

# COVID Antibodies

John Meurer, MD, MBA

Professor and Director of the Institute for Health & Equity


Co-Principal Investigator of Fight COVID MKE



# Overview of topics

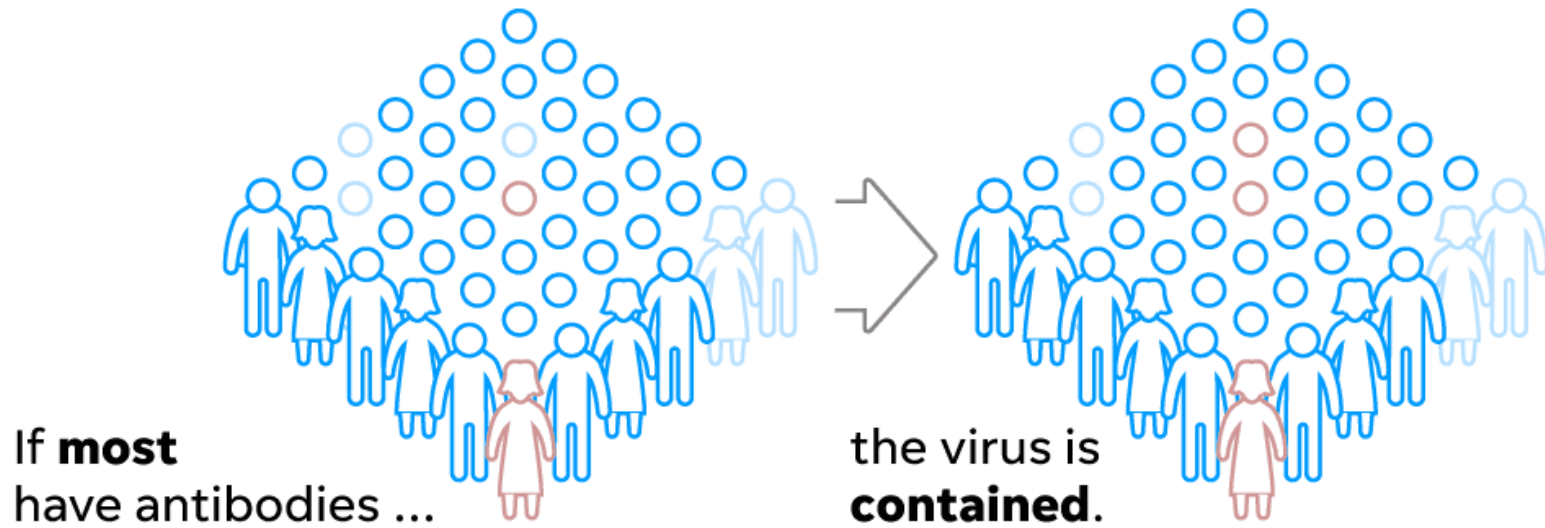
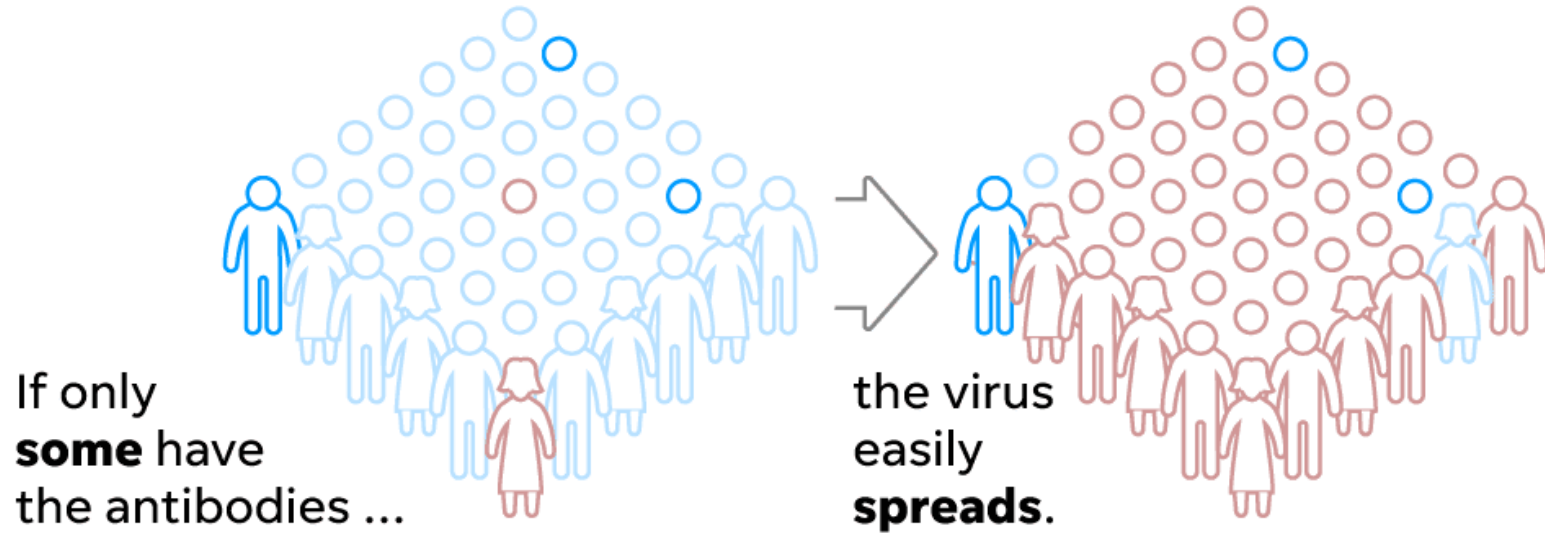
1. Antibody seroprevalence surveys
2. Viral PCR vs antibody tests
3. COVID infection and antibody timeline
4. Antibodies and other immunity
5. Antibodies in response to past infection or vaccination
6. CDC recommendations

