Title: Postdoctoral Fellowship in Alzheimer’s Research - Neuroimaging

APA-accredited: YES __ NO X__

Site: Brown University

Supervisor(s): Hwamee Oh, Ph.D. (Primary Supervisor)
Stephen Correia, Ph.D.
Stephen Salloway, M.D.

Overview
This 2-year fellowship focuses on neuroimaging research in Alzheimer’s disease. Eligible fellows must have experience in, and desire to pursue an academic career in imaging research.

Fellows who are not pursuing clinical work will spend 90% time in research activities (Research Time) in each of Fellowship Years 1 and 2. Fellows who are pursuing clinical neuropsychology work may spend up to 12.5% time on clinical activities (Clinical Time) with 77.5% Research Time in each of Years 1 and 2. All fellows spend 10% time in didactics (Didactic Time) in both Fellowship Years.

The primary focus of the fellow’s research will be on developing novel neuroimaging and cognitive markers of Alzheimer’s disease by integrating MRI and PET imaging and applying new analytic approaches to detecting and monitoring of Alzheimer’s disease with emphasis on the pre-clinical and mild stages of the illness.

The performance site for this Brown University fellowship is the Butler Hospital Memory and Aging Program. The MAP is led by Stephen Salloway, M.D., M.S., Director; Stephen Correia Ph.D. ABPP-CN, Director of Research; and Hwamee Oh, Ph.D., Director of Imaging Research.

This fellowship is part of the Neuropsychology Track of the Research Fellowship Program within the Clinical Psychology Training Programs at Brown: A Consortium of the Providence VA Medical Center, Lifespan, and Care New England (“the Psychology Training Consortium”).

Eligibility
Applicants with a Ph.D. degree in cognitive neuroscience, neuropsychology, biomedical engineering, electrical engineering, computer science, physics or a relevant field are encouraged to apply. Prior experience with human neuroimaging (e.g., task fMRI, rsfMRI, MRI, DTI, ERP, PET), and familiarity with a relevant programming language (e.g., Python, MATLAB, C) are required. A strong background of cognitive neuroscience and experimental design is desirable. The successful candidate is expected to demonstrate communication skills, motivation and interest in the area of cognitive and brain aging, Alzheimer’s disease, and/or neuroimaging, and the ability to independently develop research questions and work in collaboration with other team members. In addition, applicants seeking training in clinical neuropsychology must hold a doctoral degree from an APA-accredited program or the equivalent,
Description of Site
Brown University has a strong commitment to brain science and research in neurodegenerative disorders. This commitment is united under The Carney Institute for Brain Science and the new Center for Translational Neuroscience (CTN). The mission of the Carney Institute and CTN is to promote the discovery and innovation in brain science by supporting a diverse community of experimentalists, theorists, engineers, and clinicians. The Institute and Center are dedicated to creating a collaborative training and research environment to meet its mission. The primary supervisor of the fellow in this position is Dr. Oh in Butler Hospital’s Memory and Aging Program with opportunities to interact with researchers in Brown’s MRI Research Center, the Departments of Cognitive, Linguistic, and Psychological Sciences and Neuroscience and other Brown-affiliated departments and hospitals.

Founded in 1844, Butler Hospital is a private, nonprofit psychiatric hospital for adults, adolescents, children, and seniors. Butler is affiliated with the Alpert Medical School of Brown University and is aligned with Brown’s Carney Institute for Brain Science.

The MAP has been in operation for over 20 years and is one of the leading clinical research centers for Alzheimer’s disease (AD) in the United States. It is committed to accelerating drug and biomarker development for AD and to training young investigators for careers in AD research. The program performs extensive evaluations of study participants across the stages of AD from preclinical to dementia and fellows are exposed to cutting edge diagnostic and treatment techniques. The MAP is focusing on preclinical and early AD and has a growing AD Prevention Registry. The program is conducting landmark studies such as ADNI, DIAN, LEADS, development of tau PET, tau-based treatments, deep brain stimulation and primary and secondary prevention trials for autosomal dominant and sporadic AD.

Rhode Island is a dynamic center for Alzheimer’s research. The MAP maintains collaborative ties to other Alzheimer’s researchers within Brown and to other institutions such as the University of Rhode Island and many national and international Alzheimer’s research centers. These collaborations span a broad spectrum of research activity including basic science, neuropathology, advanced brain and retinal imaging and neuroscience paradigms that probe the early neurocognitive and neurocircuitry changes in the disease.

