HIV GRAND ROUNDS

"SARS-CoV-2 Variants Evolve Convergent Strategies to Remodel the Host Response"

More transmissible SARS-CoV-2 variants of concern (VOCs) emerged during the COVID-19 pandemic. Here, we used global proteomic and genomic approaches to study the host responses driving VOC evolution. We discovered VOCs evolved convergent strategies to remodel the host response by modulating viral RNA and protein levels, altering nucleocapsid phosphorylation, and rewiring virus-host protein-protein interactions. Integrative systems analysis revealed that although Alpha, Beta, Gamma, and Delta ultimately converged in the suppression of interferon stimulated genes (ISGs), Omicron BA.1 did not, which correlated with increased expression of viral innate immune antagonist proteins Orf6, N, and Orf9b. We observed convergent evolution of enhanced innate immune suppression for Omicron subvariants; BA.5 evolved enhanced innate immune antagonism, which similarly correlated with Orf6 expression, effects muted for BA.4 due a mutation that disrupts the Orf6-nuclear pore interaction. Collectively, our findings lay the groundwork to understand future coronavirus evolution and enhanced human-to-human transmission.

Mehdi Bouhaddou, PhD

- Assistant Professor, Department of Microbiology, Immunology, and Molecular Genetics (MIMG)
- Member, Quantitative and Computational Biosciences Institute (QCBio)
- University of California, Los Angeles (UCLA)

Event Information

- Virtual Lecture
- Once you register, you will be e-mailed a Zoom Link

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APR 18, 2023

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Questions/Comments:
Rina Lee-Cha, rlee@mednet.ucla.edu