Cardiovascular Epidemiology Research Training Program

Behavioral risk factors, including dietary and physical activity, strongly influence established cardiovascular and metabolic risk factors. Substantial and growing evidence also supports the role of environmental risk factors, including airborne particulate matter and water- and food borne toxins but also cultural, social, and physical (built-environment) factors, as major determinants of population-wide cardiovascular risk. Notably, these behavioral and environmental risk factors are critically important for cardio metabolic risk both in the developed world and also in the developing world, in which widespread social, behavioral, and environmental changes are resulting in epidemiologic transitions of astonishing rapidity and scope. Understanding how behavioral and environmental risk factors impact cardiovascular and metabolic disease, and how such risk factors can be cost-effectively and sustain ably modified, may be the transcendent scientific challenges of our time.

Training in these scientific disciplines is currently under-represented, with few NHLBI training programs focused on behavior, the environment, or global health. To train a new generation of investigators with the specific knowledge, training, and expertise to address these critical national and global issues, a new NHLBI Training Program in Behavior, the Environment, and Global Health was funded at the Harvard School of Public Health. This T32 Training Program will add considerable strength and depth to the NHLBI's commitment to understanding the behavioral and environmental determinants, preventive measures, and treatments of cardiovascular and metabolic diseases, with focus on both developed and developing nations. This training grant is based at the Harvard T.H. Chan School of Public Health and co-directed by **Dr. Eric Rimm**, experienced investigators with complementary training, skills, and experiences who have a highly successful track record of both research and administrative collaboration. The commitment of HSPH, its faculty, and faculty in related Harvard institutions to this new Program is evidenced by the enthusiastic support of Interim Dean David Hunter, a staunch advocate of global health, and by the strong support and senior level of the 24 faculty that have agreed to serve as Program Faculty, including 11 full Professors and 8 Associate Professors who include Directors of the Program in Cardiovascular Epidemiology, the Harvard Prevention Research Center, the Obesity Prevention Program, the Program on Causal Inference in Epidemiology, and the Boston Obesity and Nutrition Research Center Epidemiology and Genetics Core; and the Chairs of the Departments of Nutrition, of Environmental Health, and of Society, Human Development, and Health. This Training Program brings together these outstanding researchers and mentors to chart a new direction in CVD Epidemiology training that will provide an integrated and interdisciplinary experience focused on the investigation of behavior, the environment, and global health, including collaborative interactions with multiple faculty at both HSPH and other institutions, specialized curriculum with core and elective coursework, individual candidate training plans, and ongoing Program evaluation. This Program will fund pre-doctoral and postdoctoral trainees in the rich academic environment of the Harvard Chan School.

Several strengths of the Training Program are unique and/or should be highlighted:

- The Program is based in a School of Public Health, affording a unique expanded pool of potential trainees including not only traditional clinician-scientists and clinical epidemiologists but also other young scientists of diverse backgrounds interested in social, behavioral, environmental, and global challenges

- Integration into an existing and successful multi-institutional and multidisciplinary Program in Cardiovascular Epidemiology (http://www.hsph.harvard.edu/research/cvdepi/)

- An equal emphasis on training of pre-doctoral and postdoctoral trainees, including didactic courses; cutting-edge scientific research; training in public speaking, grant and manuscript writing, obtaining funding, becoming involved in national scientific organizations, mentoring, and establishing multidisciplinary research collaborations; and integration of mentors from multiple related disciplines to provide coordinated training in different approaches and environments.

- A focus on training in behavioral risk factors in adolescents and early life as well as adults.

- A focus on training in environmental risk factors including toxins and pollutants but also social and physical surroundings.

- A focus on training in global health including both developed and developing nations.

- Training, for each of these foci, in use of the multidisciplinary approaches of the Faculty, including qualitative studies, case-control studies, cohort studies, traditional clinical trials, individual behavioral interventions, community-based interventions, and global demography and comparative risk assessment.

- Additional interdisciplinary training in biomarkers and genetics and in advanced epidemiologic methods, including causal inference, control for time-varying bias and mediation, and correction for measurement errors and misclassification.

- Opportunities for interactions with other Boston-area institutions and, notably, for travel to perform collaborative research with institutions in developed and developing regions in Europe, Asia, and Africa.

Although the fundamental features of excellent training are enduring—including a committed mentor, a dedicated research environment, and protection from distracting responsibilities—the need for the continuous development of the process and substance of training in research programs has never been greater. Continuous evolution in training must occur to accommodate future demands due to major progress in basic, clinical, and applied biomedical sciences. We have carefully assessed what the training needs are for cardiovascular scientists in the 21st century and recognized that there is a profound dearth of appropriately trained investigators to evaluate some of the most pressing scientific challenges of our time relating to impact of behavioral and environmental risk factors on metabolic and cardiovascular diseases; to elucidate the cultural norms, genetic variation, and biologic and sociologic pathways that modify these risk factors; and to understand and utilize the full set of epidemiologic, interventional, environmental, and policy tools to design, implement, and evaluate the most effective individualized, community, and policy interventions to reduce the impact of harmful risk factors, facilitate expansion of protective behavioral and environmental factors, and attenuate or reverse the alarming global trends in cardiovascular and metabolic diseases.

Based on this vision, we have created a highly integrated program to fulfill the training needs for cardiovascular scientists in the 21st century. Our Training Program is designed both for individuals who have recently completed their undergraduate degree and are now entering a formal doctoral program, and for physicians and graduates of other doctoral programs who will enter an intensive research training program with options to obtain formal

doctoral degrees. Due to the continuing demand for individuals trained in clinical investigation, particularly those based on direct studies in human subjects, we offer a unique Master's program in clinical effectiveness for MD and MD/PhD scientists. General Fields of behavioral risks, environmental risks, and global health are available for both pre and postdoctoral research training. Regardless of focus, all trainees must successfully complete coursework in biochemical and molecular concepts, clinical and global health concepts, and advanced training in quantitative epidemiology and biostatistics, bolstered by elective coursework in areas of applied cardiovascular research.

For further details and an application form please contact Eric DiGiovanni @ edigiova@hsph.harvard.edu .