Post-doctoral Training Program in

TRAINING PROGRAM IN TRANSLATIONAL RESEARCH AND ENTREPRENEURSHIP IN PULMONARY VASCULAR BIOLOGY

University of Pittsburgh School of Medicine

Date: ________________ Proposed starting date of fellowship: _____

Name:  
(First) (Middle) (Last)

Date and place of birth: _____

Citizenship or green-card status:_____

Home address: _____

Phone: (home) (__)-____ (office) (__)-_____ 

EDUCATION

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<th>College</th>
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<td>Graduate school</td>
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Honors, special training, etc.: _____

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<th>Professional Positions</th>
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Please list names and addresses of three (3) references.

1. ____
2. ____
3. ____

For application to the Translational Training Program in Pulmonary Biology and Medicine at the University of Pittsburgh School of Medicine, please submit the following:

1) Completed application form

2) Current curriculum vitae

3) Brief (1-2 page) statement of your plan of research and study, including:
   a) description of your primary area(s) of interest
   b) type of research you wish to pursue
   c) particular methods/ approaches in which you require additional training
   d) mentor(s) with whom you would prefer to work

4) Copy of medical or graduate school transcript

5) Letters of recommendation

Please complete the application as a single PDF and email to:

   Katie Nauman
   Administrator for Fellow Research and Career Development
   E1150 BST
   200 Lothrop Street
   Pittsburgh, PA 15261
   Phone: 412-624-7987
   Fax: 412-648-5980
   Email: naumanke@upmc.edu
The University of Pittsburgh School of Medicine supports a two- to three-year postdoctoral program titled “Training in Translational Research and Entrepreneurship in Pulmonary Vascular Biology,” funded by the National Heart, Lung, and Blood Institute (NHLBI). The Program is intended for M.D. and Ph.D. fellows from fields of pulmonary and cardiovascular science. The Program features initial development of a ‘translational research tool set,’ individually-prescribed development plan, paired mentorship teams of basic and clinical researchers, emphasis on high impact publications, and preparation of a career development award (K-series or equivalent). Trainees may also participate in the Biomedical Entrepreneurship Track program, a collaborative effort between the Tepper School of Business at Carnegie Mellon University and the Institute for Clinical Research Education.

**Translational Track:**
A two-year intensive training fellowship with our translationally-oriented vascular biology mentors. The fellowship mentorship may include a basic-science-oriented mentor or a clinical-science-oriented mentor; trainees are highly encouraged to develop a mentorship team comprised of mentors across the translational spectrum, allowing for comprehensive training in basic science with the necessary application to the clinical and patient environment. Projects will require the learning of cutting-edge scientific methodologies (e.g., mass spectrometry, flow cytometry, molecular biology, etc.) applied to a clinical problem, leading to potentially novel therapeutic approaches or clinical studies in patients (e.g., development of human subjects protocols for specimen collection, pharmacological infusions, or development of patient cohorts or interventions). In addition to the two-year fellowship, an optional third year will be offered to allow for advanced career development.

‘Translational Research Tool-Set’: Immersion in an initial core competency training period in translational research including an intensive 2-week accelerated introduction to bench-to-bedside research and laboratory techniques at the University of Pittsburgh and an introduction to understanding and managing regulatory issues for human and animal research. Throughout the first six months, trainees will complete the ‘Introduction to Translational Research’ (CLRES 2140) course offered through the CTSI. A unique aspect of our translational training is the incorporation of full-time elective rotations at the FDA, intramural NIH Clinical Center Regulatory and Pharmacy Development Program, and Industry. This intensive exposure allows the trainee to develop the elemental tools for translational research: basic science methodology, clinical translational methodologies, and key regulatory tools.

**Entrepreneurial Track:**
Trainees interested in the entrepreneurial track may pursue the MBA/Biomedical Translational Research and Entrepreneurship program through Tepper Business School, contingent on acceptance into their MBA program. Students in this program will enroll in either the part-time or full-time MBA program and join the MBA/Biomedical Entrepreneurship track. All students will be immersed for a minimum of 15 months in a T1 translational research environment within laboratories at the University of Pittsburgh School of Medicine to acquire hands-on biomedical experience in preparation for moving novel drugs, devices, or informatics solutions from the laboratory to clinical practice work. Students will be enrolled in the ICRE Entrepreneurial MBA Translational Research Training Program, acquiring knowledge in research techniques, literature review, drug and device commercialization processes, institutional regulatory bodies, clinical trials, and funding opportunities.

**Core Competencies:** Entrepreneurial trainees will undertake one-week rotations in a minimum of three of the entrepreneurial institutes and programs available within the UPitt system, including the Drug Discovery Institute, The Innovation Institute, UPMC Enterprises, the Institute for Entrepreneurial Excellence, and the Coulter Translational Research Partners II Program. Trainees will also be provided the opportunity to participate in our successful elective summer program (e.g., FDA Cardio-Renal Program and intramural NIH Clinical Center Regulatory and Pharmacy Development Program), as well as new hands-on entrepreneurship and commercialization training opportunities with the tPPG industry partners MAST Therapeutics and Complexa, Inc.

**Research Project:** Each trainee will be expected to complete at least one major research project during the training program. Ideally, the project will provide the basis for subsequent NIH grant applications such as an F32 or K series career development award. Each Fellow is also expected to publish a minimum of 2-3 peer-reviewed papers (with at least one as first author) within the two-year training period.

**Individualized Development Plan:** Trainees are likely to enter the Program with varying degrees of experience and sophistication in research methods, design, and statistics. Therefore, formal coursework will need to be individualized for each trainee. Examples of University of Pittsburgh courses most likely to be recommended for trainees are 1) CLRES 2010 Clinical Research Methods; 2) CLRES 2020 Biostatistics: Statistical Approaches in Clinical Research; 3) CLRES 2040 Measurement in Clinical Research; and 4) CLRES 2050 Ethics and Regulation of Clinical Research.
Typically, one or two of the courses per year will be required for each trainee based on individual needs.

**Evaluation:** Each Fellow will present an oral progress report to the Training Committee annually, to facilitate evaluation of progress and focus in future direction. Written evaluations by trainees and mentors will be completed each year. More frequent informal education is recommended. For trainees interested in the entrepreneurial track, the University of Pittsburgh School of Medicine-Tepper Entrepreneurial MBA program has developed formalized evaluation documents for trainees, and the trainees' performance within this program will be evaluated based on a rubric that includes ethics and professional standards, oral and written communication, multidisciplinary team work, research expertise, scholarship, and entrepreneurial acumen.

**Program Leadership:**

*Program Director:* Mark Gladwin, MD  
*Program Co-Directors:* Chris O’Donnell, PhD; Bruce Freeman, PhD; Solomon Ofori-Acquah, PhD

**Training Faculty:** Art Boni (CMU Tepper), Stephen Chan, Bill Chen, Partha Dutta, Bruce Freeman, Mark Gladwin, Thomas Gleason, Elena Goncharova, Jeffrey Isenberg, Rama Mallampalli, Alison Morris, Anne Newman, Chris O’Donnell, Solomon Ofori-Acquah, Patrick Pagano, Bruce Pitt, Frank Sciurba, Steven Shapiro, Sruti Shiva, Thomas Smithgall, Dietrich Stephan, Adam Straub, Prithu Sundd, Flordeliza Villanueva, Yadong Wang, Brian Zuckerbraun