

Letter of Inquiry – Summary Information

Project Name: The Global Health Scientist Training and Research Program, Center for Global Health and Economic Development, Columbia University

Disease/Health Condition Addressed: Infectious and Chronic Diseases Including HIV/AIDS, TB, Emerging Infectious Diseases & Other Neglected Diseases of the Global South

Organization Name: The Trustees of Columbia University in the City of New York

Primary Contact for LOI:

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Amount Requested (U.S. dollars): \$35,200,000 **Project Duration (months):** 60 mo.

Does your project involve clinical trials with human subjects? No

U.S. Tax Status (Refer to [Tax Status Definitions](#)): 501(c)(3)

Geographic Location(s) of project: Southern Africa & United States

Charitable Purpose: *Please include the following components: disease or health condition; [strategic approach](#); if appropriate, location of activity and limit to 255 characters.*

To demonstrate an effective and transferable training program for basic scientists, clinical and public health researchers, aiming to scale up health services and catalyze the development of self-directed and self-sustaining research institutions and centers in low-income countries.

Project Description *(describe how the funds would be used to meet the charitable purpose, limit to 150 words):*

Fellows selected to participate in this research and training program will undertake innovative academic studies and collaborative research projects with senior faculty mentors from Columbia's Mailman School of Public Health, College of Physicians & Surgeons and selected partnering institutions. Fellows will become equipped to play leading roles in national and international efforts to research, monitor, prevent, control, and cure a range of diseases while building capacity in partnering institutions, implementing priority research and influencing public health priorities. Each partnering institution will play a critical role in program design, research initiatives and center development. Upon completion of training, building upon the strong skills and networks developed, Fellows will continue their research efforts in their home locations, supported by collaborative ties and initial funding. After the consortium in South Africa is established, similar programs will be expanded to other parts of Sub-Saharan Africa and other critical regions of the world.

If relevant, please briefly describe any previous contact with the foundation:

Previous/ current grants:

Awards include: Prevention of Maternal-to-Child Transmission of HIV (MTCT-Plus) Initiative (Rosenfield A.); Making Safe Motherhood a Reality (Maine, D.); A Randomized Trial of Male Circumcision For Prevention of HIV and STD Infection in Women, Rakai Uganda (Wawer, M.); Macro Health Project (Ruxin, J.); "Screen and Treat" Trial-Safety and Efficacy of Cryosurgery When Used For "Screen and Treat" in Low-Resource Setting (Wright, T.); Global Health Opportunities: A Conversation with Bill Moyers and Bill Gates (Rosenfield, A.); Preventing Maternal Mortality in Africa (McCarthy, J.); Integrating Family Planning/ HIV Prevention in a Rural Uganda Setting (McCarthy, J.) Preparation for New Initiatives in HIV Prevention and Care (Wawer, M.); Effective Reproductive Health and Family Planning Service Delivery for Refugees (McCarthy, J.).

I. Background and Rationale

The catastrophic spread of HIV and the threat of newly emerging pathogens have spurred the Gates Foundation and other innovators to help mobilize science and policy to close the appalling gaps in health systems in low-income settlements. However, much more remains to be done. Critical to moving forward is the development of a cadre of basic scientists and clinical and public health researchers with expertise in global health, drawn primarily from resource-poor developing countries. Exceptional individuals must be selected and trained to set the research agenda and create self-sustaining centers of research excellence in their own countries, as well as to influence the world's research and public health priorities. The Center for Global Health and Economic Development (CGHED) of the Mailman School of Public Health (MSPH), Earth Institute, and College of Physicians and Surgeons (P&S), at Columbia University (C.U.) propose to create The Global Health Scientist Training and Research Program (the Program) to train global health scientists (Gates Fellows) bringing scientists with training and expertise in basic science, clinical research and public health together in innovative ways. The Program will build upon the MSPH experience and expertise gained through years of international training and collaborative research in Southern Africa, joined more recently by faculty involved in infectious disease and molecular nutrition from P&S. Many of the world-class researchers in South Africa have trained at C.U. and will participate in guiding the Program and mentoring its fellows.

