Roster of AD Training Program Mentors – Junior and Senior Mentors

Senior Mentors

William Banks, MD, MPH, (mentors both postdocs and predocs) is Professor of Medicine Division of Gerontology and Associate Chief of Staff for Research and Development at VA Puget Sound. He has pioneered research in blood-brain barrier (BBB)-mediated brain-body communication. His recent reviews have emphasized the BBB as an interface connecting the central nervous system (CNS) and peripheral tissues via the blood, forming neuroimmune axes, and using endocrine-like mechanisms. His lab has shown that alterations in BBB function in mouse models of AD can be largely induced by neuroinflammation. Dr. Banks is Editor-in-Chief of *Current Pharmaceutical Design* and has served on 20 other editorial boards, including for *J Pharmacy Expt Therap*; *Endocrinology*; *Peptides: An International Journal*; *Brain, Behavior, & Immunity*; *J Cerebral Blood Flow & Metabolism*; *Fluid and Barriers of the CNS*; and *Experimental Biology and Medicine*.
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Elizabeth Blue, PhD, (mentors both postdocs and predocs) is Associate Professor, UW Division of Medical Genetics, Dept. of Medicine. She received her PhD in Anthropology from the University of Utah, specializing in population genetics, followed by postdoctoral training in statistical genetics at the UW. She uses population genetics and genetic epidemiology tools to detect regions of the genome that influence disease. Her long-term research goals are to identify variants influencing disease within and between human populations, as well as to predict and evaluate their functions. Much of Dr. Blue's research focuses on identifying genetic factors that influence risk and age at onset of AD and on incorporating family- and population-based approaches with functional annotations and predictions of variant pathogenicity. She is an active collaborator and co-investigator in several large-scale sequencing projects, including the AD Sequencing Project, the UW Center for Mendelian Genomics, and the Pacific Northwest Undiagnosed Disease Network clinical site.
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Elizabeth Buffalo, PhD, (mentors both postdocs and predocs) is Professor and Chair of the Department of Physiology and Biophysics at UW. She seeks to increase our understanding of the neural mechanisms that support learning and memory. Her studies aim to develop new treatment strategies and better methods of diagnosis for patients with diseases that impair memory. Dr. Buffalo and her trainees use neurophysiological techniques to simultaneously record activity in the hippocampus and surrounding cortex of awake, behaving monkeys that have been trained to perform various memory tasks. These studies attempt to better understand how medial temporal lobe circuits support memory formation. Her laboratory also investigates spatial representations and synchronous activity in the hippocampus and adjacent medial temporal lobe cortex. Dr. Buffalo also has expertise in using extracellular recording techniques, including spectral analysis

