Introduction

Reactome is open-source, open access, manually curated and peer-reviewed pathway database. Pathway annotations are authored by expert biologists, in collaboration with Reactome editorial staff and cross-referenced to many bioinformatics databases. A system of evidence tracking ensures that all assertions are backed up by the primary literature. Reactome is used by clinicians, geneticists, genomics researchers, and molecular biologists to interpret the results of high-throughput experimental studies, by bioinformaticians seeking to develop novel algorithms for mining knowledge from genomic studies, and by systems biologists building predictive models of normal and disease variant pathways.

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Literature references


Reactome database release: 72

This document contains 1 pathway and 4 reactions (see Table of Contents)
The HIV-1 accessory protein Vif (Viral infectivity factor) is required for the efficient infection of primary cell populations (e.g., lymphocytes and macrophages) and 'non-permissive' cell lines. Vif neutralises the host DNA editing enzyme, APOBEC3G, in the producer cell. Indeed, in the absence of a functional Vif, APOBEC3G is selectively incorporated into the budding virions and in the next cycle of infection leads to the deamination of deoxycytidines (dC) within the minus-strand cDNA during reverse transcription (Sheehy et al 2003; Li et al., 2005; Stopak et al. 2003).

Deamination changes cytidine to uracil and thus results in G to A transitions and stop codons in the provirus. The aberrant cDNAs produced in the infected cell can either be integrated in form of non-functional proviruses or degraded. Vif counteracts the antiviral activity of APOBEC3G by associating directly with it and promoting its polyubiquitination and degradation by the 26S proteasome.

Vif binds APOBEC3G and recruits it into an E3 ubiquitin-enzyme complex composed by the cytoplasmic proteins Cullin5, Rbx, ElonginC and ElonginB (Yu et al., 2003). Thus, in the presence of Vif, APOBEC3G incorporation into the virion is minimal.

**Literature references**


**Editions**

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Association of Vif with APOBEC3G

Location: Vif-mediated degradation of APOBEC3G

Stable identifier: R-HSA-180602