II. Goal and Objectives

The goal of the Program is to build capacity and scale up health services in partnering institutions by catalyzing the development of expert global health scientists through the training of basic scientists, clinical and public health researchers, resulting in self-directed and self-sustaining research institutions in low-income countries, equipped to play a leading role in efforts to research, monitor, prevent, control, and cure a range of infectious and chronic diseases. The initial focus of the Program's efforts will be Southern Africa, the epicenter of the AIDS epidemic. Beginning as a collaborative project of C.U. and three leading research institutions: the University of Natal, the University of Cape Town and the University of Witwatersrand, we will establish a training consortium in South Africa as a base for training across the region. Subsequently, similar programs will be expanded to other parts of Sub-Saharan Africa and other critical regions of the globe, such as East Africa, India, China, Bangladesh, and the Dominican Republic. Drawing on the strengths of each partnering University, the program goal will be achieved by meeting the following objectives:

1. The development of a cadre of pre-clinical scientists, clinical scientists and public health researchers from Southern Africa and the US with developing-country, disease-specific expertise and a global health perspective.
2. The promotion of a range of collaborative research projects (North-South and South-South) including HIV/AIDS, TB, detection of unknown pathogens, nutrition, and neglected diseases such as malaria, diarrheal diseases, and childhood pneumonias, which will serve as the experiential learning component of the training program.
3. The establishment of cores that strengthen research infrastructure in areas identified by our South African partners as weak, including pre-clinical and translational research, epidemiology, and biostatistics.
4. The systematic building of the capacity of the Program's consortium in South Africa to expand their partnership throughout the Southern African region and ultimately other critical areas of the South.

III. Project Design and Implementation Plan

The new Post-Doctoral Fellow and Mid-Career Fellow are the two components of the proposed training program. With coursework focused at C.U. and collaborative research with senior faculty from both countries focused in South Africa, the programs are designed to develop the knowledge and practical skills necessary for Fellows to successfully implement and develop priority research and public health policy. Positions will be open to highest quality candidates from South Africa and the US (3:1 ratio), selected in concert with host research groups. A governing body composed of senior representatives from the CGHED and partnering universities will have an ongoing, executive role, meeting regularly regarding curriculum design and research plans. After completion of the 3 year program, Fellows will be provided with 3-5 years of funding to continue their research in close collaboration with their mentors. The Program is unique in focusing on the interface between translational research at the molecular level and at the whole animal, behavioral level, clinical research and population-based research, allowing for the practical translation of the materials produced in the lab and fostering interactions between fields that often have little or no contact.

Our experience suggests there are a number of factors that might inhibit the success of this program. Even in South Africa, the most developed country on the continent, with limited capacity and infrastructure, it will be a challenge to find eligible candidates and senior researchers to serve as mentors, to begin training a critical mass of experts. It could also be difficult to make the home institutional bases sufficiently attractive so that global health scientists remain and pursue their research careers in their respective countries. Unforeseen political turmoil and difficulties associated with institutional relationships across differing academic cultures and disparities in resources are also factors to consider.

These obstacles are significant but are not insurmountable. The University partners have been selected because each has key senior researchers and a group of more promising junior faculty. Filling this need for greater numbers of mid-level and senior researchers will enable partnering universities to break the pattern of dependence on overseas collaborators and become full partners and ultimately leaders in developing and implementing research. A clear path for career development and a dynamic research environment with adequate infrastructure will attract and retain these potential leaders. As the Program in South Africa develops, it will function as the training center for a broader regional network, enriching the professional lives of successive cohorts of Fellows. The collaborative research projects resulting from this program and subsequent contributions from partnering Universities, governmental agencies and the private sector will serve as funding sources contributing to the sustainability of the Program.

