Long COVID EU Project Highlights Recent Progress and Insights

The Long COVID EU Project is pleased to share the latest developments in its Long COVID research through its fourth newsletter. This edition provides a comprehensive update on recent publications and ongoing studies that enhance our understanding of Long COVID. The project, funded by the EU and led by Helsinki University Hospital (HUS), is a collaborative, four-year effort focused on uncovering the mechanisms underlying the persistent symptoms experienced by individuals post-COVID-19. Since June 1, 2022, the consortium has been working together to understand the mechanisms of host-virus response underlying the long-term symptoms following SARS-CoV-2 infection.

Research Insights: Understanding Long COVID Symptoms and Treatment

This issue highlights three recent publications from the Long COVID EU project consortium:

1. Prognosis of patients with post-COVID-19 Condition:

A prospective cohort study led by the Helsinki University Hospital team sheds light on the prognosis of patients with Long COVID. In this study, Long COVID patients were monitored during 1 year and findings on symptom prevalence and quality of life of patients were reported. During this 1 year, patients had three consultations focusing on psychoeducation. As a result, the research identified four common symptom clusters by using hierarchical cluster analysis: (1) fatigue and cognitive complaints, (2) pain, (3) gastrointestinal symptoms and (4) emotional disturbances among the Long COVID patients. Prognosis was favorable across all clusters, with symptom reduction and improved quality of life observed. Female sex, comorbidities, BMI, and mental-health related variables predicted higher symptom burden, suggesting multifactorial origins of Long COVID.

2. Effectiveness of Ronapreve:

Another study investigated the effects of Ronapreve on mice infected with SARS-CoV-2 Delta variant or the Omicron variant in terms of viral replication, pulmonary changes, and viral spread. It was shown that Ronapreve reduced viral replication in Delta-infected, but not in Omicron-infected mice. It was also able to limit pulmonary tissue damage in only Delta-infected mice and to block viral spread into the brain, which is seen with high frequency in mice after Delta variant infection.

3. Functioning of Long COVID patients:

A Finnish cross-sectional study evaluated the quality of life and functional impairments in Long COVID patients. Patients with Long COVID reported moderate to severe limitations in everyday activities and showed reduced physical performance in tests. The findings advocate for a holistic approach to rehabilitation, tailored to address both physical and mental health challenges.

All peer-reviewed scientific Long COVID Project publications:

1. Stålnacke, S.; et al. **Functioning of post-COVID-19 patients: a cross-sectional study at the outpatient clinic for long-term effects.** Scand J Prim Health Care. 2024. doi: 10.1080/02813432.2024.2410986

2. Tatham, L.; et al. **Ronapreve (REGN-CoV; casirivimab and imdevimab) reduces the viral burden and alters the pulmonary response to the SARS-CoV-2 Delta variant (B.1.617.2) in K18-hACE2 mice using an experimental design reflective of a treatment use case**. Microbiol Spectr. 2024. doi: 10.1128/spectrum.03916-23

3. Liira, H.; et al. **Prognosis of patients with post-Covid-19 condition: Prospective cohort cluster analysis at one year**. J Psychosom Res. 2024. doi: 10.1016/j.jpsychores.2024.111808

4. Virrantaus, H.; et al. **Prognosis of patients with long COVID symptoms: a protocol for a longitudinal cohort study at a primary care referred outpatient clinic in Helsinki, Finland**. BMJ Open. 2023. doi: 10.1136/bmjopen-2023-072935

5. De Neck, S.; et al. **The Stereotypic Response of the Pulmonary Vasculature to Respiratory Viral Infections: Findings in Mouse Models of SARS-CoV-2, Influenza A and Gammaherpesvirus Infections**. Viruses. 2023. doi: 10.3390/v15081637

6. Kettunen, P.; et al. **SARS-CoV-2 Infection of Human Neurons Is TMPRSS2 Independent, Requires Endosomal Cell Entry, and Can Be Blocked by Inhibitors of Host Phosphoinositol-5 Kinase**. Journal of Virology. 2023. doi: 10.1128/jvi.00144-23

These publications are also available in the Long COVID Community on Zenodo, a multi-disciplinary open repository maintained by CERN. Furthermore, they can be found on the Long COVID website as well.

Upcoming Events:

Looking ahead, the Long COVID EU project will host a webinar titled "Transforming Healthcare: Insights into the Long COVID EU Project and the Role of AI in Patient Care" on December 17, from 2-3 pm CET. This session will explore how artificial intelligence can enhance healthcare delivery, particularly in personalised medicine. Registration details are available here 2nd Long COVID EU Project Webinar.

For more information, see the
4th Long COVID Newsletter

4th consortium meeting in Rovereto, Italy, on the 10th and 11th of June 2024.

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