



POSTER PRESENTATION

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Identification of novel monocistronic HTLV-1 mRNAs encoding functional Rex isoforms

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Background

HTLV-1 gene expression is controlled by the key regulatory proteins Tax and Rex. The concerted action of these proteins results in a two-phase kinetics of viral expression that depends on a time delay between their action. However, it is difficult to explain this delay, as Tax and Rex are produced from the same mRNA. In the present study we investigated whether HTLV-1 may produce novel mRNA species capable of expressing Rex and Tax independently.

Findings

Results revealed the expression of 3 alternatively spliced transcripts coding for novel Rex isoforms in infected cell lines and in primary samples from infected patients. One mRNA coded for a Tax isoform and a Rex isoform, and 2 mRNAs coded for Rex isoforms but not Tax. Functional assays showed that these Rex isoforms exhibit activity comparable to canonic Rex. An analysis of the temporal expression of these transcripts upon *ex vivo* culture of cells from infected patients and cell lines transfected with a molecular clone of HTLV-1 revealed early expression of the dicistronic Tax/Rex mRNAs followed by the monocistronic mRNAs coding for Rex isoforms.

Conclusions

The production of monocistronic HTLV-1 mRNAs encoding Rex isoforms with comparable activity to canonical Rex, but with distinct timing, would support a prolonged duration of Rex function with gradual loss of Tax, and would be consistent with the two-phase expression kinetics. A thorough understanding of these

regulatory circuits will shed light on the basis of viral latency and provide groundwork to develop strategies for eradicating persistent infections.

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