The Opportunity

Scientists from racial minority groups are less likely than white applicants to receive research funding from the US National Institute of Health. The lack of adequate mentoring is a problem for emerging scientists. Effective mentors can provide guidance to mentees regarding:

- Career options
- Opportunities within the NIH-supported biomedical workforce
- Development of the necessary experience and skills needed for successful biomedical research careers

D.K. Ginther et al. Science 333, 1015-1019; 2011
Figure from Nature. 2014. 512:243
Hypothesis

A comprehensive mentoring initiative can effect change by:

- continuous training of the mentor and mentee through workshops, online resources and video training
- the facilitation of long-term, culturally responsive interactions
- an effective algorithm to match mentor and mentee across career stages
- the partnership with diverse stakeholders from our vast NRMN consortium.
Partners of the NRMN consist of predominately undergraduate, research and minority serving institutions; health and minority serving organizations; the above professional societies as well as various NIH program grants such as BUILD, U54, P60, G13 and P20.
Goal

The overarching goal of the National Research Mentoring Network is to change the face of the biomedical workforce by increasing the number of individuals traditionally underserved, including underrepresented minorities (URMs), successfully obtaining NIH grants by directly addressing the benefits and challenges of diversity, inclusivity and culture within mentoring relationships and more broadly the research workforce.
Objective

NRMN implemented the following four core structure:

1. **Administrative**
   Oversees the growth and sustainability of The National Research Mentoring Network, ensures proper data collection and evaluation and coordinates with the NIH Coordination and Evaluation Center (CEC).

2. **Mentorship and Networking**
   Develops the portal to support productive mentoring relationships by offering online resources and an algorithm to match mentors and Mentees. Recruitment of mentors and mentees to the NRMNet, provide face to face mentoring and networking through social media.

3. **Mentor Training**
   Attracts mentors from a variety of biomedical research disciples and establishes continuous training of best practices.

4. **Professional Development**
   Identifies mentees from the undergraduate to early career faculty levels across the country and provides effective professional development for mentees along the career continuum.
Structure

Administrative
- David Burgess*
  PI and Director
- Christine Sorkness*
  Assoc. Director

Mentorship and Networking
- JK Vishwanatha*
  PI and Director
- MariaElena Zavala,
  Assoc. Director

Mentor Training
- Christine Pfund*
  PI and Director
- Stephen Thomas
  Assoc. Director
- Janet Branchaw
  Assoc. Director

Professional Development
- Kola Okuyemi*,
  PI and Director
- Spero Manson,
  Assoc. Director
- Harlan Jones,
  Assoc. Director
NRMN Regional Hubs

- Building capacity for mentor training, mentoring and professional development concentrated in five regional hubs, in partnership with scores of institutions (majority, HBCUs, HSIs, and TCUs), BUILD programs, partner societies, and programs, and via the NRMNet web portal.
ADMINISTRATIVE CORE

David Burgess, Lead PI and Director, Boston College
Christine Sorkness, Associate Director, University of Wisconsin-Madison
Aims & Expected Outcomes

- **Aim 1:** Establish and oversee the organizational governance, fiscal responsibility and committee structures
  - *Expected Outcome:* A fully operational network with efficient exchange of information and continuous availability of resources to across cores, the NIH and the Consortium.

- **Aim 2:** Ensure successful implementation of pilot and full project programs to the consortium
  - *Expected Outcome:* A robust and sustainable network that meets the needs of the underserved to advance in biomedical career stage.

- **Aim 3:** Accurate and timely data collection, sharing and dissemination. Oversee evaluation and human subject activities
  - *Expected Outcome:* Proven research that adequate mentoring closes the gap in obtaining NIH grants.
Grant Project Programming

- Award Pilot Projects in Year 2 (Total of $175K)
  Pilot Projects: $25-50K/year for 1-2 years
  *Open to all Minority Serving Institutions, CTSA, NIGMS and NIH Training Grants, and Our Partners*

- NIH has provided an additional $1.5M/year (total costs) for 5 years to support additional innovative projects.
  **Full Projects:** Up to $250K/year for up to 2 years
  *Open to our partners who supported our proposal and from NRMN proposals thought meritorious by NIH staff.*

- Program overseen by Dr. Chris Sorkness, Associate Director of Administrative Core
MENTORSHIP AND NETWORKING CORE

J.K. Vishwanatha, UNTHSC, PI and Director
MariaElena Zavala, Cal State Northridge, Associate Director
Goals & Objectives

The overall goal of the Mentorship and Networking Core (MNC) is to significantly increase the number of successful underserved scientists in biomedical and behavioral research by creating in-person and online networks of mentors and mentees.

