

The TRANSFORM TL1 Training Program for Doctoral Students

INFORMATION AND APPLICATION PROCEDURES

PRIORITY DEADLINE:

FEBRUARY 1, 2018

ROLLING ADMISSION THEREAFTER

ANTICIPATED AWARD START DATE:

JULY 1, 2018

I. Background. Through the CTSAs, the NIH launched a national consortium that seeks to transform the conduct of clinical and translational research, with the ultimate goal of enabling researchers to provide new treatments more efficiently and quickly to patients. The CTA at Columbia University encompasses extensive research support, infrastructure, training programs, and mentoring mechanisms. A key component is the **TRANSFORM TL1 Training Program**, which offers structured training and practical exposure to the needed training for **doctoral students currently enrolled in basic science, population science or pre-clinical doctoral programs**, who want to gain some exposure to understanding how individual differences in people's genes, environments, and lifestyles can lead to the development of innovative approaches to disease prevention and treatment.

The TRANSFORM TL1 Training Program is intended to provide students already enrolled in doctoral training programs, primarily from GSAS, P&S, School of Nursing, or the Mailman School of Public Health, with additional research training to prepare for an academic research career that can contribute in some meaningful way to the important field of precision medicine. [Please note that precision medicine includes research related to, but not limited to, lifestyle, environment, or genetics.] This two year training opportunity¹ which will run simultaneously with the students' ongoing doctoral training, allows doctoral students to gain knowledge and skill-sets that may be outside of their primary academic or clinical discipline. The interdisciplinary education gained as a TRANSFORM TL1 trainee will serve as an invaluable asset in conducting future research and collaborating with scientists and investigators from other clinical and academic fields of knowledge. Participation in this program will not necessitate extending an individual's doctoral training program.

II. Award Provisions. With TRANSFORM support, doctoral students will obtain additional training in research. They will accomplish this goal by completing didactic training (including **Introduction to Precision Medicine**) that will advance their knowledge of precision medicine, such as systems biology, genomics, statistics, and/or medical informatics, according to the applicant's background and future career goals. They will also attend the year-long, weekly **Patient Oriented Research colloquia** (hour-long presentations covering academic career topics of interest), **monthly Precision Medicine colloquia**, **Introduction to ELSI Research on Genetics and Genomics**, **Funding and Grantsmanship for Research and Career Development Activities**, and the **Responsible Conduct of Research and Related Policy Issues**. It is important to note that these course activities **will be in addition** to the coursework and mentored research they will be completing within their "home" program. Successful completion of the

¹Initially awarded for 1 year and renewed for a second year with satisfactory progress

1-credit course entitled “Responsible Conduct of Research” is required, but can be part of the doctoral requirements.

Trainees are also required to complete at least one externship. Please indicate your preference in the application. Options include:

- **Applications in Public Health**, in partnership with the **New York City Department of Health and Mental Hygiene**. We will collaborate with the NYC DOHMH to create additional interdisciplinary externships with a focus on public health for our trainees. Specifically, faculty and project leaders at the NYC DOHMH will identify their projects that are suitable for pre-doctoral trainees on a yearly basis, through a process similar to how internship opportunities are identified and collated within the existing Health Research Training Program (H RTP) at the NYC DOHMH. Previous projects have included topics such as “Evaluation of Cardiovascular Interventions in New York City” and “Using Health Information Technology to Improve Population Health”.
- **Entrepreneurship Boot Camp**, in partnership with the **Columbia-Coulter Program**. We are teaming with the Columbia-Coulter Translational Research Partnership, an interdisciplinary, cross-school program aimed at catalyzing biomedical innovation by providing mentoring, project management, and funding to clinician-engineer teams. The program is led by the Department of Biomedical Engineering at Columbia’s School of Engineering, in collaboration with the Departments of Surgery, Orthopedic Surgery and Radiology at CUMC, and Columbia Technology Ventures, the university’s technology transfer office. Teams (which must include an engineer and a practicing clinician) identify an important clinical health problem and a potential technological solution. Throughout the spring semester, applicant teams participate in a “boot camp” course aimed at helping them delve into two fundamental questions: 1) Does their envisioned technology address a true unmet clinical need? 2) Does a business opportunity exist? The course also simultaneously supports their preparation of a full proposal and pitch for project funding, based on commercialization potential and clinical impact. Select teams advance to a final stage of the competition, working closely with business, technical, legal, and regulatory experts to define commercially-relevant hypotheses and design a work plan, budget, and timeline for research to support technical and business proofs-of-concept.
- **Quality Improvement in the Hospital Setting**, in partnership with the **New York Presbyterian Hospital (NYP)**. We will collaborate with the Value Institute at NYP, a recently created Institute focused on data-driven quality improvement initiatives, to provide externship opportunities for quality improvement and implementation science for our trainees. Recent NYP projects led by Dr. Karina Davidson’s group include “Implementation of an ED Dashboard to Improve Patient Flow” and “A Systematic Review of Interventions to Improve Patient Satisfaction Surveys”. The trainees will work under the guidance of Dr. Davidson and will also collaborate closely with NYP leadership and staff, to conduct specific QI projects and evaluations that will result in deliverables including reports to NYP leadership, publications/presentations, and potential subsequent grant applications.
- **Enhancing Partnerships and Productivity with Industry**, in partnership with **Merck, Regeneron, and Janssen**. We have developed specific opportunities to provide our trainees with exposure to drug development and industry research, through engaging with industry partners that have worked closely with Columbia University investigators. Specifically, working with Dr. Daniel Bloomfield, VP of Clinical Research and Cardiovascular Therapeutic Area Head at Merck Research Laboratories, we will create a day-visit program to Merck for our trainees to gain insight into aspects of drug development including discovery, validation, clinical development,

