

Spotlights: COVID-19 Response

They Are Really “Stars”: Celebrating Trainees Contribution to COVID-19 NYU Response

Pathology trainees have distinguished themselves throughout the NYU Langone Health COVID-19 response, demonstrating resilience and commitment to their clinical duties and education, while also contributing to many different volunteer opportunities during this time. In this article we want to honor their contributions, report their tremendous efforts, and share their experiences. “They are really ‘stars’”, said Dr Paolo Cotzia, Clinical Assistant Professor in Pathology and Assistant Director of CBRD (Center for Biospecimen Research and Development) about his collaboration with the trainees during this crisis.

Trainees responded to various urgent needs in the clinical laboratories. Some of the assigned tasks required working in challenging shifts and some came with significant risk of virus exposure. Trainees helped to validate new SARS-CoV2 PCR tests and to meet the dramatic increase in SARS-CoV2 testing. They also were mobilized to help perform diagnostic testing on the Roche Cobas and Cepheid platforms. Finally, residents were recruited to work with the CBRD and clinical molecular faculty on a combination of clinical and research projects including the validation of rapid antibody testing, nasopharyngeal sample collection, virus processing and banking of biospecimens to be used for SARS-CoV2 genome sequencing, as well as clinical data collection and sample selection for future translational studies .

Below is a list of the trainees and the efforts they volunteered for to meet the COVID-19 challenge head-on:

SARS-CoV2 Testing Effort

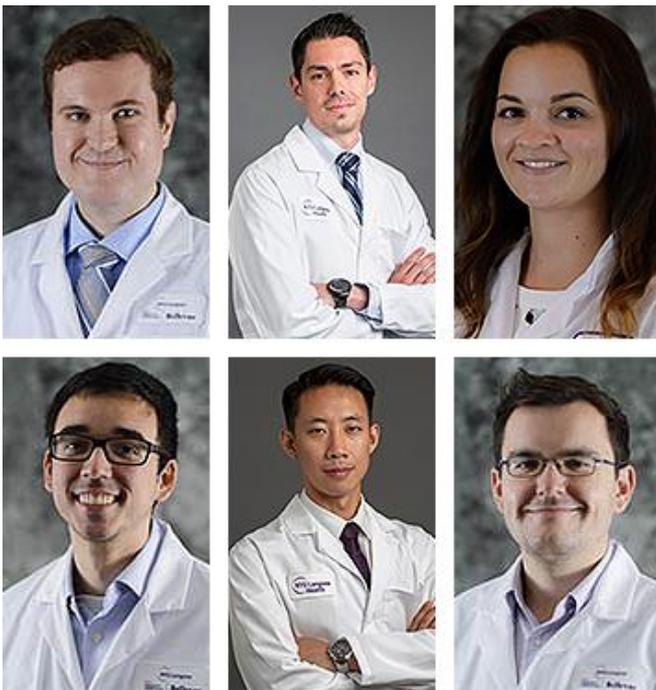


Top Row: Tatyana Zinger, DO, Atreyee Basu, MD, Fei Chen, MD, PhD, Douglas Allison, MD, Andrew Lytle, MD, PhD,
Middle Row: Issa Hindi, MD, Theodore Vougiouklakis, MD, Sunjida Ahmed, MD, John Colavito, MD, Abdallah Flaifel, MD
Bottom Row: Nurfiza Ladak, MBBCh, Lucy Wang, DO, Sara Javidiparsijani, MD

Pathology faculty [Joan Cangiarella, MD](#), Vice Chair Clinical Operations and Chief Pathology Service at Tish, and [Maria E. Aguero-Rosenfeld, MD](#), Director of Clinical Laboratories at NYU Langone Health and Chief of Clinical Laboratories at Tisch, led the effort of Covid-19 testing at NYU Langone Health.

Many of the residents contributed in different tasks such as performing testing in different shifts as well as helping us in completing assay validation and implementation. This was a tremendous help to our clinical laboratory that had to face the challenge to validate and implement new testing in a short amount of time and quickly ramp up to a large testing volume. In 2 and a half months we have performed over 50 thousand COVID diagnostic tests with the help and dedication of our residents and fellows.

