TRANSLATING SCIENCE TO BETTER HEALTH: THE POWER OF DIVERSITY AND MULTICULTURAL ENGAGEMENT

TRAINING WORKSHOP X
NIH Funding Opportunities

MARCIA CRUZ-CORRERA
University of Puerto Rico
Medical Sciences Campus
### CTSA Training Component Description

#### Institutional Research Training TL1 Program (optional)
- Supports 469 trainees in FY11
- Equivalent T32 training mechanism that supports career development in biomedical, behavioral, or clinical research. Most commonly used to support year-out research experience for medical students.
- If year support for pre-doctoral students.
- MS/PhD in Clinical and Translational Science

#### Mentored Career Development KL2 Program (mandatory)
- Supports 501 scholars in FY11
- Equivalent K12 Mentored Career Award supports career development for postdoctoral scholars seeking additional training and expertise in clinical and translational science. Minimum 2 years of support for post-doctoral scholars.
- MS/PhD in Clinical and Translational Science

#### Research Education UL1
- Supports training and education faculty and staff, curriculum development mechanisms (K, T, or F awards) may receive educational experiences supported by the research educational components as participants but may not receive salary or stipend supplementation from the CTSA UL1 award.

### CTSA Training Program Eligibility Requirements

#### Predoctoral and Postdoctoral Training Program (TL1/T32)
- Support both predoctoral and postdoctoral candidates
- Team science approach
- Advance degrees leading to MD, DDS, DO, DNP, PharmD/MS or MD, DDS, DO, DNP, PharmD/PhD
- Predoctoral year out program for MD DDS etc.
- Full time support

#### Mentored Career Development Award (KL2)
- Support postdoctoral candidates
- Team science approach
- Advance degrees in Clinical and Translational Science
- 9 calendar months support for a minimum of 2 years
- Transition to independence concurrent support

### Core Competencies in Clinical and Translational Research

- Identify major clinical/public health problems and relevant research questions
- Critique the literature regarding the status of a health problem
- Design a study protocol for clinical and translational research
- Study methods, design and implementation
- Laboratory, clinical and population research methods
- Statistical methods and analysis
- Bioinformatics

Additional information available at

Presented at the 13th RCMI International Symposium on Health Disparities | December 9-13, 2012 | San Juan, Puerto Rico

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## THE CTSA EDUCATION AND TRAINING PROGRAM
(Based on FY 2011 Annual Progress Reports from CTSAs)

<table>
<thead>
<tr>
<th>Specialties</th>
<th>Scholars</th>
<th>Trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allied Health</td>
<td>17</td>
<td>23</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Bioengineering</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>Biophysics</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Cell and Developmental Biology</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>Chemistry</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Clinical Disciplines</td>
<td>240</td>
<td>168</td>
</tr>
<tr>
<td>Dentistry</td>
<td>4</td>
<td>8</td>
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<tr>
<td>Environmental Sciences</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Genetics</td>
<td>26</td>
<td>15</td>
</tr>
<tr>
<td>Immunology</td>
<td>14</td>
<td>21</td>
</tr>
<tr>
<td>Microbiology and Infectious Diseases</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Molecular Biology</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>Neuroscience</td>
<td>12</td>
<td>31</td>
</tr>
<tr>
<td>Nursing</td>
<td>16</td>
<td>7</td>
</tr>
<tr>
<td>Nutritional Sciences</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Pediatric Disciplines</td>
<td>38</td>
<td>9</td>
</tr>
<tr>
<td>Pharmacology</td>
<td>6</td>
<td>14</td>
</tr>
<tr>
<td>Physiology</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Plant Biology</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Psychology, Non-Clinical</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Public Health</td>
<td>92</td>
<td>39</td>
</tr>
<tr>
<td>Radiation Non-Clinical</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Statistics/Research Methods/Informatics</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>Trauma, Non-Clinical</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Unknown</td>
<td>7</td>
<td>25</td>
</tr>
<tr>
<td>Veterinary Medicine</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>501</td>
<td>469</td>
</tr>
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</table>

