



# SARS-CoV-2 N-protein for use in COVID-19 serological assays (2020-323)

Full length SARS-CoV-2 Nucleocapsid (N) protein expressed by bacteria for use in serological assays to detect previous COVID-19 infection in humans and animals.

Technology No. 2020-323

**IP Status:** Provisional Patent Application Filed; **Application #:** 63/018,151

## Applications

- Covid-19 serological assays (human and animal)
- Basic Research
- Therapeutic development

## Key Benefits & Differentiators

- **Highly specific and sensitive performance in assays:** A serological study of patients with Covid-19 using N-based ELISA found antibodies in 100% of patients at day 5 post hospitalization. The ELISA test was specific to SARS coronaviruses.
- **Rapid and facile protein production:** Protein is inexpensive to produce using fast and accessible bacterial expression systems.
- **Validated in serological assays:** Purified N protein used in ELISA to detect antibodies against SARS-CoV-2 in human sera from COVID-19 patients (15+ days from symptom onset) showed high signal.

## Facile protein production for COVID-19 serological assays

Serology tests to detect SARS-CoV-2 specific antibodies are needed for clinical/surveillance or epidemiological studies in humans and animals. Drs. Yuying Liang and Hinh Ly's labs at the University of Minnesota have successfully expressed and purified full-length nucleocapsid (N) protein of the SARS-CoV-2 for use in serological tests. Previous assays developed to identify antibodies to the SARS-CoV-2 Spike (S) protein require a glycosylated S protein produced in mammalian cells. Such production can be slow, labor intensive and expensive. The spike

protein is also highly susceptible to accumulating mutations. However, the N-protein is not glycosylated and can be expressed using bacterial systems that are rapid, robust and easy to work with. Furthermore, results indicate that N-protein may in fact produce more sensitive assays than the S protein.

## Phase of Development

### TRL: 3-4

Purified N-protein shown to perform in human serological assays to detect previous COVID-19 infection.

## Desired Partnerships

This technology is now available for:

- License
- Sponsored research
- Co-development

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## Researchers

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