USA Today

 Healthy,  
no antibodies

 Healthy with  
antibodies

 Contagious



12newsnow.com

## PCR TEST



- IDENTIFIES VIRAL RNA
- TAKEN THROUGH NASAL SWAB
- MOSTLY FOR SYMPTOMATIC PEOPLE

## ANTIBODY TEST



- LOOKS FOR ANTIBODIES (IGG OR IGM)
- TAKEN THROUGH BLOOD SAMPLE



**Now testing blood donations  
for COVID-19 antibodies**

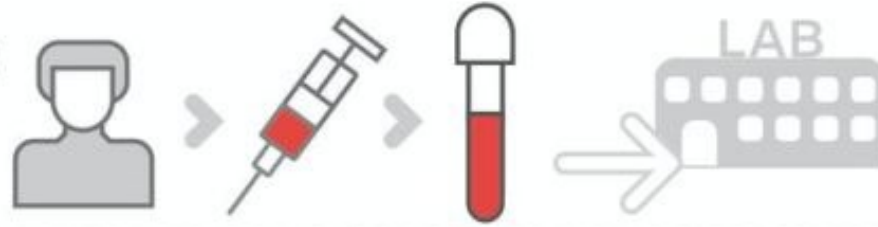


**American  
Red Cross**

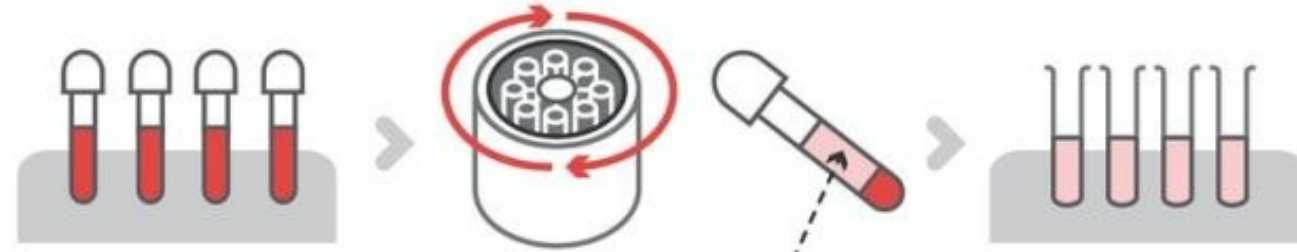


