# Researchers employ microfluidic diffusional sizing characterize neutralizing antibody affinity to SARS-CoV-2

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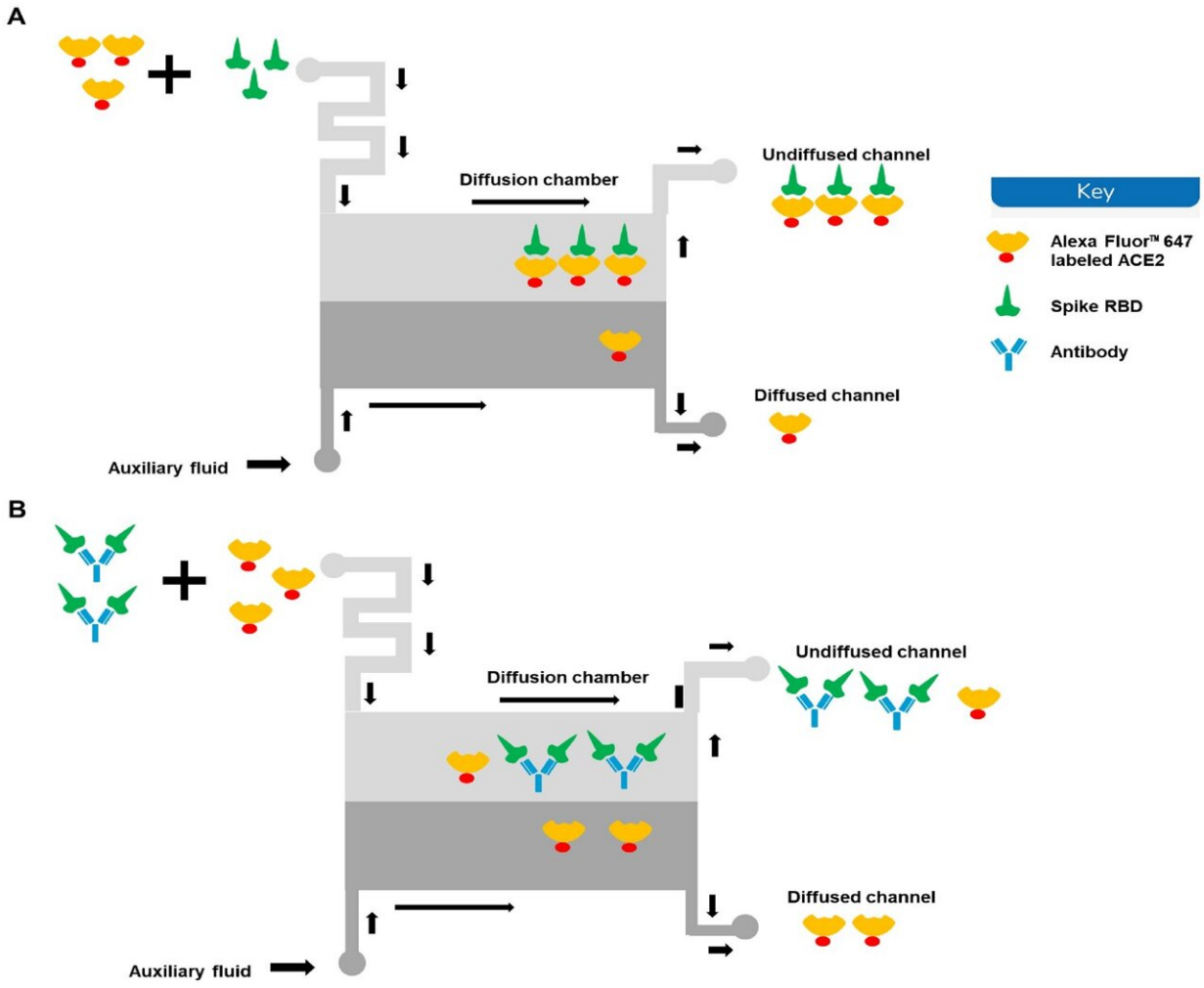


Schematic depict of the principles of the neutralizing antibody detection by microfluidic diffusional sizing. Credit: *Annals of Biomedical Engineering* (2024). DOI: 10.1007/s10439-024-03478-0

SARS-CoV-2 has rampantly spread around the globe and continues to cause unprecedented loss through ongoing waves of (re)infection. Increasing our understanding of the protection against infection with SARS-CoV-2 is critical to ending the pandemic.

Serological assays have been widely used to assess immune responses, but secretory antibodies, the essential first line of defense, have been studied to only a limited extent. Of particular interest and importance are neutralizing antibodies, which block the binding of the spike protein of SARS-CoV-2 to the human receptor angiotensin-converting enzyme-2 (ACE2) and thus are essential for immune defense.

In a study published in *Annals of Biomedical Engineering* researchers employed microfluidic diffusional sizing (MDS), an immobilization-free technology, to characterize neutralizing antibody affinity to SARS-CoV-2 spike receptor-binding domain (RBD) and spike trimer in saliva.

Affinity measurement was obtained through a contrived sample and buffer using recombinant SARS-CoV-2 RBD and monoclonal antibody. Limited saliva samples demonstrated that MDS applies to saliva neutralizing antibody measurement. The ability to disrupt a complex of ACE2-Fc and spike trimer is shown. Using a quantitative assay on the patient sample, the researchers determined the affinity and binding site concentration of the neutralizing antibodies.

**More information:** Cara O'Mahoney et al, Microfluidic Diffusional Sizing (MDS) Measurements of Secretory Neutralizing Antibody Affinity Against SARS-CoV-2, *Annals of Biomedical Engineering* (2024). DOI: 10.1007/s10439-024-03478-0

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