

For Longhorns, The Vaccine Hits Home
By Sloan Wyatt

AUSTIN --- For many of the University of Texas' students and faculty, the vaccine is more than a safeguard from a year-long pandemic; it's a tribute to years of behind-the-scenes research and labor.

[Dr. Jason McLellan](#), an associate professor of molecular biology, was among those at UT Austin who pioneered the preliminary study in partnership with the National Institutes of Health.

The McLellan lab began studying proteins similar to Coronavirus in 2013. The team first examined HKU 1, a coronavirus species that annually circulates throughout the human population and is comparable to the common cold. They chose this virus because it is more manageable (or "[stable](#)") than COVID-19, yet it still mimics the novel virus's characteristics.

After better understanding the protein's structure, the scientists tweaked it to resemble a COVID-19 protein more closely and then began a structure-based stabilization process. Here, they tinkered with the atoms until they figured out how COVID-19 cells could bypass human immune systems and infect their hosts.

These discoveries positioned the team to create more effective vaccines and therapeutics in late 2019, which later served as the foundation for COVID-19 vaccines by Moderna, Pfizer, Johnson & Johnson, etc. McLellan's assistant, Dr. Daniel Wrapp, explained. McLellan was unavailable for comment.

Wrapp acknowledged the vaccines' diminishing efficacy in treating new variants. Still, he was quick to clarify that this will likely mean that, people will build upon the preexisting vaccine to treat coronavirus variants in the future.

"Fortunately, the place where the spike is mutating happens to be still pretty far away from the place where we've introduced mutations," he said. "So, you can think of these mutations as a universal stabilization platform for coronavirus proteins. What this means is that people will take the pre-existing vaccines, and they'll slightly tweak them. Then, they'll probably be administered like boosters to enhance immunity."

This effort will not be carried out single-handedly by any one provider or lab. Since the beginning, vaccine research and production have been one "big collaboration" across various universities, research institutes, etc., Wrapp said. "But, UT has been directly involved in that collaboration," he added and was [essential](#) to the vaccine's production.

While Wrapp himself has not yet received the vaccine, he describes feeling a great sense of satisfaction when he hears colleagues and other industry professionals describe receiving their vaccines.

"It's been very rewarding," he said. "It's come after many months of worrying about and having to interact with infected people every single day."