



Where I work Li Hua

Photographed for *Nature* by
Peng Nian.

Since January, I have spent every day alone in my laboratory, urgently trying to find a cure for COVID-19. I am a structural biologist and pharmacologist, and live on campus at Huazhong University of Science and Technology in Wuhan, China, the epicentre of the pandemic. When the city was locked down in late January, my colleagues who had left for the Lunar New Year holiday could not return. I am now the only one who can access our lab.

My drug-discovery journey started on my home computer. My team and I modelled proteins found on the SARS-CoV-2 virus, and screened thousands of approved drugs to find any that can bind to these proteins and block the virus from infecting cells. Our search identified several candidates.

I have now taken this quest to my lab. I'm growing cells that express the proteins, and purifying them in a chromatography machine (pictured, left). I mix the proteins with various concentrations of the potential drugs, and use another machine to detect whether the drug has attached to the

proteins. I can view crystals of the protein-drug complex under a microscope, as I am doing here. I then freeze the crystallized structures in liquid nitrogen and store them in the container to the bottom right.

Now the lockdown here has ended, I plan to send the crystallized structures to researchers who can learn how the proteins and drugs bind together. My collaborators in Shanghai are testing the drugs' therapeutic potential in cells and mouse models of COVID-19.

I can spend between one and eight hours a day in this room, which is set to a constant temperature of 20 °C and smells of the broth with which I feed my cells. My wife and daughter live with me, but my son lives with his grandparents elsewhere in Wuhan. I have not seen him since early January.

The university has ten affiliated hospitals, which are at the front lines of the fight against the outbreak in Wuhan. I hope to do my part.

Li Hua is a structural biologist and pharmacologist at Huazhong University of Science and Technology in Wuhan, China.
Interview by Smriti Mallapaty