IV. Monitoring and Evaluation

Criteria for measuring the program's success include the 1) number of fellows who complete the program, establish themselves as independent researchers in their country of origin, secure research funding, and become principal investigators leading their own research and training programs; 2) demonstrated increase of expertise in molecular science and laboratory research, clinical research, epidemiology, and biostatistics; 3) development of effective surveillance, control, and response systems and a nation-wide agenda based upon local research; and 4) the extent to which the South African network develops between institutions, grows into an independent regional center and partners as a resource for governmental organizations on local and international efforts. Formatively, the program will be modified by the governing body according to the feedback provided at annual meetings for the fellows, mentors, and representatives of the participating institutions.

V. Organizational Capacity

The CGHED is a University-wide, multi-disciplinary center built upon a strong partnership between P&S, MSPH, the Earth Institute and the School of International and Public Affairs founded on the principle that science-based investments in the health systems of low-income countries lead to dramatic improvements in health outcomes, which in turn will contribute markedly to improved economic growth and development. For the past 30 years, C.U. has been a leader in numerous collaborative research and training projects and contributes actively to research and programs in South Africa. P&S has a major collaboration centered around an NIH funded International AIDS Clinical Trials Unit, an NIH funded Comprehensive International Program for Research on AIDS grant, and Fogarty funded training programs in South Africa. Among the many relevant MSPH projects, the Southern Africa Fogarty AITRP, and the Center for AIDS Program of Research in South Africa are principled and productive projects upon which this program will build.

VI. Budget

The proposed five-year budget total is US\$35.2MM (Table 1). The majority of funds are directed toward our partner institutions, as two-thirds of fellows and one-half of mentors will be from our partner institutions; and approximately three-quarters of infrastructure funds and over one-third of program personnel funds will be allocated to our partner institutions. Major categories of activity are: (1) Training/ mentoring, which includes fellow and mentor stipends, fellows' travel to and from South Africa (approx. 4 trips/yr), mentors' travel (1 trip/yr), tuition, and fellows' research support, totals to \$24,145,000; (2) Program management includes personnel salaries, with the exception of the P.I. and leading advisory board members which are provided by in-kind support, sums to \$3,980,000; (3) Infrastructure includes equipment, supplies, furniture, office space, and other program needs, totaling \$3,330,000; and lastly, (4) Meetings, including the Annual Meeting (alternating between Columbia and partner institutions), program leaders' travel, and preliminary meetings in South Africa and New York, total to \$545,000.

TABLE 1: BUDGET DETAILS BY CATEGORY & YEAR

MAJOR ACTIVITY	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
TRAINING/ MENTORING					
a. Fellow Stipends (16-48 Fellows)	16: \$920,000	32: \$2,100,000	48: \$3,300,000	32: \$2,300,000	16: \$1,200,000
b. Fellow Tuition, Fees & Insurance	16: \$310,000	16: \$325,000	16: \$350,000	n/a	n/a
c. Mentor Stipends (24-48 Mentors)	24: \$400,000	48: \$810,000	60: \$1,100,000	48: \$900,000	24: \$450,000
d. Fellow & Mentor Travel	\$125,000	\$280,000	\$450,000	\$425,000	\$400,000
e. Fellow Research Funding (10-30 Fellows)	n/a	n/a	n/a	10: \$2,000,000	30: \$6,000,000
PROGRAM MGT	\$800,000	\$800,000	\$750,000	\$800,000	\$830,000
INFRASTRUCTURE	\$350,000	\$530,000	\$700,000	\$810,000	\$940,000
-South African Institutions:	\$265,000	\$400,000	\$525,000	\$615,000	\$705,000
-Columbia University:	\$85,000	\$130,000	\$175,000	\$195,000	\$235,000
MEETINGS (36-60 Participants)	35: \$120,000	50: \$100,000	60: \$125,000	50: \$100,000	50: \$100,000
TOTAL	\$3,025,000	\$4,945,000	\$6,775,000	\$7,335,000	\$9,920,000
SUBTOTAL / ADMIN. FEE	32,000,000		/		\$3,200,000
GRAND TOTAL					\$35,200,000

