

# BBMRI-ERIC response to COVID-19

Resources from biobanks across Europe available for research on SARS-CoV-2 and COVID-19

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## What can biobanks do against COVID-19?

COVID-19 represents a great challenge for our healthcare systems. The situation and the working conditions are quite difficult at many places and direct patient care has the highest priority.

The next challenge will be to support those who are finding a cure for COVID-19. This document provides you with a list of those BBMRI national nodes and biobanks that provided specific information on the resources they can make available to researchers (academic and from the private sector) working on COVID-19.

Biobanks are crucial in the run towards a COVID-19 vaccine and/or treatment. Our network of 600+ biobanks can provide key services to researchers, such as:

- Efficient and high-quality storage of samples in clinical and research settings;
- Samples from healthy individuals, to be used as control (collected 2-3 months before outbreak in each country);
- Provide guidance and standards for targeted identification, collection and conservation of important samples.

This document provides a list of available resources that researchers working against COVID-19 can access via the BBMRI-ERIC network.

BBMRI will keep the list updated with new resources whenever available.

For more information and questions, contact BBMRI HQ at [francesco.florindi@bbmri-eric.eu](mailto:francesco.florindi@bbmri-eric.eu)

## IMPORTANT DISCLAIMER

SAFETY FIRST!

Only biobanks and researchers with the appropriate equipment, training and facilities should collect, share and handle samples from COVID-19 affected patients.

Please be sure to fully adhere to the WHO Laboratory biosafety guidance related to coronavirus disease 2019 (COVID- 19), available here:

<https://apps.who.int/iris/bitstream/handle/10665/331138/WHO-WPE-GIH-2020.1-eng.pdf>

## What is BBMRI-ERIC?

BBMRI-ERIC (Biobanking and BioMolecular resources Research Infrastructure - European Research Infrastructure Consortium) is the world largest network of biorepository of human samples (such as blood, tissues, cells or DNA, and associated clinical and research data), connecting more than 600 biobanks from 20 countries. Its mission is to facilitate research on human samples for health research, while keeping the highest scientific standards and, most importantly, preserving patients' and citizens' privacy. BBMRI-ERIC provides services to researchers to develop better treatments, test diagnostic tools and advance biomedical research.

The power of BBMRI resides in its network: we are composed of 20 national nodes, that support biobanking at the local level, and a European headquarters, based in Graz, Austria.

## Austria

### Medical University Graz

BBMRI Directory ID: AT\_MUG

**Available resources:**

- High-end BSL-3 facility biobank.
- Access to patient samples.
- Isolation of pathogens from autopsy cases.
- Virus culture.
- Inhibitor testing
- Support in diagnostic assay development.

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### Medical University of Innsbruck with Biobank Innsbruck

BBMRI Directory ID: AT\_MUI

**Available resources:**

- Samples from patients with COVID-19 collected in clinical setting from the Tyrol region (Austria COVID-19 hotspot), linked to clinical data.

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### Medical University of Vienna with MedUniWien Biobank

BBMRI Directory ID: AT\_MUW

**Available resources:**

- Serum samples collected before the SARS-CoV-2 outbreak for validation of serologic (IgG, IgM) tests, as those samples might be definitively free from antibodies against the virus;
- Collections from patients with COVID-19 collected in clinical setting are currently in planning.
- Samples from population-based cohorts collected after the SARS-CoV-2 outbreak (e.g. collected during prophylactic health examination programs, emergency department/primary care visits, etc.) that might help to estimate the actual seroprevalence of the virus in the different areas.

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## Belgium

### Biobank Antwerpen/ University Hospital Antwerp

BBMRI Directory ID: BE\_71030031000

**Available resources:**

- Samples from patients with COVID-19 collected in clinical setting.

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### Biobank Erasme Hospital Brussels

BBMRI Directory ID: BE\_BERA1

**Available resources:**

- Samples from patients with COVID-19 collected in clinical setting.

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### Biobank CHU UCL Namur

BBMRI Directory ID: BE\_CMGO1

**Available resources:**

- Samples from patients with COVID-19 collected in clinical setting.

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### Biothèque Hospitalo Universitaire de Liège (BHUL)

BBMRI Directory ID: BE\_LCHU1

**Available resources:**

- Samples from patients with COVID-19 collected in clinical setting.

