

## LONG-COVID COHORT OF THE DEPARTMENT OF CARDIOLOGY MEDICAL UNIVERSITY OF VIENNA

AUSTRIAN SCIENCE FUND (FWF) KLI 1064-B


"MEDIZINISCH-WISSENSCHAFTLICHER FOND DES BÜRGERMEISTERS DER BUNDESHAUPTSTADT WIEN", PROJECT-NR: 21176

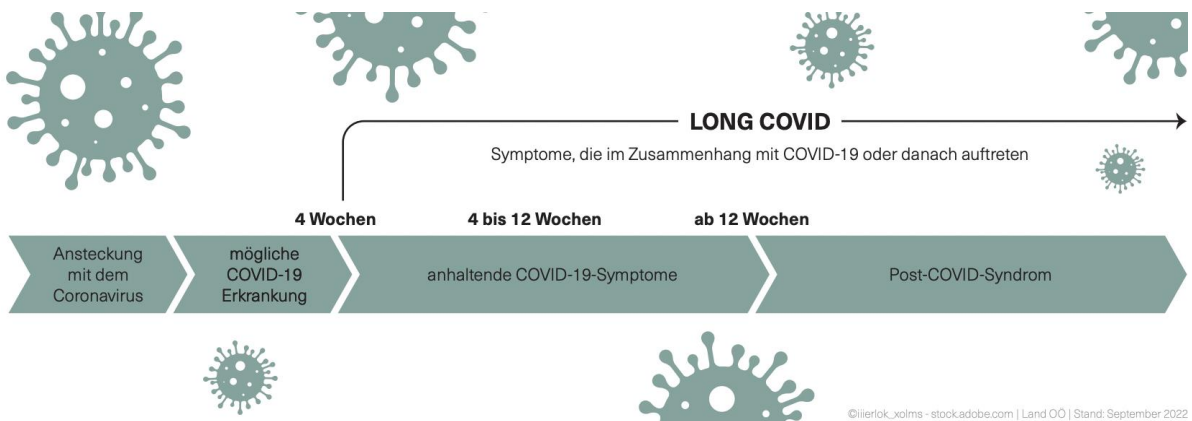
PRINCIPLE INVESTIGATOR: PROF. DR. MARIANN PAVONE-GYÖNGYÖSI

PRESENTATION BY DR.MED.UNIV. EMILIE HAN

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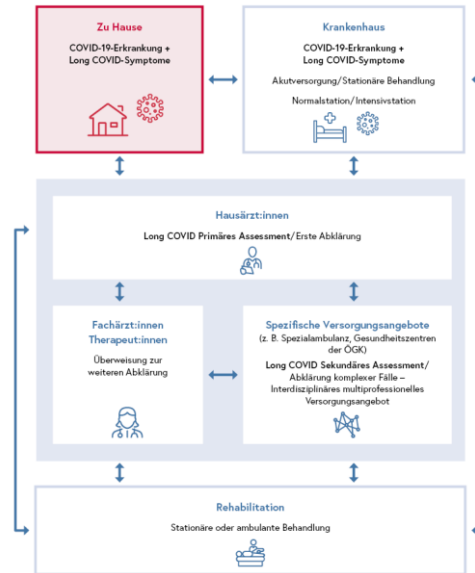


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## Long COVID-Versorgung in Österreich



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## COHORT - OVERVIEW

“Long COVID Cohort” at the Department of Cardiology MedUni Wien & MedUni Wien Biobank  
Population based cohort; Duration: March 2021 – ongoing (currently ~ 400 long COVID patients)



- Cohort (study) aim
  - The purpose of our prospective POSTCOV registry is to investigate the clinical presentation and progression of long COVID syndrome and to reveal disease-specific biomarkers for diagnosis, prevention and outcome prediction of long COVID syndrome.
  
- Cohort composition (samples/data, donors)
  - Serum (-80° C) in aliquots
  - EDTA plasma (-80° C) in aliquots
  - ccfDNA (-80° C)
  - PaxGene whole blood RNA (-80° C)
  - PBMC (-80° C)
  - Citrate plasma (-20° C)
  
- Investigations performed
  - Demographics
  - Medical history and cardiovascular risk factors
  - Concomitant medication
  - Symptoms
  - Physical exam
  - Electrocardiogram (ECG)
  - Clinical laboratory results
  - Echocardiography
  - Cardiac MRI, spirometry, chest X-rays, ventilation/perfusion scan, thoracic computer tomography in selected cases if medically indicated

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## STUDY FLOW CHART

“Long COVID Cohort” at the Department of Cardiology MedUni Wien & MedUni Wien Biobank



### Inclusion criteria:


- Long COVID-19 syndrome
- Past COVID-19 infection verified by PCR
- Informed consent, > 18 years

### Exclusion criteria:

- Acute or chronic systemic disease (e.g. inflammatory or oncologic)
- First presentation within 1 month post infection

