

## Correspondence

To the Editors

# Interrelationship among different SARS CoV-2 IgG antibody tests: a re-analysis

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Dear Editors,

Antibody test is an important tool for management of infection. IgG test is useful for determining non-acute infection as well as the response to vaccine immuno-stimulation. For COVID-19, the antibody test also plays those important roles. It also plays useful roles in some situations where molecular diagnosis is not useful. For example, it is useful for helping to diagnose children with multisystem inflammatory syndrome who have negative RT-PCR results<sup>1,2</sup>. At present, there are many available commercial antibody tests and the different diagnostic properties are reported<sup>3</sup>. Using different tests can give different seropositivity detection rates<sup>4</sup>. How to compare the results from the use of different antibody tests is an interesting issue.

In a recent report by Schnurra C, *et al*<sup>3</sup>, the discordance among seven commonly used SARS CoV-2 IgG tests was reported. Here, in the communication, the authors performed an additional re-analysis to the previous report, aiming to represent phylogenetic interrelationship among 7 different commercial SARS CoV-2 IgG tests (Roche, Abbott, Novatec, Virotech, Siemens, Euroimmun and Mediagnost). From re-analysis, the phylogenetic interrelationship distance is presented in Table 1.

Applying a 90% sequence similarity cut-off for phylogenetic pattern comparison, as used in referencing publication<sup>5</sup>, the grouping can be done and the derived groups are Group 1 consisting of Roche and Siemens, Group 2 consisting of Virotec and Novatec and 3 isolated individualized tests, Abbott, Euroimmun and Mediagnost. Hence, it confirms the high variability of SARS CoV2 IgG results among different diagnostic tests. However, it can also identify some diagnostics groups that have a similarity and close interrelationship and may cause low variability in cross interpretation of results.

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The author declares that there are no conflicts of interest.

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**Table 1: The phylogenetic interrelationship distance among 7 different commercial SARS CoV-2 IgG tests\***

<b>Test</b>	<b>Roche</b>	<b>Abbott</b>	<b>Novatec</b>	<b>Virotech</b>	<b>Siemens</b>	<b>Euroimmun</b>	<b>Mediagnost</b>
<b>Roche</b>	0	0.11	0.274	0.247	0.055	0.123	0.315
<b>Abbott</b>		0	0.1918	0.1644	0.164	0.178	0.26
<b>Novatec</b>			0	0.082	0.329	0.288	0.288
<b>Virotech</b>				0	0.699	0.26	0.26
<b>Siemens</b>					0	0.123	0.3315
<b>Euroimmun</b>						0	0.192
<b>Mediagnost</b>							0

\*value range from 0 to 1 (0 mean no interrelationship or 0% similarity and 1 means complete replicable interrelationship or 100% similarity).