

1 August, 2022

Dear Fellow Applicant,

Congratulations on being invited to the Cleveland Clinic for an interview for our [Pulmonary/Critical Care fellowship](#). We look forward to meeting you! Please read about the academic opportunities available to the pulmonary critical care fellows and for more detailed information, please click on the highlighted links.

The Cleveland Clinic is often characterized as a “non-traditional academic center.” The [Respiratory Institute](#), offers non-paralleled clinical training with deep expertise in all subspecialties of pulmonary/critical care and access to diverse pathobiology that a quaternary referral center enjoys. It is a given that all trainees will have a superlative and comprehensive clinical experience and will leave the RI as an extremely well-trained clinician. In addition, our unique organizational structure, large footprint and excellent global reputation also allows for a plethora of educational and research experiences in the context of a “patients first” philosophy. Over the last 5 years, ninety percent of our fellows pursued and landed an academic position

Your fellowship is further supported by our [Education Institute](#), which records more than 2 million education encounters per year with its various innovative programs and activities for healthcare professionals. The EI includes a well-designed curricula and a [simulation fellowship](#) for those pursuing a career in medical education/medical education research.

[The Lerner Respiratory Institute](#) is at the forefront of discovery where our scientists investigate novel biological pathways, markers of disease and develop new medical devices, diagnostics and therapies. LRI also has programs in data sciences, genomics, population health and precision medicine. Our state-of-the art resources and facilities include a biorepository of patient samples, a Center for Therapeutics Discovery, and the Discovery Accelerator, which is a partnership between the Cleveland Clinic and IBM to advance the pace of discovery in healthcare and life sciences by using high-performance computing-including the hybrid cloud, artificial intelligence and quantum computing technologies. This partnership includes opportunities for a clinical informatics fellowship or graduate studies in bioinformatics. The LRI is committed to training the next generation of young scientists by offering joint programs with Case Western, a molecular medicine PhD program and a robust postdoctoral program.

In the last year, faculty of the Respiratory Institute had over \$14 million in NIH funding and \$24 million in external research funding, 176 active IRB projects, 131 externally funded research activities and 427 publications. In addition, the Respiratory Institute has an NIH training grant

(T32) entitled “Supporting Multidisciplinary Achievement in Respiratory Research Training (SMARRT).

The strength of our Pulmonary/Critical Care fellowship is the ability to *customize your training to meet your long-term goals*. We have 3 tracks that are available to rank on your match list. These are outlined below. You may choose to rank 1 or two tracks. All applicants will interview for our traditional track. Applicants interested in our Research or Educational tracks will require an additional day of interviews, which will be scheduled in October.

Please take time to carefully read through our tracks. **If you are interested in applying for the Research Track or the Education Track, please send an email to me by September 15th at highlak@ccf.org so that I may coordinate an additional day of interviews.**

Traditional Pulmonary/Critical Care Track: 3 years, open to all fellow applicants

Fellows will receive comprehensive training in pulmonary and critical care with all the diverse experience in subspecialties and pathology that a quaternary referral center has to offer. This track is a mature, clinical and academic fellowship experience that includes research, quality, teaching and leadership training. Consideration for this track is not influenced by your interest or non-interest in either of the other tracks.

A structured mentoring process is essential to ensuring the success of training during fellowship and to foster our commitment to developing leaders in pulmonary/critical care medicine. All fellows meet with the program directors at least twice-yearly to discuss their clinical, research, and career interests. One goal of these meetings is to direct the fellow to specific faculty members to serve as a research and career mentor. Together, the fellow and mentor will outline career objectives, a research trajectory, and necessary education or clinical experiences to meet those goals.

Fellows will have a minimum of 14 months of electives, which are tailored to meet the fellow’s career goals. This may include additional subspecialty training (e.g. diffuse parenchymal lung disease, pulmonary vascular disease, rheumatic lung disease, transplant, asthma, lung cancer, COPD, critical care, bronchiectasis, cystic fibrosis, bronchoscopy, etc....).

In addition, all second year fellows participate in the Quality in Leadership (QuIL) program. This program is an in-depth, mentored program that provides structured training in leadership, quality and process improvement research. Fellows work as a team with faculty mentors and quality improvement experts to solve real problems in medicine.

To ensure comprehensive scholarship training, all third year fellows are also expected to participate in a 3-month, faculty mentored, writing workshop. Fellows meet every other week to learn the art of written scientific communication and to improve their writing and peer-review skills. Fellows are expected to submit at least one manuscript for publication as a part of this curriculum.

