NUS National University of Singapore

Infectious Diseases Translational Research Programme
Yong Loo Lin School of Medicine

Seminar Series

REPRESSION OF SARS-COV-2 INDUCED HYPER-INFLAMMATION BY TOPOISOMERASE I INHIBITION

Dr Jessica Ho

All are welcome!

DATE: MONDAY, 22 AUGUST 2022
TIME: 12:00 NOON – 1:00 PM
REGISTRATION STARTS FROM 11.30AM
VENUE: MD4 SEMINAR ROOM, LEVEL 2

CHAIRPERSON: A/P GAN YUNN HWEN

Please kindly note that there will be recording of seminar.

Abstract:

The inflammatory response to viral infection is a double edged sword. While a robust response is protective and required for pathogen clearance, excessive inflammation can be detrimental and lethal for the host organism. Here, I use orthogonal next generation sequencing approaches to evaluate the role of topoisomerase 1 (TOP1) in the control of excessive inflammation during SARS-CoV-2 infection. Inhibition of TOP1 with the FDA-approved drug topotecan, is sufficient to reduce deleterious inflammation in SARS-CoV-2 infected animals and improve disease outcomes. Overall, our data suggests that our epigenome is a viable therapeutic target in the context of viral infection.

Biography:

Jessica Ho received her PhD at the Rockefeller University and subsequently did her initial postdoctoral training in the IMCB in A*STAR, Singapore. She is now currently a postdoctoral fellow in the Department of Microbiology at the Icahn School of Medicine at Mount Sinai in New York City, where she is a recipient of the Charles H. Revson Senior Fellowship in Biomedical Science. Her main research interest is in understanding epigenetic mechanisms that underlie host-pathogen interactions during viral disease.

References:

1. Ho, J. S. Y. et al. Hybrid Gene Origination Creates Human-Virus Chimeric Proteins during Infection. Cell 181, 1502-1517 e1523, doi:10.1016/j.cell.2020.05.035 (2020).
2. Ho, J. S. Y., Zhu, Z. & Marazzi, I. Unconventional viral gene expression mechanisms as therapeutic targets. Nature 593, 362-371, doi:10.1038/s41586-021-03511-5 (2021).
3. Wright, B. W., Yi, Z., Weissman, J. S. & Chen, J. The dark proteome: translation from noncanonical open reading frames. Trends Cell Biol 32, 243-258, doi:10.1016/j.tcb.2021.10.010 (2022).
4. Sabath, N., Wagner, A. & Karlin, D. Evolution of viral proteins originated de novo by overprinting. Mol Biol Evol 29, 3767-3780, doi:10.1093/molbev/mss179 (2012).