

## **Thesis title: Exploring the molecular mechanisms of SARS-CoV2 and ZIKV pathogenesis**

### **Propositions:**

1. Epsilon variant (B.1.427/B.1.429) has higher infectivity, increased transmission, and decreased antibody neutralization. (This thesis)
2. SARS-CoV2 spike protein mutations like L452R can increase the fitness of the virus with increased infectivity and immune evasion properties. (This thesis)
3. Understanding viral-host protein-protein interaction from pan-coronaviral proteomics reveals unique and shared mechanisms that virus employs to enhance viral replication and immune evasion. (This thesis)
4. Accessory protein ORF8 is a mysterious protein with immunomodulatory functions. (This thesis)
5. Disrupting the RNA surveillance pathway by ZIKV capsid protein helps viral replication by downregulating host defense against RNA viruses. (This thesis)
6. Current evidence strongly supports the natural origin of SARS-CoV2 than suspicions on lab-leak and lab-made origins. (Andersen, K.G., Rambaut, A., Lipkin, W.I. et al. Nat Med (2020))
7. It was a great victory for science to eradicate smallpox from the earth, saving millions of lives. (Reingold A. Smallpox—The Death of a Disease: The Inside Story of Eradicating a Worldwide Killer: By D. A. Henderson. Am J Epidemiol. (2010))
8. Viruses are the magnificent entity that can infect every living organism on earth and influences their life. (A Planet of Viruses: Second Edition (2015) by Carl Zimmer)
9. Distinct compositions of the BAF complex determine the fate and differentiation of embryonic stem cells toward mammalian neural development. (Son EY, Crabtree GR. Am J Med Genet C Semin Med Genet. 2014)
10. Mass extinction shaped the big-brained mammal evolution. (Smaers JB, Rothman RS, Hudson DR, et al. Sci Adv. 2021)
11. "Being strong isn't just about having power or move, it about one's spirit."- Roronoa Zoro, 'One Piece' by Eiichiro Oda.