.56 ±0.02 | 0.85 ±0.05 |
| acute acute | IgM IgG | recall | 0.81 ±0.07 | 0.74 ±0.06 | 0.81 ±0.05 | 0.75 ±0.07 | 0.59 ±0.02 | 0.81 ±0.05 |
| acute acute | IgM IgG | F1 score | 0.82 ±0.06 | 0.78 ±0.06 | 0.82 ±0.04 | 0.76 ±0.07 | 0.57 ±0.02 | 0.82 ±0.05 |
| acute epi | IgG | accuracy | 0.55 ±NA | 0.37 ±0 | 0.38 ±0.01 | 0.42 ±0.06 | 0.33 ±0 | 0.56 ±0 |
| acute epi | IgG | precision | 0.56 ±NA | 0.51 ±0 | 0.49 ±0 | 0.49 ±0.02 | 0.21 ±0 | 0.57 ±0 |
| acute epi | IgG | recall | 0.64 ±NA | 0.54 ±0 | 0.49 ±0.01 | 0.47 ±0.04 | 0.51 ±0 | 0.65 ±0 |
| acute epi | IgG | F1 score | 0.51 ±NA | 0.34 ±0 | 0.36 ±0.01 | 0.39 ±0.05 | 0.3 ±0 | 0.52 ±0 |
| acute epi | IgM IgG | accuracy | 0.51 ±NA | 0.31 ±0 | 0.4 ±0 | 0.36 ±0.03 | 0.23 ±NA | 0.46 ±0.01 |
| acute epi | IgM IgG | precision | 0.52 ±NA | 0.48 ±0 | 0.48 ±0 | 0.46 ±0.02 | 0.16 ±NA | 0.5 ±0 |
| acute epi | IgM IgG | recall | 0.54 ±NA | 0.46 ±0.01 | 0.49 ±0 | 0.42 ±0.03 | 0.43 ±NA | 0.52 ±0.01 |
| acute epi | IgM IgG | F1 score | 0.46 ±NA | 0.29 ±0 | 0.38 ±0 | 0.33 ±0.03 | 0.21 ±NA | 0.43 ±0 |
| all all | IgG | accuracy | 0.78 ±0.02 | 0.78 ±0.02 | 0.81 ±0.02 | 0.76 ±0.02 | 0.63 ±0.02 | 0.79 ±0.02 |
| all all | IgG | precision | 0.8 ±0.02 | 0.79 ±0.02 | 0.81 ±0.02 | 0.76 ±0.02 | 0.66 ±0.02 | 0.79 ±0.02 |
| all all | IgG | recall | 0.78 ±0.02 | 0.76 ±0.02 | 0.81 ±0.02 | 0.75 ±0.03 | 0.64 ±0.02 | 0.78 ±0.02 |
| all all | IgG | F1 score | 0.78 ±0.02 | 0.77 ±0.02 | 0.81 ±0.02 | 0.75 ±0.03 | 0.64 ±0.02 | 0.78 ±0.02 |
| all all | IgM IgG | accuracy | 0.8 ±0.02 | 0.77 ±0.02 | 0.83 ±0.02 | 0.76 ±0.02 | 0.6 ±0.03 | 0.8 ±0.02 |
| all all | IgM IgG | precision | 0.81 ±0.02 | 0.8 ±0.02 | 0.83 ±0.02 | 0.76 ±0.02 | 0.61 ±0.06 | 0.81 ±0.02 |
| all all | IgM IgG | recall | 0.79 ±0.02 | 0.76 ±0.02 | 0.82 ±0.02 | 0.75 ±0.02 | 0.61 ±0.03 | 0.8 ±0.02 |
| all all | IgM IgG | F1 score | 0.8 ±0.02 | 0.76 ±0.03 | 0.82 ±0.02 | 0.75 ±0.02 | 0.6 ±0.04 | 0.8 ±0.02 |
| epi acute | IgG | accuracy | 0.67 ±NA | 0.46 ±0.01 | 0.61 ±0.01 | 0.5 ±0.07 | 0.43 ±0.01 | 0.67 ±0 |
| epi acute | IgG | precision | 0.62 ±NA | 0.6 ±0 | 0.59 ±0.01 | 0.56 ±0.03 | 0.59 ±0 | 0.62 ±0 |
| epi acute | IgG | recall | 0.76 ±NA | 0.64 ±0.01 | 0.71 ±0.01 | 0.65 ±0.04 | 0.59 ±0.01 | 0.76 ±0 |
| epi acute | IgG | F1 score | 0.62 ±NA | 0.45 ±0.01 | 0.56 ±0.01 | 0.47 ±0.06 | 0.42 ±0.01 | 0.62 ±0 |
| epi acute | IgM IgG | accuracy | 0.69 ±NA | 0.63 ±0 | 0.63 ±0.01 | 0.48 ±0.08 | 0.49 ±0.03 | 0.68 ±0 |
| epi acute | IgM IgG | precision | 0.63 ±NA | 0.64 ±0 | 0.6 ±0.01 | 0.53 ±0.05 | 0.58 ±0.01 | 0.62 ±0 |
| epi acute | IgM IgG | recall | 0.76 ±NA | 0.73 ±0 | 0.71 ±0.01 | 0.62 ±0.05 | 0.62 ±0.01 | 0.76 ±0 |
| epi acute | IgM IgG | F1 score | 0.63 ±NA | 0.58 ±0 | 0.58 ±0.01 | 0.45 ±0.07 | 0.46 ±0.02 | 0.62 ±0 |
| epi epi | IgG | accuracy | 0.81 ±0.03 | 0.81 ±0.02 | 0.82 ±0.02 | 0.79 ±0.03 | 0.76 ±0.03 | 0.81 ±0.03 |
| epi epi | IgG | precision | 0.78 ±0.04 | 0.77 ±0.09 | 0.79 ±0.06 | 0.71 ±0.04 | 0.68 ±0.1 | 0.79 ±0.06 |
| epi epi | IgG | recall | 0.75 ±0.05 | 0.62 ±0.04 | 0.73 ±0.04 | 0.65 ±0.04 | 0.58 ±0.04 | 0.75 ±0.06 |
| epi epi | IgG | F1 score | 0.76 ±0.04 | 0.64 ±0.05 | 0.75 ±0.04 | 0.67 ±0.04 | 0.59 ±0.05 | 0.76 ±0.05 |
| epi epi | IgM IgG | accuracy | 0.82 ±0.03 | 0.8 ±0.02 | 0.83 ±0.02 | 0.78 ±0.03 | 0.77 ±0.03 | 0.81 ±0.02 |
| epi epi | IgM IgG | precision | 0.81 ±0.04 | 0.76 ±0.14 | 0.78 ±0.07 | 0.7 ±0.06 | 0.71 ±0.08 | 0.8 ±0.04 |
| epi epi | IgM IgG | recall | 0.77 ±0.04 | 0.59 ±0.03 | 0.71 ±0.05 | 0.64 ±0.04 | 0.62 ±0.06 | 0.74 ±0.05 |
| epi epi | IgM IgG | F1 score | 0.78 ±0.04 | 0.61 ±0.05 | 0.74 ±0.06 | 0.65 ±0.04 | 0.64 ±0.06 | 0.76 ±0.04 |