

The antisense protein of HTLV-2 positively modulates HIV-1 replication

Cynthia Torresilla, Sonia Do Carmo, Émilie Larocque, Estelle Douceron, Jean-Michel Mesnard, Renaud Mahieux, Benoit Barbeau

► **To cite this version:**

Cynthia Torresilla, Sonia Do Carmo, Émilie Larocque, Estelle Douceron, Jean-Michel Mesnard, et al.. The antisense protein of HTLV-2 positively modulates HIV-1 replication. *Retrovirology*, BioMed Central, 2014, 11 (Suppl 1), pp.P118. <inserm-00924957>

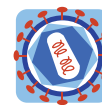
HAL Id: inserm-00924957

<http://www.hal.inserm.fr/inserm-00924957>

Submitted on 7 Jan 2014

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

The antisense protein of HTLV-2 positively modulates HIV-1 replication

Cynthia Torresilla^{1*}, Sonia Do Carmo¹, Émilie Larocque¹, Estelle Douceron², Jean-Michel Mesnard³, Renaud Mahieux², Benoit Barbeau¹

From 16th International Conference on Human Retroviruses: HTLV and Related Viruses Montreal, Canada. 26-30 June 2013

Unlike HTLV-1, HTLV-2 does not induce leukemia and has been tentatively associated with an HTLV-1-associated myelopathy-like disorder. It has been reported that HTLV-2/HIV-1 co-infected patients progress less rapidly to AIDS than HIV-1-infected individuals. Tax2 has been suggested to mediate this protective state by inducing MIP-1 α expression and blocking HIV-1 infection. As cells from HTLV-2-infected individuals mainly express Antisense Protein 2 (APH-2), our objective was to determine if this protein might also intervene in controlling HIV-1 replication in dually infected individuals. Using Jurkat cells, we first demonstrated that both APH-2 and HBZ, the HTLV-1 analogue, equally induced MIP-1 α in unstimulated and stimulated Jurkat T cells. To assess if APH-2 might directly affect HIV-1 replication, a full length luciferase-expressing proviral DNA was tested in Jurkat cells. Surprisingly, upon co-transfection with an APH-2 expression vector, an increase in luciferase activity was observed, while HBZ expression rather led to reduced reporter gene expression. Western blot analyses and ELISA assay further indicated that HIV-1 p24 levels were more important in APH-2-expressing cells. To determine if APH-2 was directly modulating HIV-1 LTR activity, both NF- κ B and NFAT were tested in stimulated Jurkat cells. Unexpectedly, HBZ and APH-2 inhibited NF- κ B and NFAT activation, albeit at different extent. In addition, LTR activation was also inhibited by both antisense proteins although APH-2 had a more modest effect. Our results thus highlight the complex interplay between HTLV antisense transcript-encoded proteins and HIV-1 expression and further studies will be required to determine the potential impact of APH-2 in HTLV-2/HIV-1-infected individuals.

* Correspondence: cynthia.torresilla@gmail.com

¹Département des sciences biologiques and Centre de recherche BioMed, Université du Québec à Montréal, Montréal (Québec) Canada
Full list of author information is available at the end of the article

Authors' details

¹Département des sciences biologiques and Centre de recherche BioMed, Université du Québec à Montréal, Montréal (Québec) Canada. ²Oncogenèse Rétrovirale, Ligue Nationale Contre Le Cancer, CIRI, INSERM U1111-CNRS UMR5308, Université Lyon 1, Ecole Normale Supérieure de Lyon, LabEx ECOFECT, Lyon, Cedex 07, France. ³Université Montpellier 1, Centre d'études d'agents Pathogènes et Biotechnologies pour la Santé, CNRS, UMS236, Montpellier, France.

Published: 7 January 2014

doi:10.1186/1742-4690-11-S1-P118

Cite this article as: Torresilla et al.: The antisense protein of HTLV-2 positively modulates HIV-1 replication. *Retrovirology* 2014 **11**(Suppl 1): P118.

Submit your next manuscript to BioMed Central and take full advantage of:

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Submit your manuscript at
www.biomedcentral.com/submit