Brown University has a longstanding and strong and collaborative pre- and post-doctoral neuropsychology training program. The Psychology Training Consortium’s APA-accredited internship program includes a Neuropsychology Track and an APA-accredited post-doctoral Clinical Neuropsychology Specialty Program (CNSP). Fellows’ in this neuroimaging position will work closely with neuropsychology trainees and faculty.

Fellowship Aims
- To provide the fellow with expertise in the design, implementation, and analysis of MRI and PET data for identification and monitoring of Alzheimer’s disease with focus on its pre-clinical and mild stages.
- To provide the fellow with expertise in design and implementation of cognitive paradigms for behavioral and fMRI experiments.
- To provide the fellow with experience analyzing MRI and PET data and experiments and to guide the fellow in communicating the results in manuscript or other formats.
- To provide the fellow with experience preparing and submitting grant proposals.
- To enable the fellow to gain experience working with multidisciplinary team evaluating and treating patients with early cognitive impairment or dementia due to Alzheimer’s disease and related disorders.
**Fellowship Timeline**
The duration of the fellowship is 1- or 2-years contingent upon satisfactory progress. Start date will be determined on an individual basis. Consistent with Training Committee policy, the fellow and the mentor will notify each other approximately 4 months prior to the anticipated start of Year 2 whether the commitment will be made for a second year.

**Clinical Activity Plan**
Fellows with neuropsychology training may spend up to 12.5% of his/her time each year (25% of total fellowship time over 2 years) engaged in clinical activities (Clinical Time”) depending on career goals. These activities may include:

- Conducting one or two neuropsychological evaluations per week on patients from the Memory and Aging Program, providing the opportunity for training in neuropsychological assessment and differential diagnosis. Consultations may also come from our Hydrocephalus Clinic, Movement Disorders program, and community referrals. (4-5 hours per week)
- Attending weekly multidisciplinary Diagnostic Consensus Conference, where staff will review history, neurologic exam, neuroimaging, neuropsychological and genetic workup and make diagnosis and treatment recommendations. These conferences are conducted as teaching rounds with trainees called upon to make judgments and defend their reasoning. (1 hour per week).
- Providing clinical supervision to neuropsychology practicum students from regional clinical psychology graduate programs that are training in the MAP. This activity is contingent upon he availability of practicum students to supervise.

**Path toward licensure:** YES ___X__ NO ___

**Research Activity Plan**
Depending on fellow’s clinical plan, he or she will spend 77.5-90% of his/her time per year conducting clinical research (Research Time) studying and investigating 1) behavioral and neuroimaging markers of preclinical and mild Alzheimer’s disease; and (depending on the fellow’s training background) 2) other clinical research activities pertaining to clinical trials or other investigator-initiated MAP research projects (e.g., NIH-funded or foundation-funded). The fellow may spend up to 20% of research time on mentored independent research that aligns with the scope of research expertise of the mentors and with the research mission of the MAP. The percentages of time allotted to the various activities listed below will be determined and adjusted over time based on the fellow’s strengths, training needs, career goals; and on MAP research priorities. Activities may include:

- Imaging Projects (55-65% of Research Time).
  a. Developing cognitive paradigms for behavioral and fMRI experiments
  b. Behavioral and fMRI/MRI data collection
  c. Behavioral and neuroimaging data analysis
  d. Developing automated processing pipeline for large-scale neuroimaging datasets involving PET and MR imaging
  e. Working closely with clinical and research personnel in the MAP for participant recruitment and study coordination
  f. Manuscript preparation and participation in student training and grant writing
  g. Overseeing all aspects of the project of the fellow’s primary focus of research from study participant recruitment to mentoring research assistants

- MAP projects (15-25% of Research Time):
a. Serving as project manager on investigator-initiated projects (e.g., NIH-funded) and clinical trials (e.g., industry-sponsored). Responsibilities may include developing and implementing study procedures, coordination of research staff, monitoring protocol adherence, overseeing regulatory compliance, recruiting and scheduling participants, collecting and managing data, safety monitoring and reporting, and other study-related activities.
b. Performing data analysis in collaboration with the investigator.
c. Drafting manuscripts for publication and preparing other modalities for dissemination of research results (e.g., conference presentations, media presentations)
d. Preparing NIH and/or foundation grants.
e. Serving as a liaison with community groups, giving public education talks and engaging in participant recruitment (with a focus on minority recruitment).

