



UNIVERSITÀ  
DI TRENTO

Dipartimento di  
Biologia Cellulare,  
Computazionale e Integrata - CIBIO

**27 October**

**at 4.30 pm**

**room A207**

Povo2

**PhD**   
**COLLOQUIA**



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The Francis Crick Institute, London

# Two personalities of HIV-1 integrase

**HIV-1 integrase** is responsible for the irreversible **insertion of the reverse-transcribed viral genome into a host cell chromosome**. To fulfill this function, integrase binds both ends of the viral DNA molecule, forming the **intasome**, a highly stable nucleoprotein complex. The HIV-1 intasome is the target of clinically approved integrase strand transfer inhibitors, such as dolutegravir and bictegravir.

In addition to its well-characterized enzymatic function, HIV-1 integrase plays an **essential role in packaging viral genomic RNA** within compact, conical cores during viral maturation. Recently, we determined high-resolution structures of a primate lentiviral integrase in complex with RNA and visualized the corresponding assemblies within native mature HIV-1 cores. The structures revealed that **integrase forms an ordered linear filament** composed of repeating **octameric units stabilized by interactions with RNA**. Within native cores, the ribonucleoprotein filament extends along the inner surface of the capsid lattice, with each integrase octamer spanning a pair of capsid hexamers and interacting with their major homology regions.