International Research & Development Opportunities at NCI/NIH

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NIH: Steward of Biomedical & Behavioral Research

Science in pursuit of knowledge and the application of that knowledge to extend healthy life.
Center for Global Health At-a-Glance

• The NCI Center for Global Health (CGH) was established in 2011 to:
  o Support NCI’s goal to advance global cancer research
  o Build expertise and leverage resources across nations to address the challenges of cancer
  o Reduce cancer deaths worldwide

• **CGH collaborates with:**
  • U.S. government agencies
  • Foreign governments
  • International organizations
  • Non-governmental organizations (NGOs)
  • Pharmaceutical and biotechnology companies
NCI Research Opportunities

- **RFA-CA-13-015**: “Cancer Detection, Diagnostic and Treatment Technologies for Global Health (UH2/UH3)”:

- **PAR-13-068**: “Feasibility Studies to Build Collaborative Partnerships in Cancer Research (P20)”:

- **NOT-TW-13-011**: “Technology and Outcomes in Low and Middle Income Countries (R21)”:
Academic-Industrial Partnerships for Translation of in vivo Imaging Systems for Cancer Investigations (R01)

• This Funding Opportunity Announcement (FOA) encourages applications from research partnerships formed by academic and industrial investigators to accelerate the translation of either preclinical or clinical in vivo imaging systems and/or methods that are designed to solve a targeted cancer problem.

• The proposed imaging system/methods may include single or multi-modality in vivo imaging and spectroscopy systems, image-guided and drug delivery systems, image analysis, and related research resources.
NCI Training Opportunities

- CGH Short Term Scientist Exchange Program: http://www.cancer.gov/aboutnci/globalhealth/programs-activities/stsep

- Intramural: NCI Center for Cancer Research (CCR) Basic/Translational and Clinical Training Programs: http://ccr.cancer.gov/careers/

- www.nci.gov/funding opportunities (Look NCI Divisions and search if applicable for international collaborations.

- Same applies to other NIH ICs (www.nih.gov)
NCI Support to R&D

• The **Innovative Molecular Analysis Technologies (IMAT)** program was established to support the development, technical maturation, and dissemination of novel and potentially transformative next-generation technologies through an approach of balanced but targeted innovation.

• In support of its mission, the IMAT program utilizes a variety of investigator-initiated research project grant mechanisms while retaining a strong commitment to diversity and to the training of scientists and clinicians in cross-cutting, research-enabling disciplines.
NCI University-Industry Partnership

- The National Cancer Institute (NCI) established a partnership initiative in 2008, in response to a nationally recognized need to improve drug development processes and success rates, through enhanced collaboration among government, academia, life sciences companies, and non-profit research organizations. The initiative has culminated in the creation of the Partnership Development Office (PDO) at the Frederick National Laboratory for Cancer Research (FNLCR).

- Academic, government and private entities can partner with the Frederick National Laboratory for Cancer Research on shared goals.

- The role of the Partnership Development Office is to work with FNLCR staff to assist in building multi-disciplinary partnerships with academic, FFRDCs, industrial and private organizations. The goal of these collaborative agreements is to accelerate treatment for cancer and AIDS by bridging the gap between late discovery and early development of diagnostics and therapeutics, developing cross-cutting technology.
Low Cost Technologies for Global Health

- NCI’s Center for Global Health is working to increase the availability of low-cost, portable technologies for cancer diagnosis, imaging, and treatment in low- and middle-income countries (LMICs). The technical scope of our efforts is broad, but we are interested in several key specifications for the technologies we would like to see developed.
NCI/CGH supports development and validation of technologies with the potential to increase early detection, diagnosis, and non-invasive or minimally invasive treatment of cancer. Many of these technologies have the potential to be developed into low-cost, portable, point-of-care versions useful in resource-constrained settings, including the following examples:

**In vitro diagnostics:**
Lab-on-a-Chip (LOC)/ Paper-based microfluidics
Biosensors
Cytometry

**Treatment:**
New surgical devices
Cryotherapy
Laser therapy
High-intensity focused ultrasound (HIFU)
Photodynamic therapy

**Imaging:**
Digital
Optical
Spectroscopy
Ultrasound
The NIH Intramural Research Program (IRP) comprises intramural programs embedded in 23 of the NIH Institutes and Centers and located on one or more of the NIH campuses.