medical affairs, and marketing. We are also coordinating a similar day-visit program with Regeneron, a leading biopharmaceutical company located in nearby Westchester County, NY. We will also work with Janssen Pharmaceutical Companies, through Dr. Hussein Manji, Global Head of Neuroscience Therapeutic Area, and Dr. Dashyant Dhanak, Global Head of Discovery Sciences, to create joint a program to collaborate for research and education. Through a joint steering committee, this program will allow Janssen scientists to participate in our training activities, serving as guest lecturers as well as mentors and supervisors for our trainees.

- **Biomedical Entrepreneurship**, in partnership with **Columbia Health Tech Assembly (HTA)** (<http://www.healthtechassembly.com/>): The mission of HTA is to foster an environment of collaboration between clinicians, engineers, and entrepreneurs across the 2 Columbia campuses. It is co-directed by a team of three graduate students: one from the medical school, one from the engineering school, and one from the business school, with guidance from a faculty advisor, Dr. Adler Perotte, a physician who completed a postdoctoral fellowship and Master's degree in Biomedical Informatics. HTA runs monthly sessions where nascent ideas can be evaluated for their real-world applicability (clinicians and scientists), feasibility (engineers), and market potential (business leaders and entrepreneurs). HTA spurs the development and refinement of new ideas and provides guidance on concrete steps towards turning those ideas into successful products and companies. We have partnered with HTA to provide logistical support, space, and access to young investigators on the CUMC campus. Our trainees will be required to attend 3 or more HTA sessions and/or case competitions to learn about the process of interdisciplinary collaboration and engagement with venture capitalists.
- **Translational Drug Development**, partnering with the **Translational Drug Development module**, headed by Serge Cremers, PhD: We will offer 3-month rotations in multidisciplinary translational drug development teams to trainees with clinical and basic science backgrounds. These rotations will provide hands-on exposure to the drug development process through attending team meetings and learning about the laboratory methods for a specific project. This rotation is thus a unique opportunity to experience first-hand interdisciplinary Early Phase Drug Development within academia.

Recipients of the TRANSFORM TL1 funding will be required to submit a written progress report during each year of the training, and may be contacted periodically to provide information on their research career.

Eligible students admitted into the training program will be considered for an award that will provide 2 years of support (awarded for 1 year and renewed for a second year with satisfactory progress) including a stipend and funds for tuition and fees. Students should discuss with their Program Director if stipend and tuition award supplementation is available.

**TL1 award recipients must be FULL-TIME doctoral students, as per NIH guidelines.*

III. Eligibility Criteria for TRANSFORM TL1 Training Program.

Specific **eligibility criteria** are as follows:

- Applicant must be a U.S. citizen or permanent resident to be eligible for funding under this program.
- The CTSA places special emphasis on multidisciplinary research, which must be reflected in mentorship for this program. Consequently, each applicant must identify **one TRANSFORM**

Multidisciplinary Mentor from a different discipline than the Dissertation Supervisor to advise on his/her research progress during the period of the CTSA award. Any Columbia University Faculty member can serve as a multidisciplinary mentor.

- Students entering their third year of doctoral training or beyond are preferred.

**Please note that individuals currently supported by other federal funds are not eligible for trainee support from the TRANSFORM TL1 program at the same time. The CTSA funds will replace other federal funds during the two year period of training in precision medicine.*

IV. Application Information

Applications will be judged primarily by: 1) the academic potential of the doctoral student to engage in and contribute to Precision Medicine research; 2) the merit of the proposed courses/additional mentor/personal statement; 3) the strength of the recommendation letters.

Supplemental pieces to the application form include:

- Current CV
- NIH Biosketch (version D)
- Training Support (past, current, and pending)
- Current transcript
- Research Proposal (no more than 2-pages single spaced; no less than .5" margins and Arial 11 font size), highlighting any innovative approaches to disease prevention and treatment that takes into account individual differences in people's genes, environments, and lifestyles.
- Personal Statement (no more than 250 words): Please explain why you have chosen to seek additional research training via the TRANSFORM TL1 Training Program.
- Career goals (no more than 250 words): Explicitly describe your career goals and how the TRANSFORM TL1 Training Program would prepare you for them.
- A proposed schedule of meeting times between the student and his/her mentors
- Proposed precision medicine coursework
- Three letters of recommendation (Dissertation Supervisor, TRANSFORM Multidisciplinary Mentor, Department Chair). Each letter should comment on the following:
 - **Applicant's academic potential**
 - **Applicant's proficiency in own area of study**
 - **Applicant's ability to extend into precision medicine that would be meaningful to the candidate's own research**

*The Dissertation Supervisor will be asked to guarantee that the individual will complete the TRANSFORM TL1 Training Program requirements during the award period.

The application can be accessed [here](#). The recommendation form can be found [here](#). The priority deadline is February 1, 2018. Applications will be reviewed on a rolling basis thereafter.

Questions? Contact Sarah Oldham at smo2127@cumc.columbia.edu or 212-304-5550.