## Educational Impact of CTSA Program
(Based on FY 2011 Annual Progress Reports from CTSAs)

<table>
<thead>
<tr>
<th>Racial Categories</th>
<th>Trainees</th>
<th>Scholars</th>
<th>Other Career Development</th>
<th>Total Career Development</th>
<th>% Total Career Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black/African American</td>
<td>30</td>
<td>14</td>
<td>0</td>
<td>44</td>
<td>7%</td>
</tr>
<tr>
<td>American Indian/ Alaska Native</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>0.5%</td>
</tr>
<tr>
<td>More than one race</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>1%</td>
</tr>
<tr>
<td>Unknown (not reported)</td>
<td>20</td>
<td>12</td>
<td>3</td>
<td>35</td>
<td>5%</td>
</tr>
<tr>
<td>Caucasian</td>
<td>236</td>
<td>165</td>
<td>18</td>
<td>418</td>
<td>43%</td>
</tr>
<tr>
<td>Asian</td>
<td>90</td>
<td>56</td>
<td>7</td>
<td>153</td>
<td>23%</td>
</tr>
<tr>
<td>Native Hawaiian/ Pacific Islander</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>0.5%</td>
</tr>
<tr>
<td>Total Career Development Group</td>
<td>380</td>
<td>251</td>
<td>30</td>
<td>661</td>
<td></td>
</tr>
<tr>
<td>Hispanic/Latinos*</td>
<td>49</td>
<td>29</td>
<td>15</td>
<td>93</td>
<td>14%</td>
</tr>
</tbody>
</table>

*Sum across race groups and includes people from multiple race groups.
**Educational Impact of CTSA Program**  
(Based on FY 2011 Training Appointment Information)

<table>
<thead>
<tr>
<th>Appointees</th>
<th>TL1</th>
<th>KL2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>58% Women</td>
<td>55% Women</td>
</tr>
<tr>
<td>Professional Degrees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD</td>
<td>182</td>
<td>238</td>
</tr>
<tr>
<td>MD-PhD</td>
<td>34</td>
<td>54</td>
</tr>
<tr>
<td>MD-MPH</td>
<td>7</td>
<td>36</td>
</tr>
<tr>
<td>PhD</td>
<td>177</td>
<td>122</td>
</tr>
<tr>
<td>DDS</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>DDS-PhD</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>PharmD</td>
<td>7</td>
<td>85*</td>
</tr>
</tbody>
</table>

*Year-out TL1 candidates do not seek advanced degrees.  
There are also candidates seeking a MD in Clinical and Translational Science: TL1 n=34; KL2 n=128.

**Translational Science 2013: Improving Health through Research and Training**  
April 17 – 19, 2013  
http://www.translationalsciencemeeting.org/
NIA Programs to Enhance Diversity and Research on Health Disparities

**TRAINING OPPORTUNITIES**
- PRE-NAC Career
- GRADUATE / MEDICAL STUDENT
- SUMMER INSTITUTE ON AGING RESEARCH
- RCRAK AIDS

**TRAINING INITIATIVES**
- NIA MSTEM ADAR (R25)
- DIVERSITY PREDOC FELLOWSHIP AWARD (F31)
- DIVERSITY AGING DISSERTATION AWARD (R36)
- T32 ADD-ON SLOTS TO ENHANCE DIVERSITY

**RCMAR EARLY SENIOR MIDDLE DIVERSITY SUPPLEMENTS (S1)**
- MERIT ADD-ON SLOTS

**ADCS SUMMER INSTITUTE ON AGING RESEARCH**
- POST-DOCTORAL CAREER
- K AWARD HD FUNDING INITIATIVE

**NIA Diversity / Disability/ Re-entry Supplement Program**

- **Application Process**
  - Funding Opportunity Announcements
    - Supplements to Center, R, SBIR/ STTR Phase II mechanisms
    - e-Submission through Grants.gov beginning FY 2012

- **NIA Administrative Review**
  - Monthly meeting
  - Reviewer template
  - Written Summary