Fellows are encouraged to pursue research and scholarly activity beyond what is required for successful completion of this track. Research opportunities are abundant and include basic/translational research, clinical trials, outcomes, population health, bioinformatics, quality, simulation, education, health economics, and etc....).

Fellows also have the option to apply for a one year simulation education fellowship that may be completed concurrently.

Fellows (US Citizens/Green Card) matched in the traditional track will have an additional opportunity to apply for the Research or Education track during the first year of fellowship, but will be in competition with the next class of fellows.

Pulmonary/Critical Care Research Track: 4-5 years, open to US citizens/Green Card (fellows in this track must be eligible to pursue an advanced degree and for NIH funding)

Respiratory Research Training (SMARRT) National Heart, Lung, and Blood Institute T32 Training Program.

This training grant is through a collaboration between the Respiratory Institute and Lerner Research Institute (LRI). This program will include high standards of research that span the entire spectrum comprising fundamental discovery science, early translational research, clinical investigations, and population science research, thereby moving fundamental discoveries into clinical and public health practice in real-world settings. Our innovative T32 program contains fundamental core elements yet adapts to the individual needs of each trainee.

The goals of the program are

- 1) To provide trainees with multidisciplinary didactic research training, coupled to a team mentored research experience.
- 2) To enhance the ability of trainees to work as part of an integrated, multidisciplinary team by developing a knowledge base and skills in research methods, communication skills, professionalism, the ethical conduct of research and rigorous analysis of reproducible findings.
- 3) To recruit, retain and accelerate the independent career development of a pool of young investigators with the multidisciplinary skills necessary for an independent research career in basic, clinical, translational or population health research.

Once T32 fellows complete our highly adaptive program, they will have the knowledge and skills to pursue outstanding cutting-edge research careers and will be able to recognize the importance of different research paradigms, ranging from molecular medicine to public health sciences to bioinformatics, for rapidly translating scientific discoveries into better clinical diagnostics and therapeutics.

During the first year of fellowship, future T32 fellows will meet and identify their mentor(s) and mentoring committees, and write, present and vet their proposal with the T32 Executive Committee to ensure they are ready to begin research immediately upon T32

program enrollment. On enrollment in the T32 training program, fellows have two full years of dedicated protected research time, during which they will work on their projects and participate in didactic training opportunities offered by the Lerner Research Institute. On completion of the two T32 research years, trainees will have six months of dedicated research time, which is then followed by six months of clinical work in order to meet ACGME graduation and ABIM board eligibility requirements. Thus, after four years of fellowship, trainees have 30 months of research and 18 months of clinical training.

Productive/promising fellows may then join the faculty as a Clinical Associate (instructor level) for one year with 70% protected research time in order to continue their research activities and revise and resubmit their K award, if needed. This additional 5th year for trainees as a Clinical Associate is awarded based on metrics and including at least one first author publication, submission of a career development award, and strong endorsement from the research mentor. During T32 training, fellows will be free from call duties in order to have uninterrupted research time. The ACGME requires a weekly half day continuity clinic, which can be focused on the disease which can be focused on the disease which is the focus of the fellow's research.

Masters in Clinical Research/Masters in Public Health

The Masters of Science in Clinical Research (MSCR) and Masters in Public Health (MPH) programs are a collaboration between the Cleveland Clinic and Case Western Reserve University. Fellows in the T32 program are eligible to pursue a MSCR or MPH.

The educational goal of the MSCR is designed for clinicians who are interested in developing a career in clinical investigation and who are willing to strive for leadership roles in academia, government, and private industry. Core courses include introduction to clinical research, communication in clinical research (grant writing), statistical methods, research ethics and regulation, and epidemiology.

The Master of Public Health program prepares trainees to improve the health of individuals and communities through education, research and community service. Fellows choose from five concentrations including population health research, global health, health policy and management, health promotion and disease prevention and health informatics. Students from any concentration have the option to participate in the Masters of Public Health Intensive Research Pathway, which offers additional training in study design, biostatistics and quantitative health research techniques.

PRISM Program (Physicians Researchers Innovating in Science and Medicine)

Research fellows may choose to apply for the PRISM program in conjunction with the T32 program.

The NIH recognizes the need for physician on-ramps into research training, including the option for obtaining a PhD during residency / fellowship. The Molecular Medicine PhD Program offers a track for Cleveland Clinic physician trainees in GME accredited programs, who wish to pursue a PhD in laboratory-based research in the Molecular

Medicine PhD Program, a program completely housed and administered at the Cleveland Clinic.

During the first year, students select an advisor for their dissertation research. The emphasis of the PhD work is on research, culminating in the completion of an original, independent research thesis (K award).

