

Title: Structural biology of HIV assembly and maturation

Abstract: HIV assembles and buds from infected cells in an immature, non-infectious form. Subsequently, proteolytic cleavage catalyzed by the viral protease leads to a dramatic structural rearrangement of the virus particle into a mature form that is competent to fuse with and infect a new cell. Our group is interested in understanding the structures of the immature and mature HIV particles. Recently, we characterized a molecular switch that directs assembly of the immature capsid shell, and during maturation, disassembly of the immature lattice and re-assembly of the mature capsid. This work also led to important insights on how experimental drugs called “maturation inhibitors” disrupt the switch and thereby, HIV replication.