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## COHORT – KEY RESEARCH FINDINGS

“Long COVID Cohort” at the Department of Cardiology MedUni Wien & MedUni Wien Biobank



- Median age: 44.5 (IQR: 33.7–54.9) years
- 70 % female
- Median time between COVID-19 infection & first clinical presentation: 243 d (IQR: 139-360)
- Clinical symptoms at the first clinical presentation: mostly fatigue, thoracic pain, reduced physical performance
- Vaccinated patients of the long COVID cohort reported lower number of symptoms than unvaccinated patients

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## SCIENTIFIC PUBLICATIONS

ESC  
European Society  
of Cardiology

Cardiovascular Research (2023) 119:336–356  
https://doi.org/10.1093/cvr/cvab115

REVIEW

### Long COVID and the cardiovascular system—elucidating causes and cellular mechanisms in order to develop targeted diagnostic and therapeutic strategies: a joint Scientific Statement of the ESC Working Groups on Cellular Biology of the Heart and Myocardial and Pericardial Diseases

Mariann Gyöngyösi<sup>1\*</sup>, Pilar Alcaide<sup>2</sup>, Folkert W. Asselbergs<sup>3,4</sup>, Bianca J.J.M. Brundel<sup>5</sup>, Giovanni G. Camici<sup>6,7</sup>, Paula da Costa Martins<sup>8,9</sup>, Péter Ferdinandy<sup>10,11</sup>, Marianna Fontana<sup>12</sup>, Henrique Girao<sup>13</sup>, Massimiliano Gneocchi<sup>14,15</sup>, Can Gollmann-Tepeköylü<sup>16</sup>, Petra Kleinbongard<sup>17</sup>, Thomas Krieg<sup>18</sup>, Rosalinda Madonna<sup>19</sup>, Melanie Paillard<sup>20</sup>, Antonis Pantazis<sup>21,22</sup>, Cinzia Perrino<sup>23</sup>, Maurizio Pesce<sup>24</sup>, Gabriele G. Schiattarella<sup>25,26,27,28</sup>, Joost P.G. Sluijter<sup>29,30</sup>, Sabine Steffens<sup>31,32</sup>, Carsten Tschöpe<sup>33</sup>, Sophie Van Linthout<sup>34</sup>, and Sean M. Davidson<sup>34</sup>

iScience

Article

### A multi-omics based anti-inflammatory immune signature characterizes long COVID-19 syndrome

Johannes J. Kovarik,<sup>1,2</sup> Andrea Bileck,<sup>2,3,8</sup> Gerhard Hagn,<sup>3,8</sup> Samuel M. Meier-Menches,<sup>2,3</sup> Tobias Frey,<sup>4</sup> Anna Kaempf,<sup>4</sup> Marlene Hollenstein,<sup>4</sup> Tarik Shoumariyeh,<sup>1</sup> Lukas Skos,<sup>3</sup> Birgit Reiter,<sup>4</sup> Marlene C. Gerner,<sup>5</sup> Andreas Spannbauer,<sup>6</sup> Ena Hasimbegovic,<sup>4</sup> Doreen Schmid,<sup>7</sup> Gerhard Garhöfer,<sup>7</sup> Mariann Gyöngyösi,<sup>5,9</sup> Klaus G. Schmetterer,<sup>5,9</sup> and Christopher Gerner<sup>2,3,9,\*</sup>

Radiology

ORIGINAL RESEARCH • THORACIC IMAGING

### Detection of Post-COVID-19 Lung Abnormalities: Photon-counting CT versus Same-Day Energy-integrating Detector CT

Florian Prager, MD, PhD • Patric Kienast, MD • Andreas Strauß, BS, MSc • Philipp T. Moser, MD, PhD • Dominik Bernitzky, MD • Christopher Milacek, MD • Mariann Gyöngyösi, MD • Daria Kijak, MD • Sebastian Rührich, MD, PhD • Lucian Beer, MD, PhD • Martin L. Wätzböck, MD • Alexandra I. Milos, MD • Christian Wässipaul, Mag MD • Daniela Gompelmann, MD • Christian J. Herold, MD • Helmut Prosch, MD • Benedikt H. Heidinger, MD

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## COHORT – (FURTHER) NEEDS

“Long COVID Cohort” at the Department of Cardiology MedUni Wien & MedUni Wien Biobank

### Lessons learned from this long COVID cohort:

- Vaccinated patients of the long COVID cohort reported lower number of symptoms than unvaccinated patients
- Discovery of potential (novel) biomarkers for long COVID syndrome via transcriptomics, proteomics and metabolomics (ongoing)
- Increased incidence of cardiovascular diseases, hypertension and diabetes

### Unmet needs of this cohort:

- Comparison of data of long COVID patients with data of patients with
  - a) no long COVID syndrome post SARS-CoV-2 infection;
  - b) vaccinated healthy cohort (no infection)

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- Dr. Klaus Schmetterer
- Dr. Dietrich Beitzke

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