

## UAB COVID Enterprise Biorepository

The IRB-approved UAB COVID Enterprise Repository was established to evaluate COVID-19+ hospitalized patients and convalescent individuals, including those with Long-COVID. We also have enrolled vaccinated individuals who have underlying health conditions (i.e. solid organ transplants, HIV infected, autoimmune disease) or breakthrough infections. The patients were enrolled in the repository beginning in April 2020 with enrollment continuing to the present day. The cohort reflects the evolution of COVID management over time, and includes enrollees pre-remdesivir, pre-steroids and those representing current interventions, including monoclonal antibody therapy. All enrollees have consented to access of their UAB electronic medical record (EMR) and all have agreed to be contacted for further follow up. We have IRB approved questionnaires that are used to collect health data at the time of enrollment and during follow-up visits, and we have IRB permission to integrate external data sets (e.g., census, death index, area deprivation).

Currently there are **>3884 unique consented enrollees** who can and are being recalled for further study (see inset).

UAB established a dedicated research space to safely interact with participants that are currently infected or that have entered the convalescent phase of their illness to allow active longitudinal engagement, specimen collection and capture of patient reported health data. We staffed this facility and have established the specimen management workflow, including BSL2+ and BSL3 facilities, to ensure rigorous processing, storage, discovery and collaborative distribution for experimental use. We carefully studied COVID-19 data collection instruments, informed in part by the NIH Common Data model, the National COVID Cohort Collaborative and NHLBI's "Cohort of Cohorts" initiative, to develop baseline and follow-up questionnaires, which are coded in REDCap. We have begun follow up with those previously enrolled in COVID Enterprise in support of a longitudinal assessment of outcomes in partnership with the Department of Epidemiology in the UAB School of Public Health. The new COVID research facility also allowed for expansion of the cohort to enroll ambulatory patients who experience long-term symptoms, as well as individuals who were fully vaccinated and had breakthrough infections or healthy controls for comparison. We are currently following

COVID-19 Enterprise Population		3884
<b>Demographics</b>		
<b>Age Range</b>	<18	1
	18-29	241
	30-39	391
	40-49	585
	50-59	833
	60-69	913
	70-79	605
<b>Sex</b>	>=80	315
	Male	1913
	Female	1970
	Unknown/Other	1
<b>Ethnicity</b>	Hispanic	76
	Not-Hispanic	3552
	Unknown/Other	276
<b>Race</b>	Asian	99
	Black	1533
	White	2018
	Unknown/Other	234
<b>Comorbidities</b>		
Obesity (BMI of 30 or higher)		1955
Diabetes		1690
COPD		410
Hypertension		1732
ESRD		667
Heart failure, CAD, cardiomyopathy		1698
Rheumatologic Disorder		180
Solid Organ Transplant Recipient		154
HIV		303
Malignancy		326

**121 participants with Long COVID** who have completed baseline PRO and blood sample collection. We have longitudinal sample and data collection on 47 of those individuals. We have **>100 vaccinated individuals with breakthrough infections** (some outpatient and some hospitalized) and will continue to follow these participants longitudinally.

#### **Description of biospecimens in Enterprise repository (April 2020 – September 2021)**

Samples collected include longitudinal serum and plasma (while hospitalized), PBMCs (frozen), saliva/saline rinses, nasal swabs, DNA, tracheal aspirates, urine and virus swabs. We are also collecting PBMCs, serum and plasma from hospitalized and vaccinated individuals and we have bio-banked autopsy tissues from deceased donors.

#### **Cross-sectional samples**

- 6500 Viral swabs stored for virus sequencing (1200 sequenced to date and 34 variants identified).
- Matched serum/plasma and PBMC samples from 1567 infected patients (including hospitalized, outpatient, breakthrough infections).
- 395 nasal swabs
- 116 tracheal aspirate samples (hospitalized only).
- Cell pellets and cell free pellets from urine collected from >1000 donors.
- Genomic DNA from >1000 hospitalized donors and >100 vaccine breakthrough patients
- Saliva and oral saline rinse from >200 donors.

#### **Longitudinal Samples** (defined as $\geq 3$ samples collected over time)

- Serum/plasma from 231 hospitalized donors
- Matched serum/plasma and PBMCs from 326 hospitalized and convalescent individuals
- Matched serum/plasma and PBMCs and genomic DNA from 121 Long-COVID patients with 47 longitudinal samples collected to date and collection ongoing.
- Matched serum/plasma and PBMCs and genomic DNA from 102 vaccine break-through infections. Collection ongoing including after 3<sup>rd</sup> vaccination
- Matched serum/plasma and PBMCs from 33 HIV<sup>+</sup> vaccinated individuals. Collection ongoing including after 3<sup>rd</sup> vaccination
- Matched serum/plasma and PBMCs from ~50 vaccinated solid organ transplant recipients. Collection ongoing including after 3<sup>rd</sup> vaccination
- PBMC, serum and plasma from >50 healthy donors immunized with Pfizer or Moderna vaccine Collection ongoing including after 3<sup>rd</sup> vaccination (these are controls for our other groups)

**Autopsy Specimens** - In the 18 months since March 2020, UAB Pathology has conducted 74 COVID-related autopsies, tissues from which are consented for research use. Deidentified paraffin embedded blocks, and in many cases, wet formalin fixed tissues, may be available from:

- heart, coronary arteries, aorta, pulmonary artery,
- lungs,
- lymph nodes,
- liver,
- kidney
- brain,
- stomach, colon, duodenum and ileum.

UAB Pathologists are also in the process of scanning and uploading all of the COVID autopsy slides to the UAB PEIR website.

**UAB COVID-19 TBR Virtual Biorepository:** <https://peir-vm.path.uab.edu/specialcases.php>

Updated October 1, 2021.