- **Funding**
  - Average award is for two years
  - Expedited funding

**Distribution of Individuals by Career Level**

- **Supplements of Individuals from Underrepresented Groups or Disabilities**

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**FY 2011**
- Predoc: 37%
- College: 20%
- Postbac: 18%
- Invest: 2%
- Post MS: 8%

**FY 2012**
- Predoc: 36%
- College: 20%
- Postbac: 18%
- Invest: 20%
- Post MS: 8%
Opportunities for New Investigators

Research (PhD) or Clinical Doctorate
- K99/R00
- K01
- R01, R01, R01

Clinical Doctorate (MD)
- GEMSSTAR – Grants for Early Medical and Subspecialty Training in Aging Research
  - K08, K23
- Beeson K08, K23
- R01, R01, R01

Health Disparities Research at NIA
- Healthy Aging in Neighborhoods of Diversity across the Lifespan (HANDLS)
- Outreach by Alzheimer’s Disease Centers
- Research Centers for Minority Aging Research (RCMARs)
- SWAN and ASPREE studies
- Training programs offered by DAB

Do race and SES influence health disparities independently or within the context of environmental, biologic or psychosocial, cultural practices?
- How do race and SES influence the incidence and severity of age-associated disease and rates of aging and functional decline?
- What are the biologic mechanisms that result in age-related health disparities?
**RCMAR Resource Centers for Minority Aging Research**

The RCMAR mission is to build infrastructure to improve the health and well-being of older diverse populations by reducing health disparities. RCMARs focus research upon social and behavioral mechanisms to improve health and physical and cognitive function. They emphasize culturally-informed disease and disability prevention and interventions resulting in optimal health outcomes for older populations. Basic or clinical research areas are relevant to the RCMAR mission.

- The RCMAR program started in 1997
- Funded by the Center Grant (P30) mechanism
- Combined budget of $3,900,000 per year.
- The RCMARs were re-competed in FY2012 and 7 awards were made
- Supported by NIA with co-funding from the NIH Office of Behavioral and Social Science Research (OBSSR).

**Alzheimer’s Disease Research Centers**

Alzheimer’s Disease Centers (ADCs) at major medical institutions across the U.S. Researchers at these Centers are working to translate research advances into improved diagnosis and care for Alzheimer’s disease (AD) patients while, at the same time, focusing on the program’s end goal—to meet the long-term goal of finding a way to cure and possibly prevent AD.

Areas of investigation range from the basic mechanisms of AD to managing the symptoms and helping families cope with the effects of the disease. Center staff conduct basic, clinical, and behavioral research and train scientists and health care providers who are new to AD research. A common goal of the ADCs is to enhance research on AD by providing a network for sharing new ideas as well as research results.

- 34 ADCs funded between 2002 and 2011 NIA
- 176 diversity projects from 2006 to 2010
- ADCs perform a series of "diversity-targeted events," defined as activities to bring minority populations to the Centers, learn about AD, enhance study participation and services provided.

**Other Opportunities**

**NIA Health and Retirement Study (HRS)**

- Launched in 1992
- University of Michigan U01 grant
- 26,000 participants, age 50+ sampled every two years
- Oversample of African Americans
- Detailed interviews collect information about income, work, assets, pension plans, health insurance, disability, physical health and functioning, cognitive functioning, and health care expenditures.

**NEW**: Genome wide scans of 13,000 individuals
What help is available?
At NIA: The NIA web page:
http://www.nia.nih.gov

How to contact DEA staff:
Robin Barr, Chyren Hunter, MD Kerns or Sanoj Suneja
E-mail: BarrR@mail.nih.gov, HunterC@mail.nih.gov,
Tel.: 301-496-9322 (We prefer E-mail.)

E-mail about small business
grants, meetings, fellowships, diversity
awards, career supplements. Or other stuff!

PROFILE
2012 Diversity/ Disability Supplement Applications

- 40% increase in number of applications
- Increase in percentage of requests to support for postdoctoral fellows
- Applications to all NIA Program Divisions
- Average award is for two years
NIA / NIH Summer Internship Program in Biomedical Research

The Summer Internship Program in Biomedical Research offers a unique opportunity for high school, college and graduate, and medical students to develop skills in scientific research. In this program, students receive hands-on experience. Summer internships generally last from eight to ten weeks, beginning in late May and ending in mid-to-late August. Some flexibility exists to accommodate individual student needs.