On enrollment in the PRISM program, fellows have two full years of dedicated protected research time, during which they will work on their projects and participate in the core curriculum. On completion of the two PRISM research years, trainees will have six months of dedicated research time, which is then followed by six months of clinical work in order to meet ACGME requirements. Thus, after four years of fellowship, trainees have 30 months of research and 18 months of clinical training.

Productive/promising fellows may then join the faculty as a Clinical Associate (instructor level) for one year with 70% protected research time in order to continue their research activities and revise and resubmit their K award, if needed. The additional year for fellows as a Clinical Associate funded by the Respiratory Institute for 70% research time is awarded based on metrics including at least one first author publication, submission of a career development award, and strong endorsement from the research mentor. During PRISM/T32 training, fellows will be free from call duties in order to have uninterrupted research time. The ACGME requires a weekly half day continuity clinic, which can be focused on the disease which is the focus of the fellow's research.

During the PRISM program, fellows will devote the majority of their time to thesis research while attending advanced graduate courses, and seminars. The student will follow a progressive curriculum including Tools for Research; Cell Biology, Metabolism and Pharmacology; Nucleic Acids, Gene Expression and Gene Regulation; Mammalian Genetics; Infection and Immunity, Principles of Clinical and Translational Research and MMED 521, which focuses on molecular mechanisms of human disease. Elective courses may be chosen from any department or program on campus with the approval of the graduate program director and the student's thesis committee. Fellows must take a total of 18 semester hours of courses and pre-candidacy thesis research, and maintain a B average. The qualifying exam comprises preparing and defending a grant application in the NIH format. The topic of the grant is the area of the student's thesis research. At least one aim of this proposal will consist of a specific translational or clinical aim. All efforts should be made to complete the PhD within five years from the date of matriculation. All students are expected to submit two or more first-authored primary research publications in peer-reviewed scientific journals. At least one manuscript must be accepted for publication prior to the thesis defense.

Pulmonary/Critical Care Education Track: 4 years, open to US citizens/Green Card/H-1b visa holders (fellows in this track must be eligible to pursue an advanced degree and have sufficient time based on visa restrictions to complete the 4-year program)

This track is designed to provide in-depth training to fellows who aspire to a career in academic medical education (specifically those who desire to study medical education and contribute to the published literature). . This is done through:

- 1) Training in the science of medical education, theoretical frameworks, and principles
2. Development of effective didactic and clinical teaching skills
- 3) Development of skills needed to create and implement curricula and methods of assessment
- 4) Research and scholarship in medical education
5. Networking with leaders in the field of medical education.

The fellows accepted in this track will complete their clinical rotations similar to traditional fellows and continue for a fourth year as a clinical instructor. Fellows will earn a Master of Education in Health Professions Education (MEHPE) during fellowship training and a fourth year as clinical instructor.

The MEHPE program is a collaboration between the Cleveland Clinic Center for Educational Resources and Cleveland State University. It offers a two-year cohort-based curriculum focusing on the skills needed to be a medical educator. The cohort model includes a group of students who progress through the MEHPE program together (i.e., starting/ending at the same time; following a pre-determined schedule of courses). In the current pandemic, courses have been transitioned to virtual format, but remain interactive.

Specifically, courses address adult learning theory, curriculum design and instruction, learner assessment, evaluation of educational programs, healthcare education research and technology in health professions education. The pedagogy is blended between virtual synchronous and asynchronous courses, with synchronous courses delivered during the evening to accommodate working health professionals. The program occupies six semesters of instruction and 30 credit hours for degree attainment.

The Education Scholarship Training curriculum includes enrollment in Medical Biostatistics Courses in the first year of the masters. During this year, fellows also participate in medical student education as clinical instructors at the Cleveland Clinic Learner College of Medicine.

The Master's courses continue for 24 months and include 2 capstone courses where students demonstrate their attainment of skills through the development of relevant projects. The fellows accepted for this track will be committed to staying at CCF for an additional year as clinical instructors.

After reviewing these different track options, we hope you have many ideas and also questions about how one or more of these tracks might help you meet your career goals. We will be happy to discuss these questions at the time of your interview, or at any other time if you would like to contact us before or after your interview date. If you are interested in exploring the research or education track, we encourage you to let us know by September 12, 2021 so we can plan on

additional interviews specific to these tracks. We will also provide guidance on the process of ranking the tracks, since each of them is registered as a separate “program” in the match. As such, keep in mind that you can rank more than one of them if you choose.

Good luck with your interview day(s). I look forward to meeting you and highlighting the research and scholarly activity we have to offer.

Warmly,

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Pulmonary/Critical Care Fellowship
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