The Intramural Research Program (IRP) trains physicians and scientists at the postdoctoral and clinical levels. We also train graduate and medical students, post-baccalaureate fellows, and summer students. Training occurs on our main campus in Bethesda, Maryland, as well as at our other campuses across the United States. Over 5,000 basic scientists and clinicians from the U.S. and around the globe call the National Institutes of Health (NIH) home for between one and five years, while they further their education and professional development. No other place in the world has such a concentration of laboratories and individuals focused on improving the health of humankind.
National Cancer Institute (NCI)

Center for Cancer Research (CCR)
CCR conducts basic and clinical cancer research and develops novel therapeutic interventions for cancer and HIV patients.

Division of Cancer Epidemiology and Genetics (DCEG)
DCEG conducts population and multidisciplinary research to discover the genetic and environmental determinants of cancer and new approaches to cancer prevention.

National Heart, Lung, and Blood Institute (NHLBI)
NHLBI performs scientific and clinical research to better understand the biology and clinical pathology of heart, lung, and blood diseases.
NCI’s Center for Global Health Short-Term Scientist Exchange Program.

The Center for Global Health (CGH) Short-Term Scientist Exchange Program (STSEP) promotes collaborative research between established U.S. and foreign scientists from low, middle, and upper-middle income countries by supporting, in part, exchange visits of cancer researchers between U.S. and foreign laboratories. The visits vary in duration. Applications are accepted throughout the year, with application deadlines of June 1, September 1, December 1, and March 1. Candidates are notified of the funding decision within one month of these deadlines.
General Conditions
Candidates must have a Ph.D., M.D., or a certified equivalent degree, a minimum of one year postdoctoral experience in cancer research, and an invitation from a qualified host. **Persons holding U.S. permanent resident status ("green card") or a work visa are not eligible for this program.** Awardees must fulfill the visa requirements of the host country. **Awards are limited to visits of six months or less, and cannot be renewed or extended.** Shorter visits are given preference.

The STSEP follows NIH fellowship guidelines for subsistence allowance, generally split equally between NCI and either the home or host institution.

Eligibility Requirements
Non-U.S. Candidates Visiting U.S. Laboratories
Non-U.S. candidates applying to work in the U.S. must be from LMICs, as defined by [World Bank](https://www.worldbank.org).

Turkey is eligible
NIH’s Fogarty International Center Programs in Europe:

U.S.-European cooperation has been a strong and vital component of the NIH research agenda. While a few activities take place under the auspices of bilateral programs, the majority of collaborations are initiated and carried out without the assistance of formal agreements. Together with NIH, a number of other European governmental organizations carry out the bulk of the world’s publicly funded biomedical research, supporting scientific investigations of practically every aspect of human health.

**Countries in Region**
Albania, Andorra, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Kosovo, Latvia, Lichtenstein, Lithuania, Luxemburg, Macedonia, Monaco, Netherlands, Norway, Poland, Portugal, Romania, San Marino, Scotland, Serbia and Montenegro, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom, Vatican, European Commission

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NIH’s Fogarty International Center Programs that might be competed in the near future applicable to Turkey:

**Brain Disorders in the Developing World: Research Across the Lifespan**

**Contact:** Dr. Kathleen Michels, brainfic@nih.gov

**Global Infectious Disease Research Training Program (GID)**

**Contact:** Dr. Barbara Sina, barbara.sina@nih.gov

**International Cooperative Biodiversity Groups (ICBG)**

**Contact:** Dr. Flora Katz, Flora.Katz@nih.gov

**Medical Education Partnership Initiative (MEPI)**

**Contact:** FICMEPI@mail.nih.gov

**Stigma and Global Health Research Program (STIGMA)**

**Contact:** Dr. Kathleen Michels, Kathleen.Michels@nih.gov
Interdisciplinary Training and Career Development

Bioengineering

To attract and train bright and talented researchers, the NIBIB provides support in a broad range of training programs. These include disciplinary programs to support and bridge areas of NIBIB relevance, multidisciplinary programs to promote the clinical translation of emerging technology, and interdisciplinary programs to train a new cadre of researchers working at the intersection of the biological and physical sciences. These programs are designed to support researchers throughout the career continuum, increase the number of clinician-scientists, and enhance the participation of underrepresented populations in biomedical imaging and bioengineering research.
NIH’s National Center for Advancing Translational Sciences (NCATS)

NCATS is:
Facilitating other translational research activities supported by NIH.
Complementing research conducted in the private sector.
Reinforcing NIH’s commitment to basic research.
One of NCATS' primary activities is to collaborate closely with the other NIH Institutes and Centers to establish its research priorities as well as to develop translational tools and resources that facilitate research across NIH.

