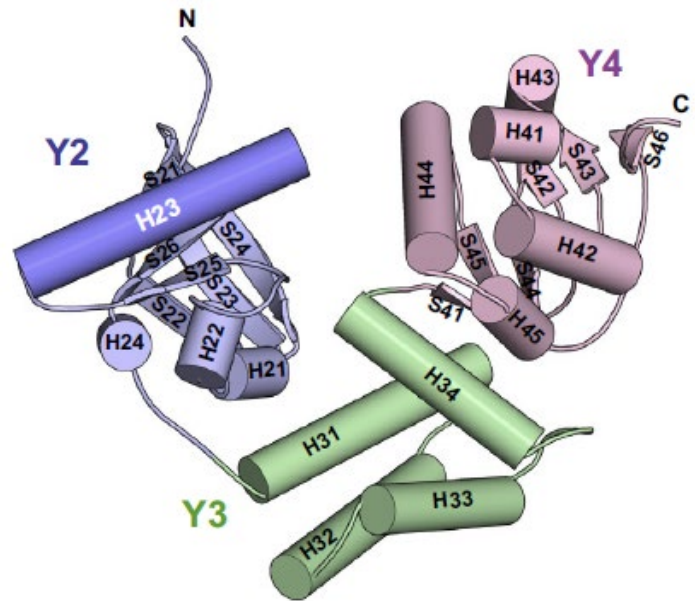


# Halting Viral RNA Replication in Coronaviruses



Ribbon diagram of the CoV-Y domain of SARS-CoV-2 nsp3. The three subdomains, Y2, Y3, and Y4, are shown in purple, green, and pink, respectively. Results show CoV-Y adopts a unique V-shaped fold featuring three distinct subdomains

Y. Li, Y. Pustovalova, W. Shi, O. Gorbatyuk, S. Sreeramulu, H. Schwalbe, J.C. Hoch, B. Hao. Crystal Structure of the CoV-Y domain of SARS-CoV-2 nonstructural protein 3. *Scientific Reports* **13**, 2890 (2023).

Work was performed in part at Brookhaven National Laboratory.

## Scientific Achievement

Scientists determined the structure of the C-terminal domain of SARS-CoV-2 nonstructural protein 3 (nsp3), which is essential for coronavirus replication.

## Significance and Impact

The nsp3 protein is a promising drug target to block coronavirus infection in COVID-19 and also current and future diseases caused by other coronaviruses.

## Research Details

- X-ray crystallography was performed at the NSLS-II FMX beamline and SSRL 9-2 and 12-2 beamlines.
- Results showed that CoV-Y adopts a unique V-shaped fold featuring three distinct subdomains.
- Combined with NMR-based fragment screening and molecular docking, results identified surface cavities in CoV-Y for interaction with potential ligands and other nsps.