The majority of research conducted by NIA's Intramural Research Program scientists takes place in Baltimore at the Biomedical Research Center and the Gerontology Research Center on the Johns Hopkins Bayview Campus. The Clinical Research Branch's Advanced Studies in Translational Research on Aging (ASTRA) Unit is located at Harbor Hospital, a few miles south of the Bayview Campus in Baltimore, Maryland. The section of Brain Physiology and Metabolism and the Laboratory of Neurogenetics are located on the NIH main campus in Bethesda, and the Laboratory of Epidemiology, Demography, and Biometry is located in the Gateway Building in Bethesda.

To be eligible for this program, students must be enrolled at least half-time in an accredited U.S. high school, college, or university. In addition, candidates must be U.S. citizens or permanent residents and at least 16 years of age.

Students can apply for the program electronically at the NIH Research and Training website: http://www.training.nih.gov/programs/sip/. Under Institute/Center preference (item no. 9), select the National Institute on Aging (Baltimore or Bethesda). After you submit the application, please send an email to the NIA Summer Program Office, niasummer@mail.nih.gov, to let them know that you have applied to the NIA Summer Program.

The deadline for applications is March 1.
NINDS Mission
The mission of the NINDS is to reduce the burden of neurological disease—a burden borne by every age group, every segment of society, and people all over the world.

To accomplish this goal the NINDS supports and conducts basic, translational, and clinical research on the normal and diseased nervous system.

NINDS Offices and Programs
• NINDS is organized into work groups known as "program clusters."
  • The current scientific clusters are:
    * Repair and Plasticity
    * Neurogenetics
    * Neural Environment
    * Systems and Cognitive Neuroscience
    * Neurodegeneration
    * Channels, Synapses, & Neural Circuits
  • There are 5 cross-cutting Offices:
    Office of Training, Career Development and Workforce Diversity
    Office of Translational Research
    Office of Clinical Research
    Office of International Activities
    Office of Special Programs in Diversity

NINDS Basic, Clinical, and Translational Research Priorities
• Stroke
  • Biology of the cells of the nervous system
  • Brain and nervous system development
  • Genetics of the brain
  • Cognition and behavior
  • Neural signaling
  • Motor control and integration
  • Sensory function
  • Neural channels, synapses, and circuits
  • Pain
• Neurological consequences of AIDS
• Alzheimer’s disease
• Brain tumors
• Epilepsy
• Muscular dystrophies
• Multiple sclerosis
• Neurogenetic disorders
• Parkinson’s disease and other neurodegenerative disorders
• Spinal cord injury
• Traumatic brain injury
How NINDS Manages the Portfolio to Achieve its Mission

- Balance between “automatic payline” and “programmatic” decisions
- Issuance of “Requests for Applications” (RFA’s) and “Program Announcements” (PA’s)
- Supplements to existing grants
- Special Initiatives (besides RFA/PA’s – new and early-stage investigators with percentiles beyond the formal payline, based on funds available)
- Main mechanisms of support are investigator-initiated research

Individual Predoctoral Fellowships (F31) to Promote Diversity in Health-Related Research

- Currently enrolled in a PhD or equivalent research degree program, an MD-PhD program or accepted/enrolled in a graduate degree
- Up to 5 years predoctoral support
- Full time (at least 40 hours/week)
- Mentor must be an active and established investigator in the proposed research
- Research environment must provide a rich experience
- Citizenship/Residency requirement
- Deadlines (April 13, August 13, December 13)
What is the Difference between Diversity and Generic F31s?

- Funding rates are similar to the generic F31s.
- Differences are based on career stage of the applicant; diversity applicants can submit prior to dissertation research.
- Also, depending on your area of research, the generic F31 may not be an option - General Fellowship (8 ICs)
- You can not send the same grant into both programs.