# How the Covid-19 antibody test works

1. Blood sample taken from patient and sent to laboratory



2. Sample put in centrifuge to separate **serum** (containing antibodies) from rest of blood



3. Machine adds serum to small cup. Chemical reagents are added to cup to test for reactions



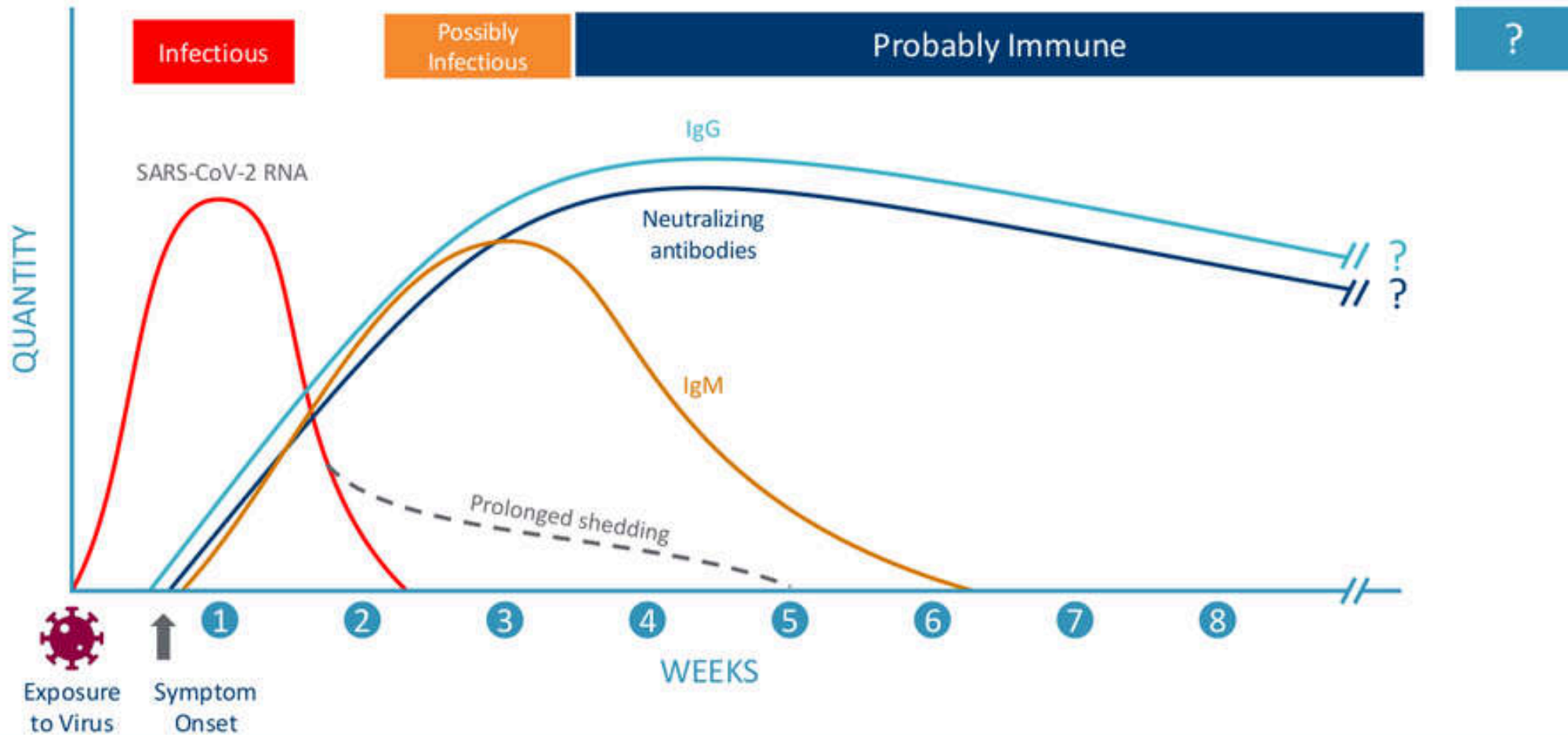
4. If **Covid-19 antibodies** are present, reagents trigger a light reaction. Machine detects the light

