

May 2019

The mission of NCCAT is twofold: to provide nationwide access to advanced cryoEM technical capabilities, and to assist users in the development of cryoEM skills needed for independent research. NCCAT provides access to state-of-the-art equipment required to solve structures to the highest possible resolution using cryoEM methods. Supported by the NIH Common Fund Transformative High Resolution Cryo-Electron Microscopy program (U24 GM-129539).

## Construction Updates

The New NCCAT facility is coming together! The drywall and base boards are up and the floor plan is starting to take shape.



## Story of the Month: The Quest to Krios

Vishaka Santosh finally arrived at the New York Structural Biology Center (NYSBC) on Tuesday, February 19 just a few minutes past her Krios loading time. Truly it was remarkable she made it at all, the previous 24 hours had been a lengthy expedition.

Vishaka is a post-doctoral fellow in Dr. Carlos Escalante's lab in the Physiology and Biophysics department at Virginia Commonwealth University (VCU). They applied to the first cycle in NCCAT's General User Proposal (GUP) program, which supports single particle cryoEM data collection on one of the Titan Krios instruments at NYSBC. Dr. Escalante's lab at VCU focuses on the study of the structure and function of proteins and protein-DNA complexes central to transcriptional activation and the initiation of viral DNA replication. For her project Vishaka's goal was to find out how AAV non-structural proteins are involved in genome packaging.

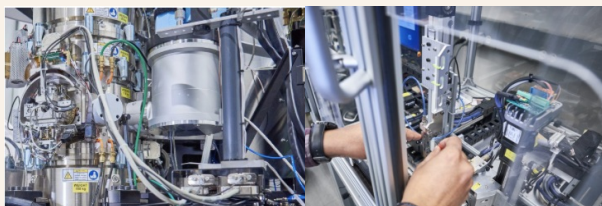


But before the Krios could be loaded, the sample needed to be screened back in Virginia. Since VCU has limited access to electron microscopy facilities, Vishaka needed to screen her sample at the University of Virginia (UVA) campus – an hour and a half drive from VCU. She would end up making the 75 mile journey a total of three times when it turned out her sample had been corrupted. She had to drive back and forth from Richmond to Charlottesville to prepare the sample again from scratch, freeze the sample, and screen the sample. Luckily the new sample had no issues.

Early the next morning, with sample in tow, Vishaka was ready to board the 6:30am train to New York City. The conductor however was wary of the contents of her dewar and would not allow her to board. Panicked and unsure of what to do now, Vishaka called her PI, Carlos Escalante, who agreed to drive her to the Eastern Bus depot (Chinatown Bus) to see if she could catch a bus to New York City. The Eastern Bus is a little more casual and the driver did not bat an eye at her dubious luggage. After a 7 hour bus ride and dragging her dewar all over New York City, Vishaka finally reached the end of her journey and was able to load her sample onto the instrument (despite being just a bit late).

Everything worked out in the end and the data collected is now being analyzed to obtain a structure of the protein-DNA complex.

## Submit Your Proposal to NCCAT



### NCCAT GUP1 PROPOSAL SUBMISSION

The [GUP1 early access program](#) supports single particle cryoEM data collection on one of



### NCCAT TP1 PROPOSAL SUBMISSION

The [TP1 cycle](#) supports embedded scientist training.



### NCCAT TP2 PROPOSAL SUBMISSION

The [TP2 cycle](#) supports facility manager training

our existing Titan Krios instruments using a Gatan K2 direct-electron detector.

and an exploratory screening microscope session.

[Submit Now!](#)

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## Career Opportunities

### Research Associate & Staff Scientist

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We are seeking an experienced electron microscopist to join the NCCAT team. The individual will be responsible for collection of high-resolution data for NCCAT users and also support our cross-training efforts. Responsibilities will include: operation of screening and high-end microscopes, specimen preparation (negative stain, vitrification, Chameleon), image analysis, processing and 3D reconstruction, one-on-one training of embedded scientist, feedback to users. Opportunities for collaborative research are available through the Simons Electron Microscope Center.

Apply for [Research Associate](#) or [Staff Scientist](#) on Indeed

### Laboratory Technician

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We are looking for bright and enthusiastic individuals to help out with various tasks to keep the lab running. Most important requirements are a good attitude, ability to learn, able to work independently, and willingness to do what needs to be done. Must be able to work in a multi-tasking environment where priorities may change often and be able to work well with others. Previous electron microscope experience is not required, but is a plus.

[Apply on Indeed](#)

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