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## Bulgaria

BBMRI.bg, Molecular Medicine Center, Medical University of Sofia, National University Complex for Biomedical and Translational Research

BBMRI Directory ID: n/a

### Available resources

- Possibility of sample and data collection from COVID-19 patients collected in clinical setting and healthy controls
- Possibility to sequence the SARS-CoV-2 virus for molecular epidemiological studies, mutation monitoring and correlation with clinical data.
- Ability to participate in the development and validation of new diagnostic tests,

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## Cyprus

BBMRI.cy / University of Cyprus

BBMRI Directory ID: n/a

### Available resources:

- Samples from patients with COVID-19 collected in clinical.

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## Czech Republic

BBMRI.cz / Masaryk University Brno

BBMRI Directory ID: CZ\_MMCI

### Available resources:

- Samples from patients with COVID-19 collected in clinical.

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## Estonia

Estonian Genome Center, Institute of Genomics, Estonian Biobank

BBMRI Directory ID: EE\_EGCUT

### Available resources

- Possibility to collect samples/data from population (infected /healthy)
- Sequence the virus.

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## Finland

Faculty of Biochemistry and Molecular Medicine (FBMM) - InfoTech Oulu (ITO)/Oulu University (OU), VTT and BOREALIS Biobank of Northern Finland (BBP)

BBMRI Directory ID: FI\_006

### Available resources

- Samples will be collected from the clinical setting to the BBP and FinBB (THL) also from COVID-19 positive patients
- Finnish Maternity Cohort (FMC), serum samples (2M, from 900 000 females) from (BBP)
- Clustered Finnish Biobanks by FinBB (<https://finbb.fi>)(BBP)
- Finngen contribution and GWAS data from patients from the BBP region
- Clinical electronic patient registry data cluster information from the national Findata center (<https://www.findata.fi/en/>)
- Infrastructure to develop pilot programs to mass produce diagnostic cost effective tests via the “printed intelligence”, namely Roll to Roll technology in VTT, Printocent and Oulu university (<https://www.printocent.net>)
- Projects aiming to establish high end diagnostic tests for medical use
- Antibody based semi-content based diagnostics of serum samples (BBP)
- Oulu university research infrastructure services (<https://www oulu.fi/biocenter/core-facilities>) out of which three are part of the European scale Infrastructure nodes (disease models, structural biology and mesoscopic imaging)
- Oulu University as part of the Biocenter Finland technology platform (<https://www.biocenter.fi/index.php/technology-platform-services>)
- Business Oulu, medical technology companies (<http://ouluhealth.fi>)

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## Germany

German Biobank Alliance / Charité

BBMRI Directory ID: DE\_ZeBanC

### Available resources

- High ranking knowledge in virology (Prof. Drosten) supported by comprehensive biobanking resources.

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## Italy

BBMRI.it

BBMRI Directory ID: n/a

### Available resources:

- Access to patient samples:
  - Samples from patients with COVID-19 collected in clinical setting from Lombardy, Veneto and other Italian Regions, linked to clinical data
  - Samples from Multicenter study on the efficacy and tolerability of tocilizumab in the treatment of patients with COVID-19 pneumonia

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## Latvia

BBMRI.LV and Latvian Biomedical Research and Study centre

BBMRI Directory ID: LV\_LGDB

### Available resources:

- Biological samples and clinical data from COVID-19 cases in Latvian population.
- Sequencing of SARS-CoV-2 virus samples from infected cases in Latvian population to follow virus variability and associate with clinical disease outcomes.
- Development of vaccine against SARS-CoV-2 based on virus epitope presentation on virus-like particles.

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## Riga Stradins University

BBMRI Directory ID: n/a

### Available resources:

- DNA from Latvian population with unknown COVID-19 status, to be used as controls
- EDTA plasma from Latvian population with unknown COVID-19 status, to be used as controls

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## Malta

### BBMRI.mt / University of Malta

BBMRI Directory ID: MT\_MBB

### Available resources

- Academic/research biobank at the University of Malta.
  - Trios of probands + both parents of Hb F Malta I heterozygotes; approx. 80/year and consented for research within the EU.
  - Approx. 4.5 k /year frozen samples of whole blood and DNA ( $\pm 25$  years). The oldest samples are anonymized and the more frequent ones pseudo-anonymized. Samples are dedicated for research and public health purposes with the EU.
  - Clinical Biobank at DH/Sptar Mater Dei.
- Samples from testing programme
  - Whole blood samples from patients

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## Netherlands

### BBMRI.nl / Radboud Biobank

BBMRI Directory ID: NL\_RBB

### Available resources

- Researchers from Radboudumc together with colleagues from UMCU (Utrecht), will investigate whether health care workers are better protected against the coronavirus after a vaccination against tuberculosis (BCG vaccine). Find out more [here](#).

