



POSTER PRESENTATION

Open Access

Antisense protein of HTLV-2 (APH-2) associates with PML nuclear bodies: molecular determinants and functional implications

Chloé Journo*, Jocelyn Turpin, Estelle Douceron, Anaïs Oliva, Renaud Mahieux

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

Antisense Protein of HTLV-2 (APH-2) was described in 2009. APH-2 mRNA is expressed *in vivo* in most HTLV-2 carriers. In recent years, several laboratories have searched for similarities and/or differences between APH-2 and the antisense protein of HTLV-1, HBZ. Similarly to HBZ, APH-2 negatively regulates HTLV-2 transcription. However, it does not promote cell proliferation. *In vivo*, APH-2 localizes in discrete nuclear domains distinct from nucleoli. We therefore characterized APH-2 subcellular localization, in order to decipher the determinants of such localization and to correlate it or not with APH-2 functions. We first identify APH-2-containing nuclear domains as PML nuclear bodies (PML-NB). PML-NB are modulators of a number of cellular processes ranging from transcription regulation to cell proliferation and death. We show that both an *in silico*-identified nuclear localization signal and the carboxy-terminal LXXLL motif contribute to APH-2 targeting to PML-NB. Covalent modification of APH-2 by SUMO-1 and non-covalent interaction between APH-2 and SUMO-1-modified cellular partners have also been investigated as mechanisms of APH-2 targeting to PML-NB. Our results further demonstrate that APH-2 association with PML-NB is critical for its ability to inhibit viral transcription. This association also leads to a striking decrease in APH-2 stability, suggesting that APH-2 might be active but also targeted to degradation in PML-NB. Finally, we show that APH-2 localization in PML-NB leads to PML-NB clustering and correlates with a decrease in cell proliferation. Altogether, our study sheds new light on the links between the subcellular localization of APH-2 and its cellular functions.

* Correspondence: chloe.journo@ens-lyon.fr
Oncogenèse Rétrovirale, Equipe Labellisée Ligue Nationale Contre le Cancer, CIRI, INSERM U1111-CNRS UMR5308, Université Lyon 1, Ecole Normale Supérieure de Lyon, LabEx ECOFECT, Lyon, France

Published: 7 January 2014

doi:10.1186/1742-4690-11-S1-P100

Cite this article as: Journo *et al.*: Antisense protein of HTLV-2 (APH-2) associates with PML nuclear bodies: molecular determinants and functional implications. *Retrovirology* 2014 **11**(Suppl 1):P100.

**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

