

# Real-time Visualization of Dengue Virus Infection

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Real-time image technology has become a powerful tool to the understanding of the dynamics of intracellular networks, molecular interaction, and molecular trafficking. Currently, the cellular trafficking pathway of virus in living cells are poorly understood

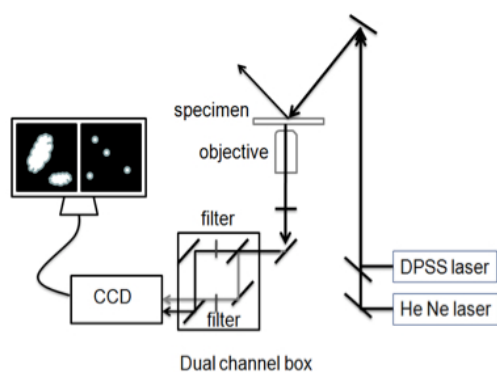


Figure 1. (Top) Schematic drawing of the dual-fluorescence microscopy setup used for virus tracking. (Bot) Trafficking of a single Den virus particle labeled with DiD in a live cell (arrow head and triangle) during 30 second time interval.

because of the involvement of multiple entry pathways and multiple steps on each pathway, each featuring dynamic interactions of the viruses with different cellular structures. By real-time fluorescence imaging microscopy, we have selected Dengue (Den) virus, one of most significant human viral pathogens globally, especially in tropical areas, as a study model to investigate the mechanism of viral infection and the trafficking pathways of single virus particles in living cells. Den virus was concentrated by ultracentrifugation, labelled with lipophilic dye DiD and purified through gel filtration columns. Fluorescent viral image was observed by an inverted microscopy (IX 71, Olympus, Japan) which is equipped with a set of dual channel box (U-SIP, Japan) and high sensitivity CCD (CoolSNAP HQ2, Photometrics, USA). For fluorescent images were recording by exciting DiD with a 633 nm helium-neon laser, and mCherry with a 532 nm PSS laser. The laser beams were directly guided to specimen by reflected mirrors. The different excited fluorescence signals were separated in dual channel box before CCD sensing. Different time-lapsed fluorescence images from virus, cell organisms were merged with DIC image, and these real time images allow us to monitor the dynamics interaction between single virus and host cells.

## References:

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