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Becoming a Detective of How Viruses Exploit Our Cells

Rong Xuan Zang
University of Western Ontario, rzang@uwo.ca

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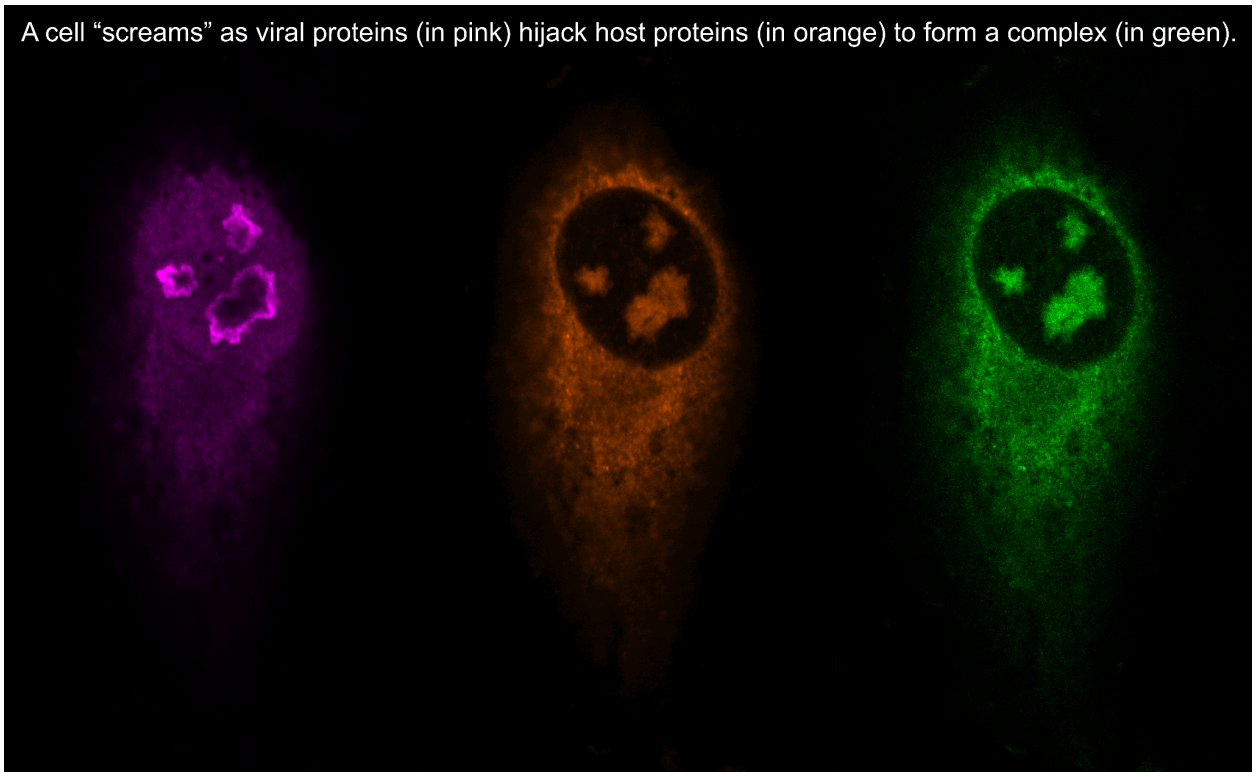
Imagine a million pieces of meteorites lit on fire breaking through Earth's atmosphere. This seemingly apocalyptic scenario is the norm between humans and viruses. Although most viruses are harmless, some can become deadly to human civilization. How can these proteinaceous particles be the root cause of human diseases and the recent COVID-19 pandemic? Indeed, viruses appear as boring rocks in space but miraculously become active parasitic entities similar to a gliding comet. A successful viral infection relies on viruses being master manipulators of the protein machinery within our cells.

Efforts have focused on determining the significance of molecular interactions between viruses and our cells. For example, my work focuses on deciphering the roles of interaction between HIV-1 nuclear protein, Rev, and the cellular protein, PACS-1, in viral replication. By examining a complete picture of how viruses take advantage of our cells, we can devise better strategies against the next outbreak.



A cell "screams" as viral proteins (in pink) hijack host proteins (in orange) to form a complex (in green).