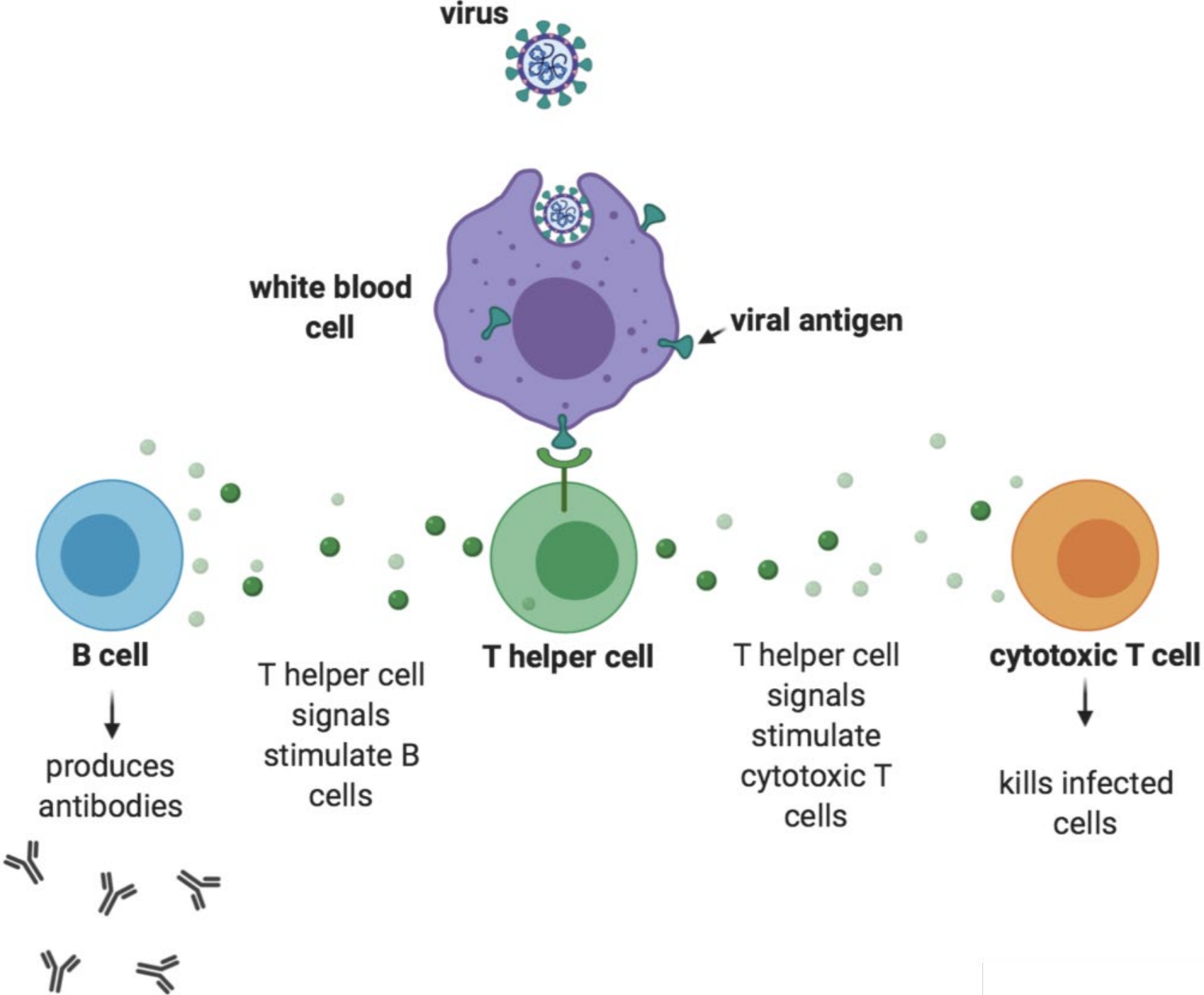


5. Results of test sent back to