K is for Career ???

- K-type award mechanisms are for senior postdoctoral scientists (K22, K99), physician-scientists (K08, K23), and new investigators (K01)
- K awards require commitments from the host institution to provide lab space and guarantee that a certain % of applicant's time is devoted to research
- Includes:
  - Mentored grants to help clinicians to train in research
  - Help early scientists transition from postdoctoral to faculty positions

NINDS Diversity Ks

K22 - NINDS Advanced Postdoctoral Career Transition Award to Promote Diversity in Neuroscience (PAR-12-163)
- Between 2 and 5 years of postdoctoral research experience at the time of application
- Two Phase award – transitions from postdoc to 1st faculty position

K01 - NINDS Faculty Development Award to Promote Diversity in Neuroscience Research (PAR-12-152)
- provide junior faculty support and protected time (up to three years)
- Must have a tenure-track or equivalent position by time of award
- in the first 3 years of a faculty position
NINDS Research Supplements to Promote Diversity in Health-Related Research

- In-house committee reviews sets of applications 3x/year (March, June and Dec.)
- Reviewers evaluate the person’s ability to transition and the mentoring plan
- Typically funds awarded for 2-3 years; “bridge funds” while the supplementee gains
  - research experience,
  - preliminary data,
  - other requirements to develop an application for more traditional NIH funding
- Specific terms and conditions of the award

Resources and Tools for Funding

- The latest funding news, known as NINDS Notes, is published 3 times a year and consists of summaries of NINDS’s current funding announcements
  http://www.ninds.nih.gov/funding/nindsnotes/nindsnoteslistserv.htm
- NINDS Active Funding Initiatives are also updated and sorted by the cluster at the NINDS website
- To see what has already been funded in your research area, you can search RePORT (Research Portfolio Online Reporting Tools)
- Get to know projects that are ongoing in your research area
- Know potential collaborators and/or competition in the field
- Determine if there are any potential projects eligible for a supplement opportunities

Resources and Tools for Funding

- Find a Program Area
  - Find the appropriate BOR or Foundation at the NIH
  - Find the appropriate Research opportunties
  - Find Education, Training, and Career Development opportunities
  - Find the appropriate Research Area

National Institute of Neurological Disorders and Stroke

Office of Training, Career Development, and Workforce Diversity

Individual Programs

- LC2, Individual NINDS for Diversity T32 Students
  - Application due dates: April 15, August 15, and December 15
  - Provides up to five years of support for research training leading to the PhD or equivalent research degrees, the Master’s degree, or other health professions degrees and research doctoral degree in the health sciences

- P01, Mentored Research Scientist Development Award for Promote Diversity in Neuroscience Research
  - Application due dates: February 15, June 15, and October 15
  - Provides support and appointment for three years for the purposes of enhancing the career development of a predoctoral or postdoctoral scientist who is a member of a group that has been shown to be underrepresented

- Research Supplements to Promote Diversity in Health-Related Research
  - Provides opportunities in funding individual career goals that are presented in the specific country to improve the diversity of the research workforce by supporting and encouraging students, postdoctoral fellows, and eligible investigators from groups that have been shown to be underrepresented
NIH Institutes use the basic NIH funding mechanisms in different ways

- The NIH is organized into 27 Institutes and Centers (ICs), each of which is charged with sponsoring training and research in specific, albeit overlapping, areas of science relevant to their “mission”.
  - Different missions & priorities
  - Different budgets
  - Different ways of deciding which grants to fund.

NINDS Special Guidance for R21 and R03

- NINDS R21 Program – Exploratory/Developmental
  - project assesses the feasibility of a novel avenue of investigation
  - project involves experiments that could lead to a breakthrough in a particular field
  - project develops novel techniques, agents, methodologies, models, or applications that could have a major impact in biomedical research

- NINDS R03 Program – Small Grants Program
  - projects leading to a defined product, resource or “deliverable” that has inherent value to the neuroscience community
  - generate an important and potentially publishable unit of information or dataset
  - projects focused on secondary analysis of clinical data sets