



## **REQUEST FOR APPLICATIONS**

### **Third Coast HIV-related Cardiovascular and Sleep Disorders K12**

**Application deadline is 11:59 CST Monday, March 1, 2021**  
Apply at <https://redcap.uchicago.edu/surveys/?s=NH3AE8MNJA>.

The Third Coast HIV-related Cardiovascular (CV) and Sleep Disorders K12 Career Development Program (TC-CS K12) announces funding for NHLBI K12 Scholar Awards that provide substantial salary support (up to \$85,000 plus fringe) for faculty-level MD and PhD scientists near the beginning of their investigative careers. Applications are for funding in 2021, with appointments beginning as early as July 1, 2021. Appointments are for two years. Eligible candidates must hold a doctoral degree and must have a faculty-level appointment during the period of support at the University of Chicago or Northwestern University. This RFA is for applicants applying from the University of Chicago; Applicants applying to the Northwestern program should email Justin Schmandt (justin.schmandt@northwestern.edu) for that RFA.

#### **ABOUT THE TC-CS K12 Funding Mechanism**

The Third Coast HIV-related Cardiovascular (CV) and Sleep Disorders K12 Career Development Program (TC-CS K12) is a collaboration between the University of Chicago (UC) and Northwestern University (NU) that offers an interdisciplinary pathway to academic productivity for the next generation of physician and non-physician junior faculty scientists developing research programs in cardiovascular disease and sleep disorders in people living with or vulnerable to HIV. Past research experience in HIV and/or cardiovascular and sleep disorders is not required.

Mentored by world-class experts, tailored and individualized curricula most relevant to productivity provided by both program mentors and resource faculty will support trainees' projects in two high priority research topic areas related to HIV - CV disease and sleep disorders. These two areas are further stratified into one of four high impact and high HIV research-priority pathways: heart failure; coronary artery and other vascular disease; sleep disordered breathing; and circadian disruption and stress (see APPENDIX for more details on each training pathway). TC-CS K12 also offers scientific disciplinary clusters: molecular and cellular pathogenesis (called pathogenesis); genomics, epigenetics and proteomics (called -omics), clinical and translational research (called clinical); and data science and computational modeling (called data science). Didactic and experiential learning across these clusters is customized with mentoring for each individual trainee's pathway.

The research itself, along with mentoring and cross-disciplinary curricula, will enable new insights into complex mechanisms underlying HIV-related CV and sleep disorders (HIV-CS) and start careers that will produce major advances in diagnosis, treatment, monitoring and/or prevention of these co-morbidities in people living with or vulnerable to HIV. The ultimate objective of our program is to identify, inspire, and support development of independent, NHLBI-funded investigators in HIV research.

#### **ELIGIBILITY**

- TC-CS K12 Scholars are to be relatively new investigators with an entry level faculty



appointment at their institution at the time of award (e.g., Assistant Professor, Research Assistant Professor, or Instructor). Applicants must have an MD, PhD, or comparable doctoral degree. Graduate students, postdoctoral trainees, and staff scientists are not eligible to be appointed as a TC-CS K12 Scholar. Investigators that anticipate a faculty appointment by the award start date may apply and a letter of faculty appointment, with start date, is required in the application.

- Scholars are not required to have past experience in HIV and/or cardiovascular or sleep disorders research, but future interest and commitment to research in these areas is required.
- Scholars may not be or have been a PD/PI on an R01, R29, U01/U10, leader of a subproject of a Program Project (P01), Center (P50, P60, U54) grant, or individual mentored or non-mentored career development award (e.g., K01, K08, K22, K23, K25, K99/R00).
- Scholars must be citizens or noncitizen nationals of the United States or have been lawfully admitted for permanent residence at the time of appointment.
- Scholars are expected to devote a minimum of 9 person-months (75% of full-time professional effort) during the appointment on the K12 award.