Our overarching objective is to help mentees identify career goals, and provide efficient, user-friendly communication tools and resources for creating and maintaining effective mentor-mentee relationships.

These, in turn, will address the academic needs of underserved mentees so that they can fulfill their professional promise.
Aims & Expected Outcomes

- **Aim 1:** Build and maintain NRMNet, an NRMN web portal for mentoring, networking, mentor-mentee matching, and professional development.

  - **Expected Outcome:**
    1. Development of a robust NRMNet portal as a living library of best practices in mentorship and networking, and a go-to site for finding mentoring resources for biomedical sciences. NRMNet will provide curated and validated resources to mentors and mentees.
    2. Ability to track mentor and mentee use of NRMNet, retention in the network and transition from one career stage to the next.
    3. Social media presence and network navigator programs are expected to result in the younger generation of mentees continuing in the program through different career transitions.
    4. Novel pilot projects that provide examples of best practices for sustainability of NRMNet for future generations.
• **Aim 2:** Recruit diverse mentees across career stages and culturally responsive mentors.

  – **Expected Outcome:**
    1. *Relationships built with BUILDs, HBCUs, HSIs, TCUs, national and professional societies, NIH training programs, NIH designated centers of excellence, and other institutions,* for sustainable enrollment of mentees and mentors to NRMN.
    2. *A robust list of mentors, including those from underserved backgrounds,* who have and continue to gain expertise in culturally responsive mentoring for various mentee career stages.
• **Aim 3**: Provide opportunities for in-person networking and mentoring.

– **Expected Outcome**:

1. Utilization of current venues and creation of venues both regionally and nationally where mentees and mentors can meet face to face.

2. Coordinated development of peer mentoring and facilitated peer mentoring at local, regional and national levels.
Projected Impact

The efforts of the Mentorship and Networking Core will lead to a sustainable network of biomedical professionals from diverse disciplines at various career stages and lasting changes in the American scientific workforce.
NRMNet

Mentoring is a key to America’s Science leadership

Access website using:
• NRMNet.net *
• NRMNet.org
• NRMNet.com

- Simple Solutions developed web portal and database
- MentorNet developed networking platform and application
- Data Analysis in the Administrative Core
- News
- Calendar of events
- Courses
- Videos
Desired Characteristics of NRMN Mentors

• Desire to be part of NRMNNet
• Experience in mentoring students, post-docs and faculty from underserved backgrounds
• Record of helping mentees develop their skills and career advancement
• Availability for and interest in online and/or face-to-face mentoring
• Knowledge about, or willing to learn, the cultural aspects of mentoring underserved mentees
• Openness to improving their mentoring skills
• Willingness to participate in formal mentor training
• Skills in effective coaching, counseling, facilitating and networking
• Awards received for mentorship
• Success in extramural funding for research and education
• Support from home institutions and acknowledgment of mentor participation in NRMN

While the above list is an initial list, the mentor development committee will review and set specific parameters for the criteria they believe are reasonable for mentor participation.
Desired Characteristics of NRMN Mentees

- Desire to be part of NRMNet
- Commitment to a biomedical research career
- Positive perceptions about being a mentee in a large nationwide network
- Willingness to commit and provide feedback
- Expressed desire for resources that may inform and positively impact their career decisions
- Availability for online and/or face-to-face mentoring
- Willingness to acquire new knowledge based on activities provided by NRMN, including mentee training and professional development
- Support from home institution and/or program for participation in NRMN

Selection of underserved mentees will be primarily based on their expression of interest and/or recommendations from their programs and institutions.

Mentees will complete a web-based questionnaire available on NRMNet. Given anticipated large numbers of mentees, there will not be a committee to review individual applications.
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<th>Recruitment Sources/Organizations</th>
<th>Mentees Undergraduate Students</th>
<th>Mentees Graduate Students</th>
<th>Mentees Post-Docs</th>
<th>Mentees Junior Faculty</th>
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MENTOR TRAINING CORE

Christine Pfund, PI and Director, University of Wisconsin-Madison
Stephen Thomas, Associate Director, University of Maryland, College Park
Janet Branchaw, Associate Director, University of Wisconsin-Madison
Goals and Objectives

The primary goal of the Mentor Training Core (MTC) is to serve as a national training hub to prepare mentors and mentees engaged in biomedical research through training, both in-person and online. MTC will also establish standards and metrics for effective mentoring relationships.
Aims & Expected Outcomes

- **Aim 1**: Serve as a national training hub.
  - **Expected Outcome**: Increased number of mentors and URM mentees at various career stages engaged in accessible, evidence-based training, including existing and to-be-developed offerings in-person and online.
• **Aim 2:** Refine aligned mentor and mentee standards, and their accompanying metrics, for effective mentoring relationships.