doctor, who knows if patient has had Covid-19 or not



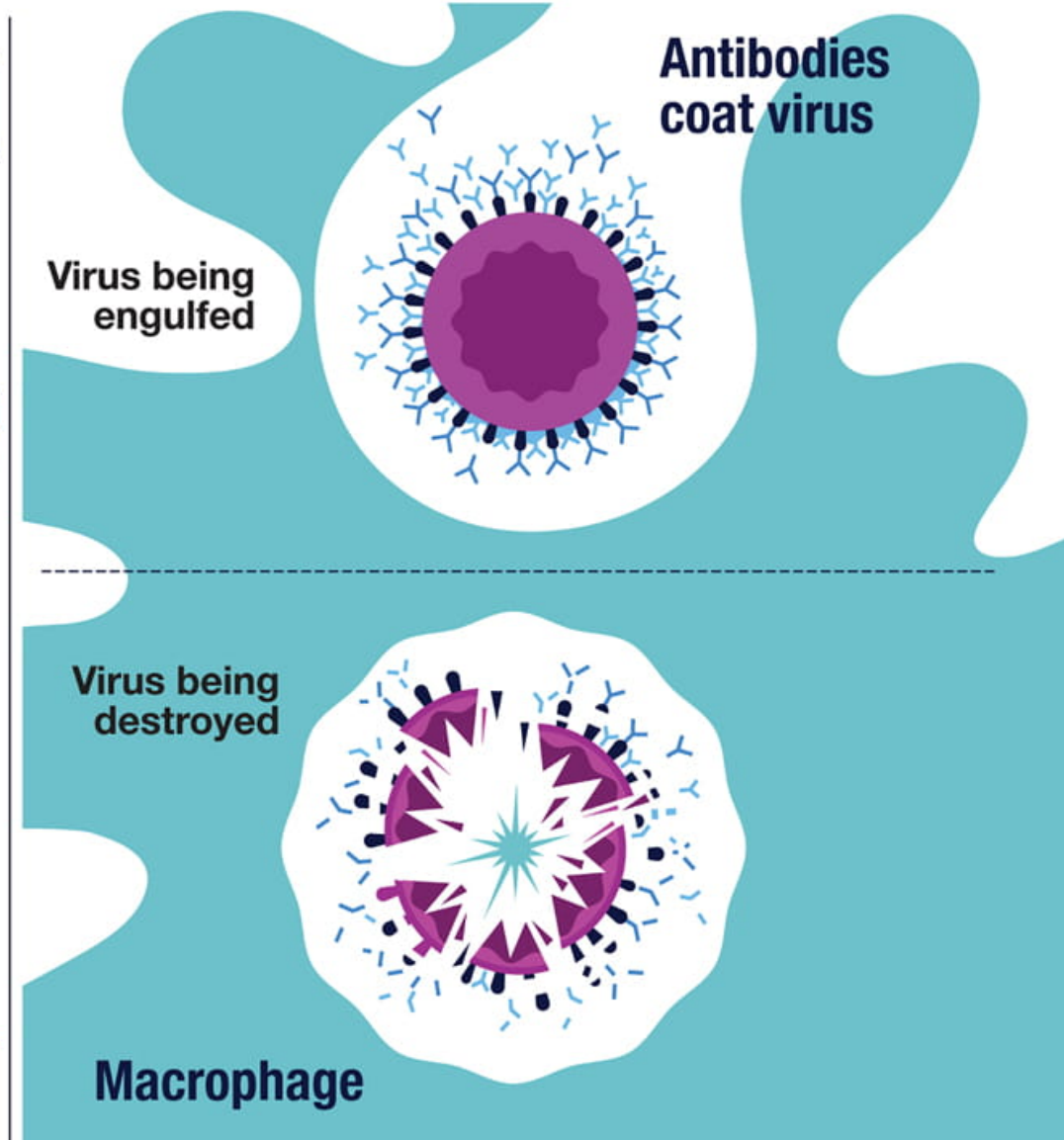
