



## Recent study demonstrates the strong link between SARS-CoV-2 infection and HERV-W activation in hospitalized psychotic patients

- A recent publication evidences that SARS-CoV-2 infection, even when unnoticed or asymptomatic, in psychotic patients can have an influence on the activation of the W-ENV protein (Human Endogenous Retrovirus W), in a context of innate immune inflammation.
- Co-clustering of elevated antibody titers against SARS-CoV-2 nucleocapsid with W-ENV in serum and high levels of pro-inflammatory cytokines characterizes this subtype of psychotic disorders.
- This study highlights the urgent need for the development of new methods and therapeutic approaches for the treatment of psychotic patients who may be suffering from the deleterious effects of the W-ENV protein, when activated or boosted by environmental viruses in genetically susceptible individuals.
- The study has been published in “Translational Psychiatry”, a Nature Publishing Group journal of reference, resulting from a collaboration between GeNeuro’s research team, the immuno-psychiatry team of the Hôpital Mondor in Créteil/Paris, and the I2MC platform

The article is available for consultation at the following link: <https://doi.org/10.1038/s41398-023-02575-3> ([Patients with psychosis spectrum disorders hospitalized during the COVID-19 pandemic unravel overlooked SARS-CoV-2 past infection clustering with HERV-W ENV expression and chronic inflammation](https://doi.org/10.1038/s41398-023-02575-3))

**Geneva, Switzerland, September 11, 2023 – 7.30 AM CEST** - GeNeuro (Euronext Paris: CH0308403085 - GNRO), a biopharmaceutical company developing treatments for neurodegenerative and autoimmune diseases, such as multiple sclerosis (MS), amyotrophic lateral sclerosis (ALS) and the severe neuro-cognitive consequences of COVID-19 (post-COVID or Long-COVID), today announced, in collaboration with Professor Marion Leboyer from the FondaMental Foundation, and Dr Ryad Tamouza, head immunologist for the immuno-psychiatry team, the publication in the leading scientific publication Translational Psychiatry of a new study showing that over 80% of the patients hospitalized in a psychiatry department near Paris during the first wave of the COVID-19 pandemic had been exposed to SARS-CoV-2, i.e., 1.6 times more than for the control group.

27% of patients with non-vaccinal SARS-COV-2 positive serology corresponded to the previously described psychotic disorder subgroup associating HERV-W expression<sup>1</sup>. These results are confronted to those of a recent study has shown showing that the SARS-CoV-2 virus causing COVID-19 can trigger the activation of the HERV-

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<sup>1</sup> Tamouza, R., U. Meyer, A. Lucas, J.R. Richard, I. Nkam, A. Pinot, N. Djonouma, W. Boukouaci, B. Charvet, J. Pierquin, J. Brunel, S. Fourati, C. Rodriguez, C. Barau, P. Le Corvoisier, K. El Abdellati, L. De Picker, H. Perron, and M. Leboyer. 2023. Patients with psychosis spectrum disorders hospitalized during the COVID-19 pandemic unravel overlooked SARS-CoV-2 past infection clustering with HERV-W ENV expression and chronic inflammation. *Transl Psychiatry* 13:272.

W retrovirus, which may result in post-infectious syndromes or diseases associated with persistent HERV-W ENV expression in genetically predisposed individuals <sup>2</sup>.

Several specific factors explaining asymptomatic or unrecorded COVID-19 in these in-patients, hospitalized in the Psychiatry Department of the Créteil-Paris VII university hospital in France have also been suggested.

The authors conclude that this now well defined subgroup of “inflammatory psychoses” calls for the development of a differential therapeutic approach in psychoses and more specifically through the identification and development of further HERV-related precision medicine therapies.

Preliminary results of this study were presented in 2022 at the Schizophrenia International Research Society (SIRS) Conference, in Florence, Italy, in the dedicated session on HERVs and psychoses chaired by Prof. Robert Yolken (Johns Hopkins University, Baltimore, USA).

*"Our study shows a dominant prevalence of unnoticed SARS-CoV-2 infection in patients hospitalized in our psychiatric department during the first wave of the COVID-19 pandemic. This is found to be associated with psychotic patients presenting both immunoinflammation and W-ENV protein expression, a subgroup that we had characterized in a previous pre-pandemic study"* said **Dr. Ryad Tamouza**, Head immunologist for the immuno-psychiatry team at the **Mondor Hospital (Université Paris Est Créteil) in Paris, and lead author of the publication..**

*"The results strongly advocate for a precision medicine strategy targeting this W-ENV protein in these patients with post-infectious and immunoinflammatory profiles"* added **Prof. Marion Leboyer, Director of the Department of Psychiatry at Henri Mondor University Hospitals (Université Paris Est Créteil) and Director of the FondaMental Foundation.**

GeNeuro has initiated a program with its main therapeutic asset, temelimab (an antibody targeting HERV-W ENV), in Long-COVID for patients with persistent neurological and neurocognitive symptoms. The company launched at the end of 2022 a Phase 2 trial, called GNC-501, that is evaluating the clinical efficacy of a six-month treatment with temelimab on the improvement of cognitive impairment and/or fatigue in Long-COVID patients who are positive for the presence of W-ENV protein in their blood.

The first months of the trial have already confirmed that the W-ENV protein is present in the blood of over 25% of patients with persistent syndromes who suffered from Long COVID. Positive results from this ongoing clinical trial could offer a therapeutic solution through a personalized medicine approach to a large and well identified subset of millions of patients affected by Long-COVID.

*"This study paves the way to the biomarker identification of patients' subgroups within a clinically defined nosological entity, who can be efficiently treated with a relevant and targeted therapeutic approach. With this a precision medicine approach, GeNeuro is bringing a real innovation in the treatment of Long-COVID with an ongoing phase II clinical trial,"* declared **Dr. Hervé Perron, Chief Scientific Officer of GeNeuro.**

## About GeNeuro

GeNeuro's mission is to develop safe and effective treatments for neurological disorders and autoimmune diseases, such as multiple sclerosis, by neutralizing the causative factors encoded by HERVs, which represent 8% of human DNA.

GeNeuro is headquartered in Geneva, Switzerland, and has R&D facilities in Lyon, France. It has rights to 18 patent families protecting its technology.

For more information, please visit: [www.geneuro.com](http://www.geneuro.com)

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<sup>2</sup> Charvet, B., J. Brunel, J. Pierquin, M. Iampietro, D. Decimo, N. Queruel, A. Lucas, M.D.M. Encabo-Berzosa, I. Arenaz, T.P. Marmolejo, A.I. Gonzalez, A.C. Maldonado, C. Mathieu, P. Kury, J. Flores-Rivera, F. Torres-Ruiz, S. Avila-Rios, G. Salgado Montes de Oca, J. 2 Schoorlemmer, H. Perron, and B. Horvat. 2023. SARS-CoV-2 awakens ancient retroviral genes and the expression of proinflammatory HERV-W envelope protein in COVID-19 patients. *iScience* 26:106604.

## About the FondaMental Foundation

The FondaMental Foundation is a scientific cooperation foundation dedicated to improving the diagnosis, understanding and treatment of mental illness, based at the Albert Chenevier Hospital, Créteil (France).

The FondaMental Foundation combines care and cutting-edge research to promote personalized, multidisciplinary patient care, and to support research and innovation to improve diagnostic and therapeutic strategies for mental illness.

It may receive donations and legacies.

For more information, please visit: [www.fondation-fondamental.org](http://www.fondation-fondamental.org)

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