#### **EXPECTATIONS OF TC-CS K12 UCHICAGO SCHOLARS**

- Applicants will select one of the four research and training pathways outlined in this application: heart failure, coronary artery and other vascular disease, sleep disordered breathing, and circadian disruption and stress
- Candidates are expected to assemble, in consultation with program leadership, a multidisciplinary mentoring committee of senior advisors/mentors and meet with their mentors regularly.
- Scholars are expected to participate in two mandatory trainings at the start of their appointment: the Midwest AIDS Training and Education Center (MATEC) three-day immersion course offered at UChicago and a weeklong series of workshops and trainings on team science offered through Northwestern.
- All K12 Scholars are expected to participate in the monthly K Scholar Seminar Series and the K Writing Workshop sponsored by the Institute for Translational Medicine (ITM). Scholars should also participate in other research seminars as appropriate to their areas of study.
- Scholars are expected to participate in bi-monthly Third Coast Center for Aids Research workshops/seminars during the academic year and annual symposium. Scholars are expected to participate in additional opportunities for engagement with the HIV research establishment across UC and NU as recommended by program leadership.
- Scholars are required to attend the annual NHLBI K awardees meeting in Bethesda, Maryland, and participate in at least one national scientific conference per year (funds provided).
- Scholars must complete an in-person responsible conduct of research (RCR) course offered through their institution.
- Scholars are expected to apply for external funding by the beginning of their second year of the K12 appointment.
- Awardees will be expected to submit reports twice per year or more frequently as requested by K12 leadership.



## PRE-SUBMISSION MENTORSHIP MEETING

All interested investigators are strongly encouraged to arrange a pre-submission mentorship meeting with the TC-CS K12 program leadership. These meetings should take place in late November or December. Applicants will have the opportunity to present their idea for a research project and have a discussion with the program leadership on alignment of their interests and goals with the TC-CS K12 program. The program leadership will also advise applicants on assembling a mentorship team. Program staff can also offer advice and answer questions on the submission process and content of auxiliary documents. Contact Kelsey Bogue at [kbogue@bsd.uchicago.edu](mailto:kbogue@bsd.uchicago.edu) to arrange this meeting.

## K12 SCHOLAR APPLICATION

Applications must be submitted online using the [K12 Career Development Program Application online form](#) by Monday, March 1, 2021, at 11:59:59 pm. Applications **will not** be accepted after the deadline, so please start early and plan for questions and last minute submission problems.

Applications must include the following:

1. An NIH Biosketch
2. A one-page description of candidate's commitment to an academic research career and how HIV-related cardiovascular and/or sleep disorder research fits within that career plan
  - a. Include a description of all professional responsibilities and show their relation to the proposed activities on the career award.
3. A one-page proposal detailing the structured training plan to be undertaken during the appointment period.
4. A seven-page research plan including Specific Aims (1 page) and Research Strategy (6 pages), the latter including Significance, Innovation, Approach, Impact, and Preliminary Studies. In addition (no page restriction), please include Literature Cited and information regarding Human Subjects and Vertebrate Animals as appropriate.
5. A 1 page mentoring plan with the names of proposed mentors, their areas of expertise, and the applicants plan for interacting with mentoring committee. Note, letters from all proposed mentors should be included in the application.
6. A letter from the Department Chair or Section Leader addressing:
  - a. The candidate's prospects for development into an independently funded researcher;
  - b. The Department's assurance that at least 75% of the candidate's time will be protected for research career development and devoted to her/his role as a K12 Scholar;
  - c. Department (or other) resources that are committed to the applicant to include space, equipment, start-up funding, staff supported by department, etc.
  - d. Commitment to cost-share salary and fringe benefit expenses in excess of the \$85,000 provided by the K12 grant for 75% effort for two years.
7. A brief letter from the candidate's mentors, indicating their commitment to the candidate and endorsement of the candidate's training plan.
  - a. The full mentorship team does not have to be decided at the time of application. The applicant will work with the program faculty to determine additional mentors as needed.
8. For projects that involve human subjects research, the following documentation must also be



included in the application.

- a. While the protocol does not yet have to have IRB approval, submission of the IRB application as soon as possible is essential. Provide a detailed plan for obtaining IRB approval or exemption, including a timeline.
- b. A completed Protection of Human Subjects document, following the instructions in the NIH's Supplemental Instructions for Preparing the Human Subjects Section of the Research Plan
  - (<http://grants.nih.gov/grants/funding/424/SupplementalInstructions.pdf>).
  - Inclusion plans for Women, Minorities and Children
  - Targeted Enrollment Table or Inclusion Data Record
  - Data and Safety Monitoring Plan
- c. Proof of Human Subjects Research and Good Clinical Practice training for all study personnel

Feasibility of obtaining IRB approval by the award start date will be a criteria of review.

**PLEASE NOTE: All applications involving human subjects research must undergo a regulatory review prior to receiving an award.** Failure to provide the requested human subjects research documentation may result in your application being rejected from review.

**All uploaded application documents must be in PDF format, with a minimum ½" margins and 11 pt. Font.**

Applications by women, underrepresented minorities, individuals from disadvantaged backgrounds, and individuals with disabilities remain a high priority for funding. The academic and intellectual background, motivation, and commitment of the candidate to pursue clinical and/or translational research will be evaluated.

