Stanford Alzheimer's Disease Research Center:
Research Education Component (REC)

Stanford ADRC: Research Education Component

Kathleen Poston, MD, MS
REC Program Leader

Kaci Fairchild, PhD, ABPP
REC Associate Program Leader

Research Education Component Mission

➢ The mission of the Stanford ADRC Research Fellowship Program is to prepare the next generation of researchers for careers in brain aging, Alzheimer's Disease (AD), and Alzheimer's Disease Related Dementias (ADRD), including diseases due to Lewy body (LB) pathology, though participation in integrated clinical and basic science training opportunities and mentored research experiences.

➢ Give REC trainees the support, resources, training, and mentorship to 'get to the next level' in becoming independent aging and dementia researchers.

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ADRC Mission

➤ The Stanford ADRC mission is to serve as a shared resource to facilitate and enhance research on the spectrum of cognitive impairment associated with AD and Lewy Body (LB) pathology.

➤ We follow a strategy of deep phenotyping, which allows investigators to delve deeply within and across multiple levels of participant data.

➤ Healthy adults without cognitive or motor impairment

➤ People with AD and those with mild cognitive impairment as well as cognitively normal adults at risk for AD.

➤ People with Parkinson's disease, without and with cognitive impairment, and with Dementia (including Lewy Body Dementia)

➤ ADRC resources will provide investigators with unique opportunities for the parallel study of these two neurodegenerative disorders, enabling insights into pathogenesis, preclinical diagnosis, transitions, resistance and resilience, and therapeutic approaches.

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Research Education Component: Who?

➢ Eligible trainees come from two broad categories

1. **Junior Faculty**: defined as an instructor or assistant professor (any line), who have completed an MD and/or PhD with clinical residency/fellowship and/or post-doctoral training

2. **Trainees**: clinical fellows (behavioral neurology, movement disorders, psychiatry, neuropsychology, geriatrics, palliative care) post-doctoral research fellows, residents (neurology, psychiatry, geriatrics), graduate students and medical students.

* We anticipate funding two Fellows in the 2023-2024 training year, depending on the number and quality of submitted applications.

Research Education Component: Who?

➢ The Stanford ADRC strongly believes in the value of diversity in our training program and we are focused on recruiting and supporting individuals from all backgrounds. We encourage applications from candidates that are underrepresented in medicine, economically disadvantaged, and whose backgrounds or experiences would diversify our clinical field.

➢ Prior research in Aging or Dementia not required, but a plan to shift research to aging and dementia must be made clear in the application.

➢ Pilot data is not required. But a thorough and solid scientific premise, based on either your prior research or the literature, is required to support the proposed hypotheses.

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Research Education Component: Overview

Trainee accepted into the program

Formal meeting with mentorship team

Finalize Research Plan

Execute Research Project Plan

Execute Didactic and Course-work Plan

Execute Clinical Research Training Plan

Ongoing Mentor Meetings

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Research Education Component: What?

➤ Support

➤ Access to ADRC resources

➤ Individualized Development and Training Plan (IDTP)

➤ Mentorship

Research Education Component: Support

➢ Participants apply for 1 year or 2 years of support

➢ Budget per trainee is 30K/year.

➢ Budget can be used according to the trainees needs and must be justified by the proposed science. Examples:
  ▪ Protected time for junior faculty to collect clinical data, perform analysis and write a mentored career development plan.
  ▪ Research funds for scanner time to perform MRI experiments for pilot data.
  ▪ Funds for formal coursework in the MS Epidemiology or Certificate program.
  ▪ Research funds for pilot data to develop a new experiment in the lab.

➢ Budget is flexible during the training years.
  ▪ If funding changes (example, an F32 or a K-grant is awarded) we can shift the funding from salary to something else that will move enhance the project

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Research Education Component: Resources

- Applicants are strongly encouraged to consider the use of existing data and biospecimen resources within the Stanford ADRC (https://med.stanford.edu/adrc/researcher-resources.html) as well as data of the National Alzheimer's Coordinating Center (NACC at https://naccdata.org/) when designing their clinical research projects.

- Applicants interested in acquiring new data directly from ADRC enrolled participants should discuss with Dr. Victor Henderson prior to application submission.

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Clinical, neuropsychological, and imaging resources
(updated 7/15/2021)
Resources
•Demographic information and longitudinal clinical data, including data derived from the National Alzheimer's Coordinating Center (NACC) Uniform Data Set (>450 unique ADRC participants)

•Whole genome sequence data (>350 unique ADRC participants)
•Longitudinal plasma proteomic data (>350 ADRC unique participants)

•GWAS data (>175 ADRC unique participants)

•CSF proteomic data (>200 ADRC unique participants)
•Mononuclear blood cell transcriptome data (>300 unique ADRC participants)
•Raw MRI data and processed FreeSurfer imaging outputs for structural MRI data (>400 unique ADRC participants)

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Biospecimen, tissue, and cell line resources

Resources

•Plasma (> 450 unique ADRC participants) at multiple visits

•DNA (> 400 unique ADRC participants) (supported by National Centralized Repository for Alzheimer's Disease and Related Dementias, NCRAD)

•CSF (>150 unique ADRC participants)

•Brain tissues (>14 autopsied ADRC participants)

•Leptomeningeal cell lines from ADRC postmortem brain (>14 autopsied ADRC participants)

•Processed amyloid-PET scan imaging along with extracted regional SUVRs (>120 unique ADRC participants)

•Stool samples (>100 unique ADRC participants)

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Research Education Component: Resources

➢ Clinical Core (Leader: Victor Henderson)
  ➢ Demographic, clinical, cognitive, motor, behavioral, quality of life data from Healthy Adults, AD-spectrum, LB-spectrum, and caregivers (NACC UDS3 https://www.alz.washington.edu/WEB/forms_uds.html).

