Quantitative single (few) molecules' dynamic microscopy to decipher HIV -1 assembly in living cells.

Cyril Favard, IRIM - CNRS UMR9004, *Membrane Domains and Viral Assembly*

1919, route de Mende, 34293 Montpellier, France.

Generation of a new HIV-1 viral particle mainly relies on the self-assembly of the structural Gag polyprotein at the plasma membrane of host T cells. This self-assembly is supported on one side of the protein by the viral genomic RNA and on the other side by specific lipids of the plasma membrane. In order to generate a new enveloped viral particle, this finely tuned mechanism has to overcome kinetic and cell mechanics energy traps. Thanks to quantitative single (few) molecule microscopies, in addition to physical models, we could identify some of these traps and show the role of cell membrane and proteins (re)organization in assisting or impeding the virus assembly.