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## Amsterdam University Medical Center

BBMRI Directory ID: NL\_AMCBB

### Available resources

- Samples from all patients with COVID-19 collected in clinical setting, linked to clinical data.

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## Norway

### Biobank1 - Corona Study Trøndelag

BBMRI Directory ID: NO\_BIOBANK1

### Available resources:

- Biological samples from patients with COVID-19 collected in clinical setting.
  - Serum
  - Full blood (for RNA extraction)
  - EDTA-Full blood (for DNA extraction)
  - EDTA-Plasma
  - Citrate-Plasma
  - PBMC (Peripheral Blood Mononuclear Cells)
  - Nasopharyngeal aspirate
  - Tracheal aspirate
- Clinical Data from same cohort, aligned with WHO-CRF
- Samples and Data collected from 3 time points (inclusion/Day 1, Day 3-5, Day 7-9)
- Linkage to HUNT and national registries

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## Poland

BBMRI.pl / Lukasiewicz Research Network – PORT Polish Centre for Technology Development / Medical University of Wrocław/ University of Lodz/ Regional Scientific and Technical Center in Checiny

BBMRI Directory ID: PL\_PORT

### Available resources

- Possibility of samples and medical data collection from patients with COVID-19 collected in clinical setting (after positive decisions of policy makers):
  - two biobanks from Polish Biobanking Network may be included in nasal-pharyngeal swab testing regarding SARS-CoV-2.

- automatic system for GWAS testing – looking for prognostic and risk markers of COVID-19 infection.
- Sequencing SARS-CoV-2 virus to monitor mutation dynamics in Polish population.
- Availability of population cohort samples of Lower Silesia citizens:
  - samples from children of 7-14 y. o. and their parents collected from Nov. 2019 (blood, urine, stool, native saliva and saliva for DNA extraction with additional data from spirometry, diagnostic studies, anthropometric studies) with screening data of IgG, IgM towards COVID-19.
  - samples from citizens 20-75 y. o. (blood cells, serum, plasma, urine) with demographic and health information that may be screen for prognostic and risk markers of COVID-19.
  - population cohort from Poland 30-80 y. o. (PURE project <http://www.phri.ca/pure/>). Serum samples with complete medical data (from Jun. 2019), ongoing 12-year follow up.
- Proteomic studies aimed to identify interactome of virus capsid proteins in pull down experiments, performed on different cells/tissues. This study can utilize extracellular domain of angiotensin, a known receptor for SARS-CoV-2 on the surface of epithelial cells, as a positive control.
- The development of antibodies against SARS-CoV-2 proteins. This includes neutralizing antibodies that can be further developed into biotherapeutic blocking virus interaction with angiotensin receptor or a vaccine via a reverse engineering. Other antibodies might be used for the detection of virus particles in immunodiagnostic tests.
- PORT has a platform for the high throughput screening of molecules libraries targeting virus proteins and directing them to the catabolic pathway. Targeting virus enzymes is potentially an effective strategy to stop virus multiplication and assembly in human cells - the development of a antiviral drugs.

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## United Kingdom

### UKCRC Tissue Directory and Coordination Centre (TDCC)

BBMRI Directory ID: n/a

#### Available resources

- ~30 UK biobanks are still operational
- ~8 of these biobanks can collect COVID-19 samples
- Samples will be available from patients with COVID-19 collected in clinical setting
- For more information visit <https://biobankinguk.org/COVID-19>
- For latest updates visit <https://linkedin.com/showcase/corona-virus-samples-uk/>

- We are seeking to understand the availability of resources and this represents the current snapshot. If you are seeking samples get in touch and we can advise based on our latest understanding of resources and samples available.

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## WHO/IARC

BBMRI Directory ID: n/a

### Available resources

- BSL3 facility ([necessary for the treatment of COVID-19 samples](#));
- Expertise in creating guidelines and disseminating to WHO/IARC networks of professionals in LMICs across the world.

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