Retrovirology

BioMed Central

Poster presentation

Open Access

Endogenous retrovirus type W GAG and ENV antigenaemia in serum of schizophrenic patients

Corinne Bernard[1], Francisco Veas[3], Ilias Stefas[3], Marion Leboyer[2] and Hervé Perron*[1]

Address: [1]Geneuro, Plan-Les-Ouates, Geneva, Switzerland, [2]AP-HP, Group Henri Mondor-Albert Chenevier, University-affiliated department of Psychiatry, Créteil, , France and [3]APOH Technologies, Montpellier, 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):P71 doi:10.1186/1742-4690-6-S2-P71

This abstract is available from: http://www.retrovirology.com/content/6/S2/P71

Recent and independent molecular studies have shown an association between Human Endogenous Retroviruses type "W" family (HERV-W) and Schizophrenia, mostly by PCR studies, but none has yet addressed specific antigen detection in living patients. HERV-W GAG (Matrix epitope) and ENV (Envelope epitope) proteins were dosed in the serum of patients with Schizophrenia and controls with a dedicated immunoassay set-up with specific monoclonal antibodies to either antigen. In schizophrenic patients, positive antigenaemia for ENV and for GAG was found in nearly 50% of cases. Difference with healthy controms was very significant ($p < 0,01$). All positive sera for ENV were also positive for GAG. Significant correlation was found between "ENV" antigenaemia, a protein causing dysimmune inflammatory effects and C-Reactive Protein levels-CRP, a systemic inflammation biomarker now known to be a hallmark of neurodegenerative forms of Schizophrenia.

It is thus quite interesting to observe that, beyond association with systemic inflammation, HERV-W protein detection in blood here associates ENV and GAG antigen with coincident detection by three different monoclonal antibodies targeting distinct epitopes. This raises the question of coincident release of both proteins in the bloodstream or of HERV-W retroviral particles (such as "Multiple Sclerosis Associated RetroViral" particles, MSRV) as described by others in Schizophrenia as in Multiple Sclerosis.

As viruses such as Influenza, long associated with risk for schizophrenia through perinatal infections have also revealed to activate HERV-W elements in human cells, we may now provide an hypothesis for a pathogenic cascade in association with HERV-W associating the following factors: environment factors long associated with early perinatal risk consisting in certain infectious agents, genetic factors represented by this retroviral endogenous family, the production of its pro-inflammatory ENV protein, and known "inflammation-mediated" neurotoxicity. Our present results thus confirm that HERV-W studies have opened a novel avenue of research in a neurodegenerative type of schizophrenia.

References

1. Perron H, Mekaoui L, Bernard C, Veas F, Stefas I, Leboyer M: **Endogenous retrovirus type W GAG and envelope protein antigenemia in serum of schizophrenic patients.** *Biol Psychiatry* 2008, **64:**1019-23.