  – **Expected Outcome:** *A set of clear standards and tested metrics predicted to increase the number of underserved who enter, persist in, and launch successful biomedical careers.*

**Proposed Standards for Effective Mentoring Relationships**

- Teach Disciplinary Research Skills
- Maintain Effective Communication
- Align Mentor: Mentee Expectations
- Foster Independence
- Promote Professional Development
- Be Culturally Responsive
- Promote Mentee Research Self-Efficacy
- Foster Work-Life Integration
- Support Science Identity Development
- Reduce Bias and Stereotype Threat on their Mentee
- Enhancing Mentee Sense of Belonging
• **Aim 3:** Develop new and enhance existing training interventions for mentors and mentees.
  - *Expected Outcome:* Accessible, evidence-based, multi-modal interventions aimed at improving mentoring relationships including those focused on cultural responsiveness, self-efficacy, and identity formation
• **Aim 4:** Build capacity for and support a cultural transformation in the way that mentoring is conceptualized and valued.

- **Expected Outcome:** A critical mass of trainers poised to increase the implementation of local and national mentoring initiatives.
PROFESSIONAL DEVELOPMENT CORE

Kola Okuyemi, PI and Director, University of Minnesota
Harlan Jones, Associate Director, UNTHSC
Spero Manson, Associate Director, University of Colorado Denver
Goals and Objectives

The overarching goal of the Professional Development Core (PDC) is to address the unmet need for more diversity in the biomedical research workforce by creating and nationally disseminating transformative, high impact, professional development programs to support mentees from diverse backgrounds in biomedical/biobehavioral disciplines.
Aims & Expected Outcomes

• **Aim 1**: Provide mentees from diverse backgrounds with intensive coaching in grantsmanship
  
  – **Expected Outcome**: URM mentees nationwide will receive mentored intensive experiences through the five NRMN regional hubs
• **Aim 2:** Establish an NRMN Institute for Advanced Coaching in Grantsmanship

  – **Expected Outcome:** A critical mass of established investigators nationwide will be prepared to serve as coaches for underserved mentees for the mentored intensive grant writing program
• **Aim 3**: Use a combination of in-person and novel educational technologies to provide mentees from diverse backgrounds with continuous, effective professional development experiences to facilitate their transition to independent research careers in the biomedical sciences.

  – **Expected Outcome**: High impact professional development experiences will be delivered to large numbers of underserved mentees nationwide through academic institutions and scientific organizations.
Impact

Successful completion of this program will increase the number and proportion of underserved:

a) Submitting and awarded grants to under various NIH grant mechanisms;
b) Publishing in peer-reviewed journals;
c) Being promoted and tenured in research tracks;
d) Participating in the NIH grant review process;
e) Participating in the peer review process for scientific journals, and
f) Serving in research leadership positions at their institutions or professional organizations.
Grant Writing Workshop
Types

NRMN PDC

More Experienced Mentees
- Grant Writer’s Wrkshp (NU)
  - Kick off (1-2 days in person)
- Grant Writer’s Wrkshp (UMN)
  - Kick off (4 days in person)
- Online Work Groups (every-other week)
- Mock Study Section
- Grant Submission

Less Experienced Mentees
- NIDP (UC)
  - Kick off (1 week in person)
- STAR Fellowship (UNTHSC)
  - Kick off (4 days in person)
- Online Work Groups (monthly)
- Mock Study Section

On Campus Mtgs (variable intervals)
- Electronic Mtgs
- Email & Phone Communications

On Campus Mtgs (bi-monthly)
- Electronic Mtgs (bi-monthly)
- Mock Study Section
- Grant Submission

Professional Development Core
What NRMN offers CDRN

• Mentoring and networking for mentees (undergraduate, graduate, postdoc and junior faculty)
• Participation of faculty as mentors
• Opportunities for near-peer and peer mentoring
• Opportunities for CDRN mentors to be trained as Master Mentors
• Opportunities for CDRN mentors to be trained as Trainers for mentorship training
• Grantsmanship and Grant Writing opportunities targeted to post-docs and junior faculty
• Opportunities for established CDRN faculty to participate as Coaches in professional development activities
• Hosting train-the-trainer workshops, regional networking meetings and professional development activities
• Publish best practices from the CDRN program on NRMNet
How CDRN can assist NRMN

• Support enrollment of mentees to the NRMNet
• Support enrollment of mentors to the NRMNet
• Enroll CDRN faculty in mentoring train-the-trainer workshops
• Encourage CDRN faculty to develop into NRMN Master Mentors
• Host networking, mentoring and professional development workshops
• Publish and support participation of postdocs and junior faculty in professional development activities
• Publish best practices from the CDRN program on NRMNet
Thank you from the NRMN team.