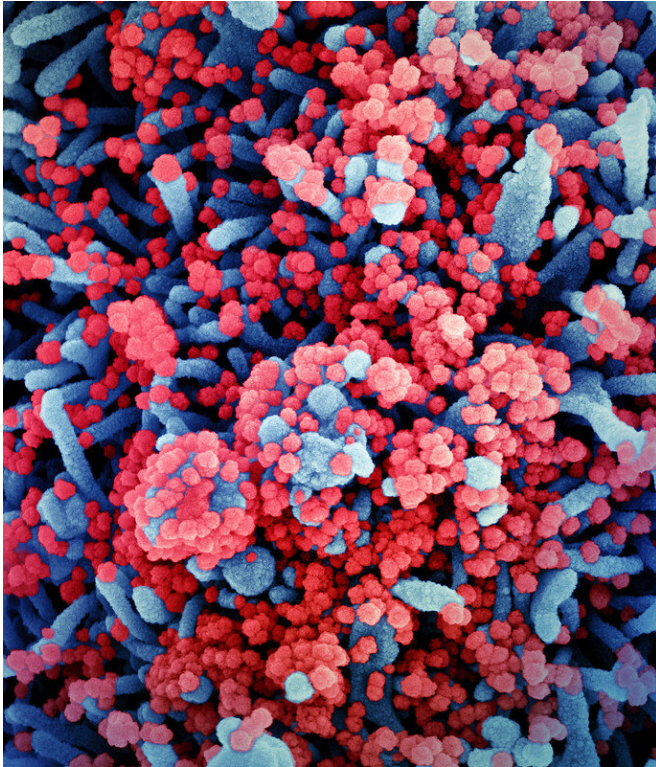


New Coronascope tool will help unlock big-data insights for COVID-19

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Colorized scanning electron micrograph of a cell (blue) heavily infected with SARS-CoV-2 virus particles (red), isolated from a patient sample. Image captured at the NIAID Integrated Research Facility (IRF) in Fort Detrick, Maryland. Credit: NIAID

Scientists at Sanford Burnham Prebys Medical Discovery Institute today announced they have released Coronascope (coronascope.org), a customized version of the [Metascope](#) bioinformatics platform that removes big-data analysis hurdles for biologists. Coronascope will enable scientists to interpret the growing body of big data related to COVID-19. More than [23,000 papers](#) about COVID-19 have been published since January 2020—and this number continues to rise exponentially.

"A significant number of publications on SARS-CoV-2 contain large-scale OMICs data, which is not readily interpretable and actionable by many researchers, creating a big-data bottleneck," says Sumit Chanda, Ph.D., director of the Immunity and Pathogenesis Program at Sanford Burnham Prebys and senior member of the Metascope team. "Coronascope provides a central clearinghouse for scientists to laser-focus their OMICs analysis and data-mining efforts to find effective drug targets, therapies and vaccines for COVID-19."

Large-scale studies that map all of the genes, proteins, RNA and more that underlie a biological system—called OMICs studies—are standard tools for a modern biologist. However, interpreting these big-data outputs to generate meaningful, actionable information is far from routine.

"Analyzing results from OMICs studies requires sophisticated tools and highly trained computational scientists," explains Yingyao Zhou, Ph.D., director of data science and data engineering at the GNF, and lead architect of the Metascope platform. "These efforts can be costly and time intensive even for experts—taking anywhere from days to weeks to generate actionable information."

Metascope was launched in 2019 by scientists at Sanford Burnham Prebys, GNF and UC San Diego. The open-access, web-based portal integrates more than 40 advanced bioinformatics data sources to allow nontechnical users to generate insights in one click. To date, Metascope has facilitated the analysis of large OMICs datasets in [more than 1,200](#) published scientific studies.

"Metascope provides biologists with a platform from which they can access the power of numerous analytical tools—all within a simple interface—and generate easy-to-interpret reports," explains Lars Pache, Ph.D., research assistant professor in the Chanda lab at Sanford Burnham Prebys. "Removing data-analysis barriers for the ever-

growing body of SARS-CoV-2 OMICs data released by the worldwide scientific community allows researchers to spend more time on important biological questions surrounding COVID-19, and less time building and troubleshooting a data-analysis workflow."

"The power of this technology is that you can take a 30,000-foot view of a [biological system](#)," says Christopher Benner, Ph.D., professor at UC San Diego School of Medicine and Metascope team member. "Our initial analysis of independently derived OMICs datasets for COVID-19 have already identified numerous common threads. When results from scientists in different parts of the world align, then you can start to believe that what you are seeing is true—and move forward."

Provided by Sanford Burnham Prebys Medical
Discovery Institute

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