SARS-CoV2 Sequencing Effort



Top Row: Andrew Lytle, MD, PhD, Theodore Vougiouklakis, MD, Margaret Black
Bottom Row: MD, Antonio Serrano, MD, Lawrence Hsu Lin, MD, PhD, Brendan Belovarac, MD

A great example of how trainees aided the COVID-19 response is reflected in their contributions to the effort to sequence SARS-CoV2 in NYU Langone Health patients. This effort was led by Dr. Adriana Heguy, Professor of Pathology and director of the Genome Technology Center. Other Pathology faculty involved in the project were Drs Matija Snuderl MD, director of Molecular Pathology and Matthew Maurano, PhD, lead investigators at the ISG and Assistant Professor of Pathology. This study demonstrated that SARS-CoV2 largely was introduced to the NYC region by carriers who traveled from Europe rather than China.

<https://www.medrxiv.org/content/10.1101/2020.04.15.20064931v2>

Clinical and Research Studies



Top Row: Atreyee Basu, MD, Tatyana Zinger, DO, John Colavito, MD, Abdallah Flaifel, MD, Margaret Black, MD
Bottom Row: Lawrence Hsu Lin, MD, PhD, Antonio Serrano, MD, Kimon Argyropoulos, MD, Andrew Lytle, MD, PhD

Residents also engaged in clinical and research studies by various NYU Langone faculty members. Some of these projects include: 1) validation of SARS-CoV2 rapid antibody assays (**Drs. Paolo Cotzia, Matija Snuderl**); 2) validation studies in additional specimen sources such as CSF and stool samples (**Dr. Maria Aguero Rosenfeld**). Manuscript was submitted in collaboration with neurology colleagues; 3) clinical trial on thromboembolism in COVID-19 patients (**Dr. Jeffrey Berger**); 4) high parameter flow cytometry studies of immune responses in COVID-19 patients (**Drs. Christopher Y. Park and Pratip Chattopadhyay**; and, 5) correlating viral load with clinical characteristics (**Drs. Paolo Cotzia, George Jour**). 6) Evaluation of rapid nucleic acid platform (ID NOW) accepted for publication in the J. Clinical Microbiology (Dr. Maria Aguero-Rosenfeld) J. Clin. **Microbiol.** doi:10.1128/JCM.01136-20. 7) Correlation of Viral load with clinical outcome and follow up; 2 manuscripts submitted in collaboration with Infectious Diseases colleagues (Dr. Maria Aguero-Rosenfeld). We

will closely follow the outcomes of these research projects and report on their findings in the future.

NYU Langone Health- Brooklyn



Left to Right: Fei Chen, MD, PhD, Alejandro Vargas, MD, John Colavito, MD, Nurfiza Ladak, MBBCh

Pathology residents have contributed to the COVID-19 response at all NYU Langone Health locations. “Pathology residents have been of great value to the Blood Bank and the Laboratory during the COVID-19 pandemic, and we greatly appreciate their hard work and commitment,” declared Carlos Sanchez, the Blood Bank Supervisor at NYU Langone Health- Brooklyn. Pathology residents helped the department review blood utilization surveillance and proper transfusion criteria, as well as initiate clinical studies on outcomes in COVID-19 patients who received blood transfusions. “We appreciate the diligent work and dedication which Pathology Residents are providing to the NYU Langone - Brooklyn Laboratory,” said Dr. Philip A. Lai, Clinical Chemistry and Serology Supervisor at NYU Langone Hospital - Brooklyn where pathology residents are involved in COVID-19 testing.

Educational Projects

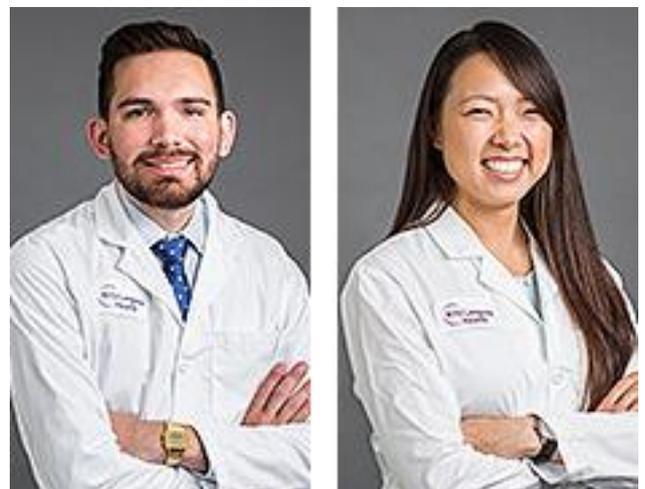


Left to Right: John Colavito, MD, Lawrence Hsu Lin, MD, PhD, Jose Manuel Gutierrez Amezcua, MD, Abdallah Flaifel, MD

