

Role of Rab proteins in the formation of HIV-1 particles

Marina Caillet, Delphine Delcroix, Katy Janvier, Stéphane Emiliani, Clarisse Berlioz-Torrent

► **To cite this version:**

Marina Caillet, Delphine Delcroix, Katy Janvier, Stéphane Emiliani, Clarisse Berlioz-Torrent. Role of Rab proteins in the formation of HIV-1 particles. *Frontiers of Retrovirology: Complex retroviruses, retroelements and their hosts*, Sep 2009, Montpellier, France. BioMed Central, 6 (Suppl 2), pp.P19, 2009, Retrovirology. <10.1186/1742-4690-6-S2-P19>. <inserm-00663608>

HAL Id: inserm-00663608

<https://www.hal.inserm.fr/inserm-00663608>

Submitted on 27 Jan 2012

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Poster presentation

Open Access

Role of Rab proteins in the formation of HIV-1 particles

Marina Caillet*^{1,2}, Delphine Delcroix^{1,2}, Katy Janvier^{1,2}, Stéphane Emiliani^{1,2} and Clarisse Berlioz-Torrent^{1,2}

Address: ¹Institut Cochin, Université Paris Descartes, CNRS (UMR 8104), Paris, France and ²INSERM, U567, Paris, France

* Corresponding author

from *Frontiers of Retrovirology: Complex retroviruses, retroelements and their hosts* Montpellier, France. 21-23 September 2009

Published: 24 September 2009

Retrovirology 2009, **6**(Suppl 2):P19 doi:10.1186/1742-4690-6-S2-P19

This abstract is available from: <http://www.retrovirology.com/content/6/S2/P19>

© 2009 Caillet et al; licensee BioMed Central Ltd.

The production of HIV-1 particles during the late steps of viral multiplication cycle corresponds to the assembly, the budding and the release of infectious viral particles in the extracellular medium. These steps require the integrity of two viral structural components: the Gag precursor, essential for HIV assembly and budding, and the envelope glycoprotein (Env) which confers the infectivity to the virus after its incorporation into the viral Gag particles.

The last steps of the viral cycle involve a series of molecular and cellular events based on interactions between viral proteins and cellular proteins that are implicated in the vesicular intracellular trafficking, such as the ESCRT machinery, the AP clathrin adaptors or the cellular cofactor TIP47. Although several interactions between viral proteins and cellular cofactors have been described, the identification of new cellular partners is crucial in order to understand the complex interplay between HIV-1 and the host cell during the late steps of the HIV cycle. To characterize new cofactors involved in HIV assembly, we decided to assess the role of Rab proteins, key regulators of vesicular intracellular trafficking in the infectious viral particles production.

For this purpose, we developed several virological tests based on the specific interference RNA targeting Rab proteins (Rab1, Rab4, Rab5, Rab6, Rab7, Rab8, Rab9 and Rab11). We show that Rab7 plays a major role on HIV-1 replication. We observed that HIV-1 (NL4-3 strain) failed to propagate in the reporter cells (HeLa P4R5 - stably expressing CD4 and CCR5) upon siRNA-induced depletion of Rab7. Using a single cycle infection assay, we

showed that Rab7 depletion causes a decrease of HIV-1 release from the producer cells. Moreover, Rab7 depletion modified Gag processing and the infectivity of the produced particles, a defect usually observed upon TSG101 depletion.

Altogether, our data highlight a key role of Rab7 in the morphogenesis of new infectious HIV particles. This work is funded by ANRS, SIDACTION, ANR-07-JCJC-0102 programs and is part of the activities of the HIV-ACE research network (HEALTH-F3-2008-201095) supported by a grant of the European Commission, within the Priority 1 "Health" work programme of the 7th Framework Programme of the EU.