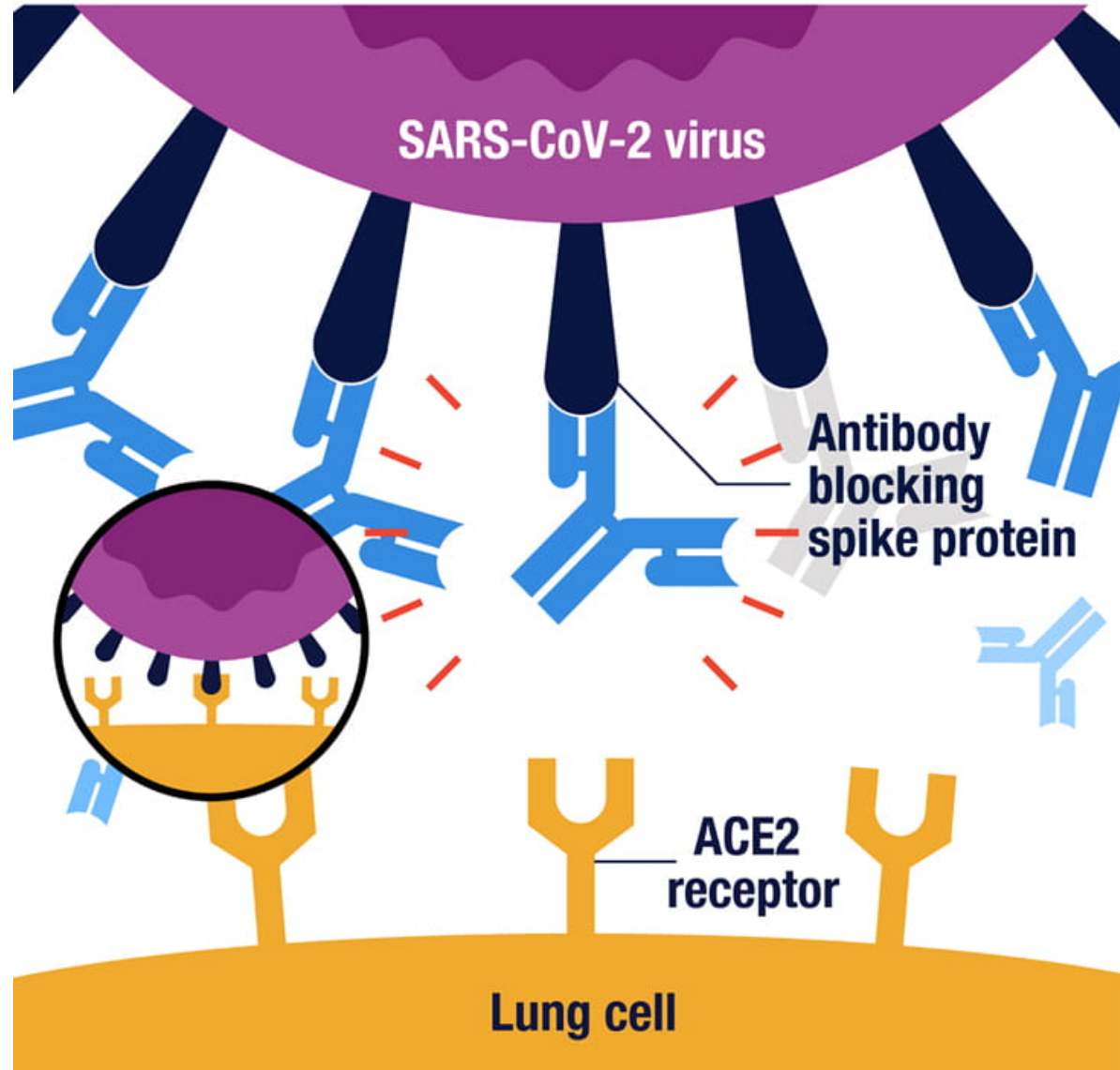
# SARS-CoV-2 Timeline