Dr. Kristen Thomas, Clinical Assistant Professor of Pathology, and **Dr. Margret S. Magid**, Professor of Pathology and Content Director, Pathology Education, have been working with Pathology residents on different educational projects. Residents developed

online clinical case studies, which will be used to educate current NYUSOM medical students who would normally be on clerkship rotations right now, but currently are not being allowed in the hospital. The case format was adapted from the Department of Medicine Clinicopathologic Conferences and modified into interactive modules that highlight the correlation between clinical and pathological findings. In another project, the residents collaborated with educators in the Department of Radiology to develop an image-based Radiology-Pathology Case Bank for medical student and resident education.

Autopsy Service



Left to Right: Alex Arispe, MD, Tuyet Tran, DO

Kristen Thomas, MD, and **Melissa Guzzetta, MD**, both Autopsy Service attendings at NYU Langone Health, supervised pathology residents who assisted with the timely completion of death certificates, tissue sampling following initial autopsies of COVID-19 positive patients, and the management of the morgue census. With the marked increase in COVID-19 related deaths, it became imperative to maintain and monitor the morgue census in order to maintain capacity and avoid an overflow. Residents coordinated with the Office of the Chief Medical Examiner, as well as with clinical staff, families, and funeral homes to ensure appropriate placement of the deceased. Residents also assisted with the collection of critical data related to all COVID-19 autopsies for future research purposes.



Above Left: **Rana Moubarak, PhD**, an Instructor in the Pathology Department, provided critical help to coordinate a hydroxychloroquine trial in NYU healthcare workers (PI: Belmont). Every day, Rana distributed medication to study subjects on site and kept records for the study.

Above Middle: **Grace Levinson**, an undergraduate student scheduled to start working as a research assistant in the lab of Dr. Hernando in June, has been part of the team that is preparing viral transfer media (VTM) necessary for COVID-19 diagnostic testing.

Above Right: **Gillian Baptiste, MD**, a postdoctoral fellow in Dr. Hernando's lab and surgery resident, has been coordinating the convalescent plasma trial (PI: Ortigoza), obtaining consent from patients, administering plasma or placebo, and keeping records for the study trial. Gillian's effort has been critical for the rapid enrollment of patients in this trial.



Left to Right: **Joseph Pucella, PhD, Chetna Soni, PhD, Yueyang Wang, Joseph Saglimbeni, Lee Serpas and Tae Jin Yun, PhD** from Dr. Reizis Lab have volunteered for COVID-19 focused research at the Vaccine Center. Tae Jin Yun, PhD has analyzed COVID-19 patient blood samples as part of a COVID-19 focused research project in collaboration with the Vaccine Center.



Left to Right: **Francesco Boccalatte, PhD**, postdoctoral fellow and **Kathryn Hockemeyer**, a medical student both in the lab of Dr. Aifantis, have helped with the preparation of viral transfer media and the Emergency Operations Center, face shield production, and PPE packaging.



Left: **Nainita Bhowmick, PhD**, a postdoctoral fellow in Dr. Park's lab, has worked with the pathology residents to analyze COVID-19 patient blood samples as part of the project to use high parameter flow cytometry to characterize the immune response in COVID-19 patients.

Pathology trainees have responded admirably to the COVID-19 challenge and made many significant contributions during this difficult time and collectively demonstrated great solidarity with the healthcare workers at the frontlines of this pandemic. Many of them stepped out of their comfort zones and provided help in areas that are very different from their normal work.

As a Department, colleagues, and fellow citizens, we are enormously proud of and grateful for all efforts - small and large - made by our trainees. A heartfelt thank you to all of you!