This study seeks to produce a strong anti-SARS-2-CoV vaccine by optimizing all three branches of the immune system: B cell antibody response, T lymphocytes and innate immunity. This involves the specific design of two components of a vaccine: (1) an antigen to activate specific T and B cell responses, and (2) PAMPs which serve as the adjuvant to enhance the innate immune response.

JENNY TING
UNC-Chapel Hill School of Medicine
William Kenan Jr. Distinguished Professor, Genetics
Inflammatory Diseases Institute, Co-Director
Center for Translational Immunology, Director

How will your research contribute to the efforts to find and disseminate a COVID-19 vaccine?

"We are testing a way to increase the strength of COVID-19 vaccines using what is called adjuvants. Adjuvants activate a branch of immunity called innate immunity, which can help strengthen and lengthen a specific immune response to pathogens. We are comparing different adjuvants to identify the best ones for a COVID-19 vaccine. We are hoping that the adjuvants can promote both antibody response and immune memory response. By making the vaccine response stronger, it is more likely to help the elderly, which is a key at-risk population for COVID-19. By making the immunity last longer with stronger memory, this will lengthen our immunity against the virus."

What have been some of your most significant preliminary findings?

"Thus far we have found adjuvants that promote strong immunity, and one specific one that promoted a branch of immunity that involves T lymphocytes, which can further augment an antibody response."