The criteria for selecting awardees will include assessment of the candidate's potential, the dedication to clinical and/or translational research, and the degree of support from the Department.

#### **CONTACT INFORMATION**

At UChicago, please contact Kelsey Bogue at [kbogue@bsd.uchicago.edu](mailto:kbogue@bsd.uchicago.edu) with questions related to the application and eligibility requirements. You may also reach out to Program Director John Schneider, MD, MPH, at [jschne1@medicine.bsd.uchicago.edu](mailto:jschne1@medicine.bsd.uchicago.edu).

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## APPENDIX

### Description of 4 Training Pathways

Upon funding, each scholar will work with the program directors to identify appropriate training opportunities and additional mentors for each scholar according to their selected training pathway.

#### Cardiovascular Disease

**Pathway 1: Heart Failure (HF) and HIV:** This pathway will allow our trainees to learn and perform clinical, epidemiological, or molecular pathogenesis research on the type of HF that is more common in patients with HIV: HFpEF.

##### **Examples of competencies that can be gained for successful completion of training in the pathway:**

- Understanding of various animal models of HF and HIV-infection and a combination of both
- Familiarity with the use of human induced pluripotent stem cells (hiPSC) and limitations associated with this model and how to get around these limitations.
- Understanding the molecular and clinical pathways that lead to HFpEF and mechanisms by which HIV increases risk for this comorbidity despite ART suppression
- Conduct of clinical and basic science laboratory experiments related to hiPSC and HIV infection of cells in vitro and in vivo
- Methods for integrating data from in vitro studies and studies conducted in patients
- Understanding how to use statistical and computational analysis tools for data obtained from RNA-Seq, ATAC-Seq, epigenetics and proteomic approaches
- Familiarity with diagnostic methods for HFpEF, including echo, MRI and PET scanning.

**Pathway 2: HIV related Coronary Artery Disease (CAD):** This pathway will provide Scholars the opportunity to jump-start careers studying the molecular, clinical, and/or epidemiological aspects of CAD in HIV aimed at improving its prevention and treatment with tools from the entire spectrum of our scientific disciplines including HIV immunopathogenesis research.

##### **Examples of competencies that can be gained for successful completion of training in the pathway:**

- Understanding the fundamentals of epigenetics and how changes in the epigenetics of endothelial cells can occur in patients who are infected with HIV.
- Familiarity with the basics of genetics and proteomics and how to perform and interpret proteomics in HIV-infected patients.
- Methods for integrating data from in vitro studies and studies conducted in patients.
- Understanding how to use statistical and computational analysis tools for data obtained from genetic, epigenetic and proteomic approaches as well as EMR data and substance use information.
- Familiarity with diagnostic methods for CAD, including cardiac catheterization and CT-angiogram.



- Clinical outcomes and addiction research as well as related data sciences.

## **Sleep Disorders**

**Pathway 3: HIV related Sleep disordered Breathing:** Within the sleep disordered breathing pathway will be training opportunities from basic proteomics and biomarker discovery to clinical sleep lab training, focusing on HIV infected cohorts.

### **Examples of competencies that can be gained for successful completion of training in the pathway**

- Basic understanding of post-translational modifications in proteins
- Linkage analyses between gene expression and biomarkers
- Biomarker-environment and treatment-biomarker interactions
- Field testing of biomarker expression within sleep lab environments and in community settings
- Use of bioinformatics in spectral identification, matching and validation
- Familiarity with these diverse types of data, statistical and computational analysis tools for genetic, proteomic and systems biology approaches, and design and implementation of proteomic studies including biomarker discovery
- Familiarity with validated sleep questionnaires, methods to objectively assess sleep duration and quality, sleep disordered breathing diagnostics and treatments including laboratory polysomnography, home sleep apnea testing, positive airway pressure treatment, oral appliances and other therapeutic approaches (e.g., upper airway stimulation)
- Sleep and circadian biology links to cardiovascular function
- Conduct of clinical laboratory experiments including addictive agents and their treatments

**Pathway 4: HIV related Circadian Disruption and Stress:** Training ranges from pathogenesis/molecular effects of circadian disruption to clinical trial development to computational modeling or other data intensive science of complex environmental/social/physiological factors that drive interrelated stress and circadian disruptions.

### **Examples of competencies that can be gained for successful completion of training in the pathway**

- Understanding how to design and implement agent based models or laboratory experiments on circadian oscillators
- Use of biomarkers or other indicators of stress, and sleep quality all that impact circadian disruption
- Ability to design a clinical or translational study that can provide environmental/medical data or clinical specimens for data or pathogenesis projects
- Ability to analyze data and interpret the results from such studies