➢ Neuroimaging Core (Leaders: Beth Mormino and Mike Greicius)
  ➢ Structural MRI, functional MRI, and molecular neuroimaging biomarkers (Amyloid PET)

➢ Biomarker Core (Leader: Dr. Tony Wyss-Coray and Dr. Katrin Andreasson)
  ➢ Fluid biospecimens (blood, CSF), fibroblast cell lines derived from skin and meninges, and stool specimens; genetic data.

➢ Neuropathology Core (Leader: Dr. Inma Cobos)
  ➢ brain tissues from well-characterized research participants

➢ Outreach, Recruitment and Education Core (Leader: Dr. Lisa Goldman Rosas)

➢ Data Management and Statistics Core (Leader: Dr. Lu Tian)

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Research Education Component: IDTP

1. The Individualized Development and Training Plan (IDTP) – what are your 'gaps'
   - Meet once a month with Dr. Poston and Dr. Fairchild to address how the projects are going and assess progress on your IDTP.

2. Didactics and Coursework
   - 4 Core didactics: MED 255/255C (Responsible Conduct of Research, if not already taken), ADRC Consensus meeting and/or Behavioral Neurology Case Review Conference, and ADRC/Udall Distinguished Speaker Series.
   - Beyond the 4 Core didactics, the specific courses and number of courses are tailored to optimize the REC trainees training needs and interests.
      - Example: MS Graduate Programs or the Graduate Certificate in Epidemiology and Clinical Research

3. Clinical/Translational/Basic Research Training

4. Mentored Project Research

➢ The IDTP will be tailored to where the Fellow needs additional support. For instance, a clinical fellow should not focus on more clinical training they already have, but rather areas of training they are lacking or deficient (such as statistics or grant writing).

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Research Education Component: Example IDTP

In each area the Fellow will:

1. Assess Prior Experience
2. Determine Objectives for the program
3. Determine how those objectives will be evaluated
4. Make the Plan for Training and identify opportunities
5. Update with assessment of Goals

Research Education Component: Clinical Research Training Options

*Behavioral Neuro Case Review Conference (weekly)

+

*ADRC Clinical Consensus Conference (bi-monthly)

+

Neurodegeneration Didactic Series (weekly)

+

ADRC Distinguished Speaker Series (monthly)

+

ADRC Clinical-Pathological Conference (quarterly)

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Research Education Component: Mentorship (team)

- ADRC Faculty are not required to be the primary research mentor, but are encouraged to be collaborator or part of the mentorship team.

- Dr. Poston and Dr. Fairchild will help facilitate new mentorship opportunities with ADRC Faculty

- http://med.stanford.edu/adrc.html

Research Education Component: Selection Criteria

➢ Selecting potential candidates will be based on:
  - Breadth and quality of previous general training experience
  - Breadth, depth, and quality of training experience areas relevant to the ADRC mission
  - Quality and scope of scholarship, as indicated partially by research, convention papers, and publications
  - Relationship between clinical and research interests/experience of the applicant
  - Evidence of personal maturity and accomplishments
  - Thoughtfulness of answers to the application questions
  - Goodness of fit between the applicant's stated objectives and the training program and medical center's resources
  - Use of ADRC resources
  - Strength of letters of recommendation from professionals who know the applicant well

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Research Education Component: Application

1. A signed letter of interest (up to 3 pages) that strictly follows the instructions:
- Your previous educational, clinical and research experiences
- Your areas of clinical and research interest and its alignment with the Stanford ADRC research area(s) and mission
- Specific clinical and research goals and objectives for your Fellowship Year(s) *(think about the gaps)*
- Your career "next steps"

2. NIH Biosketch
- format appropriate for level of training
- https://grants.nih.gov/grants/forms/biosketch.htm

Research Education Component: Application

3. Research Proposal (up to 3 pages, not including references)

- <u>Project Title</u>
- <u>Purpose</u>: state the goal and specific objectives of the proposed research; clearly describe the question to be addressed. Also indicate the length of fellowship proposed (1 or 2 years) with brief justification.
- <u>Background</u>: Explain scientific rationale for project; describe innovative features of your project; describe how research will advance knowledge in AD and ADRD field.
- <u>Methods and Research Plan</u>: Outline proposed study design methods.
- <u>Key Personnel</u>: Identify Research Mentor and other potential collaborators. ADRC Faculty are not required to be the primary research mentor, but are encouraged to be collaborator or part of the mentorship team.
- <u>Resources Needed with Associated Costs</u>: Proposed use of funds (up to $30,000) and scientific justification for the proposed project.
- References (not included in the 3 pages)

4. Two letters of recommendation from faculty members or clinical supervisors who know your research work well.

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Research Education Component: Key Dates

- December 2022: Applications open

- Informational Webinar available [recorded and available on the ADRC website: http://med.stanford.edu/adrc/research/fellowship.html]

- March 10, 2023: 5:00 PM PST: Application Deadline

    ❖ Apply directly through the https://seedfunding.stanford.edu/ website, search for ADRC.

- March 20 2023: Review of Applications and Notification of Funding Decisions

- April 1, 2023: Fellowships begin

- January 2024: ADRC External Advisory Council Meeting

- March 31, 2024: End of First Training Year, Annual Reports due

Further information can also be obtained by contacting the Stanford ADRC Research Education Component Team, including our Coordinator Kristen Wheeler by email at kjwheele@stanford.edu, or REC Lead Dr. Kathleen Poston by email at klposton@stanford.edu or REC Co-Lead Dr. Kaci Fairchild by email at jkaci@stanford.edu.

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