- Independent MAP research activities (minimum 20% Research Time):
  a. Conducting a review of the literature in an area of his/her choosing, which can form the basis for a grant application or manuscript.
  b. Submitting NIH F32, K, R and foundation grants in the area of dementia and aging is strongly encouraged.
  c. Conducting studies using existing datasets or prospective data. The MAP has a large database with full neuropsychological battery, neurologic exam, neuroimaging and genetic data available for analysis and new at-risk cohorts are being recruited through our prevention registry and preclinical AD studies. In addition, the fellow may choose to conduct prospective data collection with MAP participants or perform analyses on publicly available research cohorts.

**Didactics (10% time; Didactic Time)**
All first-year Research Fellowship Program postdoctoral fellows receive approximately four hours of structured learning activities weekly. This includes a minimum of 1 hour per week of regularly scheduled individual, face-to-face research supervision and an average of 2-3 hours per week of structured learning activities in the form of didactics/educational experiences. Second-year RFP postdoctoral fellows receive a minimum of 1 hour per week of regularly scheduled individual research supervision, and participate in selected didactic activities based on interest. In addition, fellows engaged in clinical neuropsychology services will receive face-to-face clinical supervision for up to two hours weekly.

**REQUIRED:**
- DPHB T32 Core Seminars (weekly. required in year 1).
  - research methods
  - grant related information and writing
  - research ethics
- MAP research lab meeting (weekly – required in years 1 & 2)
- MAP Clinical Consensus Conference (weekly– required in years 1 & 2)
- Department of Psychiatry & Human Behavior Grand Rounds (monthly– required year 1&2)

**OPTIONAL**
- Adult & Behavioral Medicine Track Grant Writing Seminars (weekly)
- Department of Neurology Grand Rounds (weekly)
- Neuropsychology Research Interest Group (monthly)
- Clinical Neuropsychology Specialty Program Seminar Series (weekly)*
- Department of Pathology Brain Cuttings (intermittent)**
• Department of Diagnostic Imaging Rounds (monthly)
• Other optional didactic opportunities with approval from supervisor(s)

*required in years 1&2 for neuropsychology fellows pursuing licensure.
** encouraged at least once in either year 1 or 2 for neuropsychology fellows pursuing licensure.

**Supervision and Evaluation**
Supervision will be provided in the form of both daily individual supervision and weekly group supervision. At a minimum, a full-time fellow will receive four hours structured learning activities per week, at least two hours of which will include individual, face-to-face supervision. Every 6 months for the duration of the fellowship, the fellow and the supervisors will provide formal evaluations, and evaluations of the program relative to the goals and learning objectives of the fellowship. Supervision of clinical neuropsychology activities, if being pursued by the fellow, will be provided by a licensed psychologist (e.g. Dr. Correia), will be part of the four hours of structured learning activities, and will include face-to-face supervision.

Dr. Oh is the Primary Supervisor with additional supervision from Drs. Correia and Salloway. Dr. Correia will be the Primary Supervisor for clinical neuropsychology activities with additional supervision by other licensed MAP neuropsychology faculty (e.g., Drs. Paul Malloy, Nicole McLaughlin, and Athene Lee). Every 6 months for the duration of the fellowship, the fellow and the supervisors will provide formal evaluations, and evaluations of the program relative to the goals and learning objectives of the fellowship.

**Resource Requirements**
Fellow will be provided with the following resources:
- A computer and project-specific software
- Internet access
- Telephone
- Shared office space for personal use
- For neuropsychology fellows engaging in clinical activities:
  a. Access to space appropriate for clinical care
  b. Neuropsychological test materials
  c. Testing rooms for evaluation of clinical trials participants and outpatients

**Reporting and approval**
This fellowship will be part of the Neuropsychology Track of the Research Fellowship Program within The Psychology Training Consortium. The position has been previously discussed and approved by the Neuropsychology Track faculty in their monthly meeting of 04/29/2019.

Neuropsychology Track Coordinator

Director, Research Fellowship Program

Director, Postdoctoral Fellowship Training Program