

Table 1. A summary of the performance characteristics of eight commercial COVID-19 serology assays

Assay		Wantai total Ig	Wantai IgM	Euroimmun IgG [†]	Euroimmun IgA [†]	Liaison IgG	Cellex IgM/IgG	Intec IgM/IgG	Orient -Healgen IgM/IgG
Platform		ELISA	ELISA	ELISA	ELISA	CLIA	RDT	RDT	RDT
Antigen		RBD	RBD	S1	S1	S1 S2	S and N	N	S and N
Specificity									
	n/N	145/146	144/146	156/157	147/157	119/132	97/98	83/98	87/98
	Value	0,99	0,99	0,99	0,94	0,9	0,99	0,85	0,88
	95% CI	0,96 - 1,0	0,951- 1,0	0,97 - 1,0	0,89 - 0,97	0,84-0,95	0,95- 1,0	0,76 - 0,91	0,80-0,94
Sensitivity									
	n/N	186/187	167/185	61/75	73/75	134/165	101/113	102/113	113/113
Overall	Value	0,99	0,9	0,81	0,97	0,81	0,89	0,9	1,0
	95% CI	0,97- 1,0	0,85 - 0,94	0,71- 0,89	0,91 - 1,0	0,74-0,87	0,82-0,94	0,83- 0,95	0,97-1,0
	n/N	117/117	100/115	26/27	27/27	95/104	63/67	55/65	67/67
>14 dps	Value	1	0,87	0,96	1,0	0,91	0,94	0,84	1,0
	95% CI	0,97 - 1,0	0,79- 0,93	0,81-1,0	0,87 - 1,0	0,84- 0,96	0,85-0,98	0,74-0,92	0,95-1,0
	n/N	64/64	54/62	1/3	3/3	46/55	33/37	26/36	37/37
Mild	Value	1	0,87	0,33	1,0	0,84	0,89	0,72	1
	95% CI	0,94- 1,0	0,76 - 0,94	0,0084-0,91	0,29 - 1,0	0,71-0,92	0,75-0,97	0,55-0,86	0,91-1,0
Overall PPV									
	4%	0,86	0,73	0,84	0,39	0,26	0,78	0,2	0,26
Population prevalence	50%	0,99	0,99	0,99	0,94	0,89	0,99	0,86	0,89
	95%	1,0	1,0	1,0	1,0	0,99	1,0	0,99	0,99
Overall NPV									
	4%	1,0	1,0	0,99	1,0	0,99	1,0	1,0	1,0
Population prevalence	50%	0,99	0,91	0,84	0,97	0,83	0,9	0,9	1,0
	95%	0,91	0,35	0,22	0,65	0,2	0,33	0,31	1,0

The sensitivity of the assays was determined by correlation of the outcome to virus neutralization, measured by PRNT. Patients were considered mild if they have not been admitted to a hospital. The PPV was calculated for 3 scenarios: 4 % seroprevalence in a general population, 50% seroprevalence in a high risk sub-population and 95% seroprevalence in confirmed or highly suspect COVID-19 hospitalized patients

Ig: immunoglobulin, ELISA: enzyme linked immunosorbent assay, CLIA : chemiluminescence immune assay, RDT: rapid diagnostic test, CI : confidence interval, dps : days post onset of symptoms, PPV : positive predictive value, PRNT: plaque reduction neutralization test

