Therapeutics & Vaccines

# IDENTIFICATION OF SARS-COV-2 EPITOPES DISCRIMINATING COVID-19 INFECTION FROM CONTROL AND METHODS OF USE

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## The Invention

UW – Madison researchers have determined that SARS-CoV-2 infection induces antibodies against both structural and non-structural proteins and they identified epitopes in the SARS-CoV-2 membrane protein, nucleocapsid protein, and nonstructural proteins. Through their work, they found that more severely ill SARS-CoV-2 patients demonstrate higher-magnitude antibody responses against certain epitopes in SARS-CoV-2. The antibodies produced against SARS-CoV-2 are capable of cross-reactively binding other similar and dissimilar coronaviruses, including “common cold” coronaviruses. By showing the full spectrum of antibody binding to linear epitopes in SARS-CoV-2, the researchers were able to determine that the most reactive, sensitive, and specific epitopes are found in the membrane protein and that some of these epitopes induce greater reactivity in more severely ill patients. These previously unknown/unidentified epitopes suggest that this protein could be considered in vaccine development and in the development of improved diagnostics.

## Applications

SARS-CoV-2 diagnostic assays
SARS-CoV-2 vaccine development
COVID-19 infection detection

## Key Benefits

Identifies COVID-19 infection
Distinguishes prior infection versus vaccination
Potentially indicates COVID severity

## Additional Information

**For More Information About the Inventors**

- David O'Connor
- Miriam Shelef

**Tech Fields**

- Diagnostics & Biomarkers : Diagnostics
- Therapeutics & Vaccines : Vaccines

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