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# Structural Biology of SARS-CoV-2: Making the Invisible Enemy Visible

*Tuesday 31 May 2022 17:00 (45 minutes)*

During the COVID-19 pandemic, structural biologists rushed to solve the structures of the 28 proteins encoded by the SARS-CoV-2 genome in order to understand the viral life cycle and to enable structure-based drug design. In addition to the 204 previously solved structures from SARS-CoV-1, over 2000 structures covering 18 of the SARS-CoV-2 viral proteins were released in a span of a few months. These structural models serve as the basis for research to understand how the virus hijacks human cells, for structure-based drug design, and to aid in the development of vaccines. The Coronavirus Structural Task Force [1] rapidly categorized, evaluated and reviewed all of these experimental protein structures in order to help original authors and downstream users, for example Folding@Home, OpenPandemics, the EU JEDI COVID-19 challenge. We also created reviews, illustrations, animations and 3D printable models of the virus from these experimental results, which we distributed via www.insidecorona.net. In the beginning, there were no tenured academics in the Coronavirus Structural Task Force; we were an ad hoc collaboration of 26 researchers across nine time zones, brought together by the desire to fight the pandemic. Still, we were able to rapidly establish a large network of COVID-19 related research, forge friendships and collaborations across national boundaries, spread knowledge about the structural biology of the virus and provide improved models for in-silico drug discovery projects. Now, after more than two years, we have consolidated our collective knowledge about the virus, and can leverage this insight for the question: What is next?

[1] Croll, T., Diederichs, K., Fischer, F., Fyfe, C., Gao, Y., Horrell, S., Joseph, A., Kandler, L., Kippes, O., Kirsten, F., Müller, K., Nolte, K., Payne, A., Reeves, M.G., Richardson, J., Santoni, G., Stäb, S., Tronrud, D., Williams, C, Thorn, A*. (2021) Making the invisible enemy visible (2021) Nature Structural & Molecular Biology 28, 404–408 https://doi.org/10.1038/s41594-021-00593-7

## I want to give an oral presentation.

## I want to present a poster.

**Primary author:** Dr THORN, Andrea (Universität Hamburg)

**Presenter:** Dr THORN, Andrea (Universität Hamburg)

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