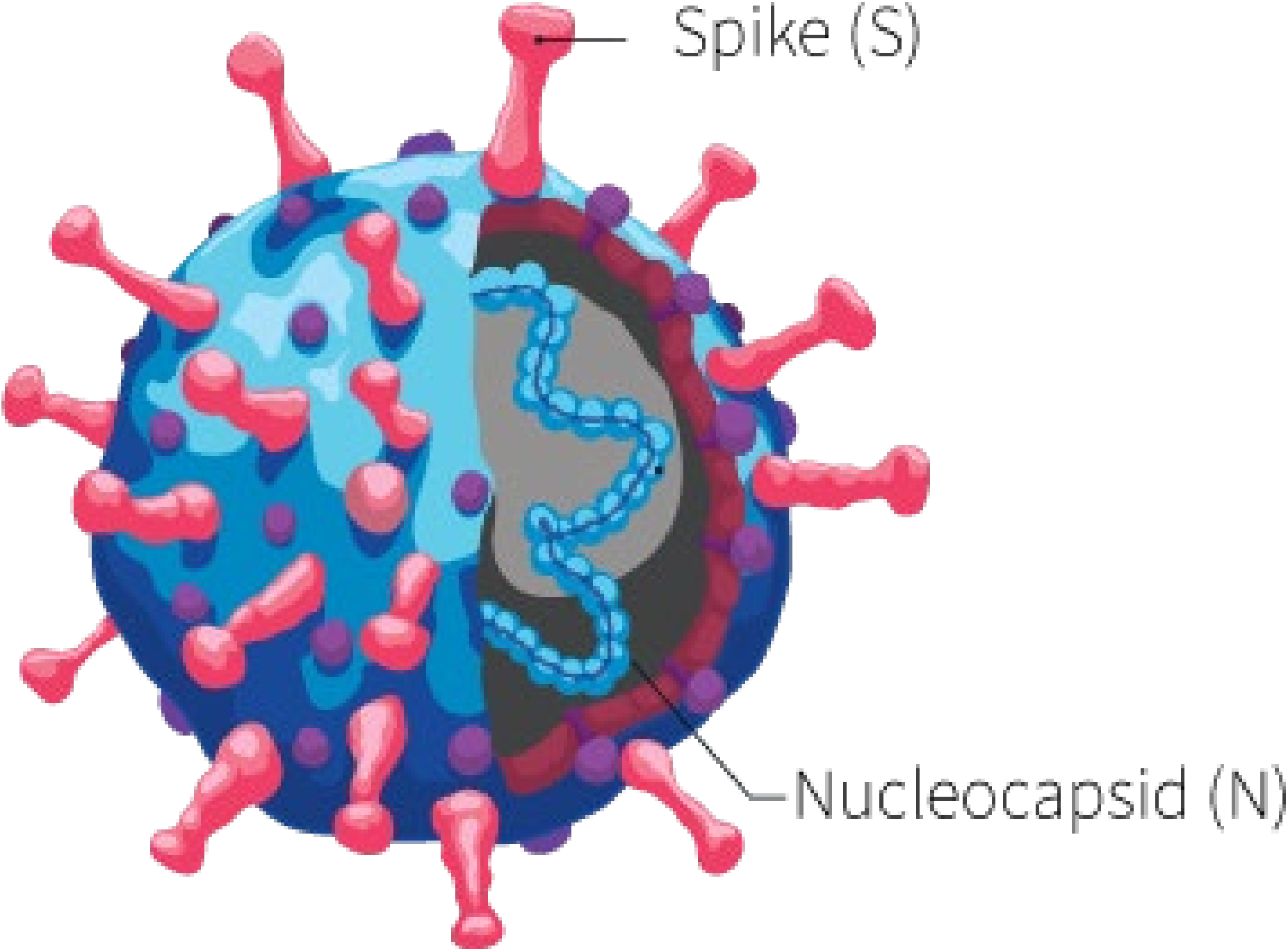






## Antibodies can fight viral invaders in two ways





CDC

Vaccination status	Anti-S antibody	Anti-N antibody	Interpretation*
Vaccinated	+	+	Vaccinated and previously infected
Vaccinated	+	-	Vaccinated and not previously infected
Unvaccinated	+	+	Not vaccinated and previously infected
Unvaccinated	-	-	Not previously vaccinated or infected