NCATS unifies programs in the following three areas: Clinical and Translational Science, Rare Disease Research and Therapeutics, and Re-engineering Translational Sciences.

The Clinical and Translational Science Awards (CTSA) program, part of the NCATS Division of Clinical Innovation, supports a national consortium of medical research institutions working to improve the way clinical and translational research is conducted nationwide. CTSA institutions support innovative multidisciplinary team science, train investigators in clinical research, and foster dynamic research partnerships and collaborations to accelerate the translation of basic science into clinical treatments and improved patient health.
NIH/NCATS

Re-engineering Translational Sciences

Developing new treatments is complicated, costly and risky — less than 1 percent of compounds initially tested actually make it into a patient's medicine cabinet.

Many of the steps between basic scientific research and premarket clinical trials have been performed the same way for more than a decade and have not seen the benefit of the bold innovation that has characterized other branches of biomedical science.

Thus, the process for translating scientific discoveries into new tools and treatments is ripe for innovation.
International Programs at NIH

• **Mobile Health: Technology and Outcomes in Low and Middle Income Countries** will support research on the development or adaptation of mobile health (mHealth) technology specifically suited for low- and middle-income countries (LMICs) and the health-related outcomes associated with implementation of the technology.

• The program aims to contribute to the evidence base for the use of mobile technology to improve clinical outcomes and public health while building research capacity in LMICs and establishing research networks in this area. In the context of this program, mHealth includes the use of mobile and wireless devices (cell phones, tablets, etc.) to improve health outcomes, health care services and health research. The mHealth technology that is developed or adapted in proposed projects can include external hardware and/or software components for mobile or wireless devices.
NCI International Clinical Trials

- Is designed to promote and support clinical trials (research studies) of new cancer treatments, explore methods of cancer prevention and early detection, and study quality-of-life issues and rehabilitation during and after treatment.
- Cooperative groups include researchers, cancer centers, and community physicians throughout the United States, Canada, and Europe.
- Efforts to include more LMICs
- They work with NCI to identify important questions in cancer research and to design clinical trials to answer these questions
Example of a Successful NIH Application from Turkey

- The project is a NIH grant to support collaborative work between Georgia Tech and Bogazici University in Turkey.

- **Research Objectives:** The goal of this effort is the development of a safe and effective magnetic resonance imaging (MRI) catheter/guidewire system for cardiac catheterization. This grant application addresses an important safety problem of MRI induced heating associated with traditional catheters and guidewires with applications to the U.S. and worldwide.

- **Foreign involvement is for subcontract work at the Institute of Biomedical Engineering at Bogazici University** in Istanbul, Turkey which will focus on catheter prototype design, construction and testing.

- **The Turkish PI** will supervise a graduate student at Bogazici University who will also work on the project. In addition, during part of the proposed grant the PI and graduate students will be conducting research in the intramural program of NIH.

- **Excellent scoring**
Rationale High Scoring

• **Approach.** Are the overall strategy, methodology, and analyses well-reasoned and appropriate to accomplish the specific aims of the project.

• **Environment.** The scientific environment in which the collaborative work will be done contributes to the probability of success of the project.

• Institutional support, equipment and other physical resources available to the investigators in an adequate way.

• Proposal defined well the importance and the impact of the collaboration with another country. In this case Turkey.
Rationale High Scoring NIH-Turkey

- **Significance.** The project proposed addressed an important problem or a critical barrier to progress in the field.
- The Specific Aims (a critical element of any NIH application were all achievable within the duration of the project.
- **Investigator(s).** The PI in the U. S. and the collaborators in Turkey were all suited for the project. Including complementary and integrated expertise; the organizational structure proposed was appropriate for the project.
- **Innovation.** The application challenged and seek to shift current research or clinical practice paradigms by utilizing novel theoretical concepts, approaches, methodologies, and instrumentation.
Joint Workshops with NIH

• October 14-16, 2014 TUBITAK-NIH Immunology Workshop in Ankara. Contact Person: Dr. Zeynep Arziman 
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• March 2015—Tobacco Control Research Workshop organized by NCI/NIH, CDC, Turkish Ministry of Health, WHO, Hacettepe University
International Technology Transfer for LMICs
Workshops and Training at NIH/OTT

- Patenting and licensing inventions
- Negotiation skills
- Research Collaboration Agreements
- Clinical Trials Agreements
- Cooperative Research and Development Agreements (CRADAs)
- Technology Transfer Policy
- Valuation, Monitoring, Enforcement, and Marketing of technologies
- International Partnerships
- Clinical Trials at NIH
- University Technology Transfer
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