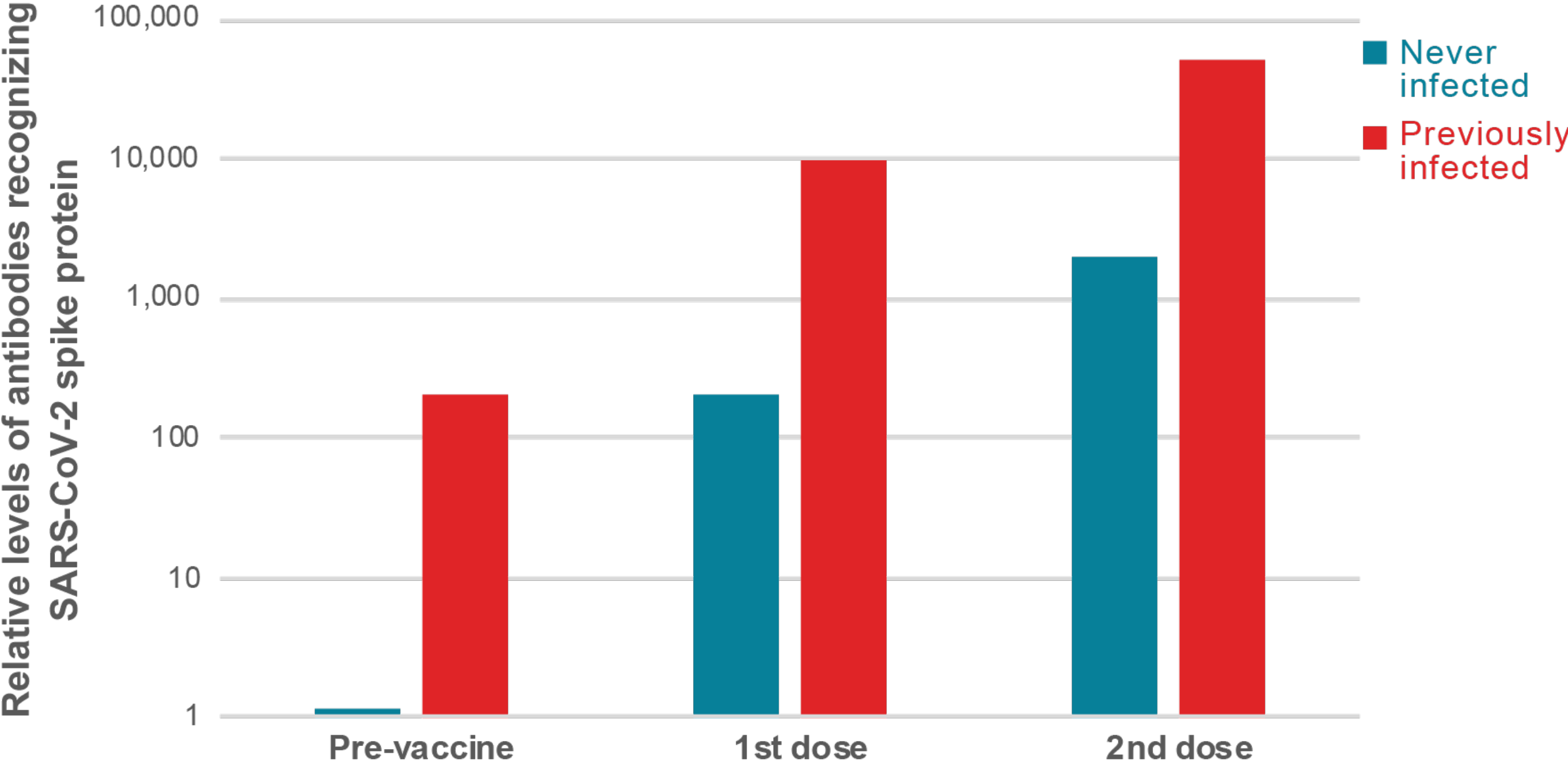
[nature](#) > [news](#) > article

NEWS | 14 October 2021

# COVID super-immunity: one of the pandemic's great puzzles

People who have previously recovered from COVID-19 have a stronger immune response after being vaccinated than those who have never been infected. Scientists are trying to find out why.

# COVID-19 Immunity Task Force





## Healthline

- **For those who recover from COVID-19, immunity to the virus can last about 3 months to 5 years, research shows.**
- **Immunity can occur naturally after developing COVID-19 or from getting the COVID-19 vaccination.**
- **Because the length of immunity after developing COVID-19 or getting the vaccine is unknown, practicing physical or social distancing and wearing a mask need to continue to stop the transmission.**

Companies that will want to say that their assays can correlate antibody measurements to neutralization assays will have to get their data together and file with the FDA to be authorized or approved to make those claims, he noted.

Titers for common diseases like measles, mumps, rubella, and whooping cough have "all been studied for multiple years," he said. "Those assays are set back to those gold standards. [With COVID], we're not at that stage yet."

# CDC recommendations about COVID antibody tests

- Viral (not antibody) test used to diagnose COVID infection
- Antibody tests vary in performance
- Abbott antibody tests are highly sensitive and specific but don't assess neutralization (binding to cell-free virus)
- Antibody testing is NOT recommended to assess
  - Immunity to COVID following vaccination
  - Need for vaccination in an unvaccinated person
  - Need to quarantine after contact with an infected person
- All eligible people should be vaccinated, including people who had past infection and have detectable antibodies
- Unvaccinated people who are antibody positive should follow advice to prevent infection, e.g., mask and distancing