techniques, to investigate the role of oscillatory activity and neuronal synchronization in memory formation.
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David Cook, PhD, (mentors both postdocs & predocs) is a GRECC Investigator and Research Associate Professor of Medicine in the Division of Gerontology. He has two interrelated research interests: elucidating the role astrocytes play in AD pathogenesis and understanding the mechanisms by which blast mTBI increases the risk for neurodegenerative dementing disorders. Dr. Cook's group has found decreased levels and aberrant expression of glutamate transporters in the brains of AD patients; these transporters are very important in regulating metabolism in the brain, as well as preventing neurotoxicity. His laboratory aims to discover new strategies to help astrocytes, which clear most of the glutamate in the brain, do a better job of protecting neurons and synapses from AD-related impairment and loss. To better clarify the relationship between mTBI and neurodegeneration, Dr. Cook's laboratory has developed a battlefield-relevant mouse model of blast-induced mTBI in close collaboration with fellow ADTP Preceptors, Drs. Peskind, Kraemer, Banks, and Meabon. The goal of this work is to better understand the mechanisms of repetitive blast-induced mTBI and to provide an *in vivo* platform for testing potential treatments that will prevent blast-related mTBI from developing into to aging-related neurodegenerative disorders.
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Martin Darvas, PhD, (mentors both postdocs and predocs) is Assistant Professor, UW Dept. of Pathology. The research goal of his laboratory is to understand the structural and molecular bases of cognitive impairment that occur with age and neurodegenerative diseases like AD and PD. To achieve that goal, his lab primarily focuses on the investigation of the infectious-disease etiology of AD, for which he was recently awarded an NIH R01. Dr. Darvas's secondary goal is to develop quantitative and precision molecular neuropathology methods to improve our understanding of pathologic changes in clinical samples.
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Jose Garcia, MD, PhD, (mentors both postdocs and predocs) is a GRECC Clinical Investigator and Associate Professor, UW Division of Gerontology and Geriatric Medicine, Dept. of Medicine. His research focuses on neuroendocrine signaling abnormalities underpinning aging, cachexia, and TBI. His current clinical work focuses on conducting a clinical trial using human growth hormone as a therapeutic for the cognitive, behavioral, and somatic sequelae of military service-related traumatic brain injury.
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Richard G. Gardner, PhD, (mentors both postdocs and predocs) is Associate Professor, UW Dept. of Pharmacology, whose research over the past 20 years has studied the mechanisms of ubiquitin-mediated protein regulation using a broad collection of genetic, biochemical, cell biological, and molecular methods in the budding yeast, *Saccharomyces cerevisiae*. Studies in his laboratory have included misfolded protein degradation in nuclear protein quality control, understanding the functions of ubiquitination in regulating ribosome biogenesis at the level of ribosomal rDNA transcription and RNA polymerase I function, and uncovering novel roles of protein sumoylation in response to cellular stress.
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Thomas Grabowski, MD, (mentors both postdocs and predocs) is Professor in the UW Departments of Radiology and Neurology, and Director of the UW ADRC, MBWC, and Integrated Brain Imaging Center (IBIC). His laboratory in IBIC investigates the functional organization of the human brain using neuroimaging approaches; he then applies this knowledge to neurologic disease, especially AD and ADRD. He has particularly worked to elucidate brain systems supporting lexical-semantic retrieval using PET and fMRI imaging. His current projects focus on functional connectivity measures as preclinical biomarkers of neurodegenerative disease, topographic patterns of degeneration from MRI and tau PET in typical and atypical AD, and neuroimaging approaches to understanding resilience to AD. This work is closely affiliated with the UW ADRC.
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Jeffrey Iliff, PhD, (mentors both postdocs and predocs) is Associate Director for Research in the MIRECC and has joint appointments as Professor of Psychiatry and Behavioral Sciences and of Neurology at UW SOM. He currently serves as Co-Lead (along with Dr. Brian Kraemer) of the UW ADRC REC and is a member of the ADTP Executive Committee. Dr. Iliff joined the VA MIRECC and UW in June 2019. In his prior position at Oregon Health and Science University (OHSU), Dr. Iliff was Vice Chair for Basic Science Research in the Department of Anesthesiology and Perioperative Medicine, overseeing research mentorship for graduate and medical students, postdoctoral fellows, medical residents and fellows, and junior faculty in a department of over 70 faculty. Dr. Iliff's lab focuses on the biology of the newly characterized glymphatic system, using cellular, molecular, and imaging techniques to define the glial and vascular contributions to the development of AD and ADRD.
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Suman Jayadev, MD, (mentors postdocs only) is an Associate Professor of Neurology and Director of the UW Neurogenetics Clinic and UW Huntington Disease Center of Excellence, and PI of the UW ADRC Clinical Core. Dr. Jayadev is a practicing neurogenetics clinician and is particularly interested in inflammatory mechanisms of neurodegeneration, including the function

of familial AD presenilin gene variants in AD pathogenesis and the characterization of AD gene mutation influence on the immune response to amyloid. She collaborates with a multidisciplinary team to study how common genetic variants confers risk for AD using bulk and single-cell transcriptomics of human archived brain tissue. She further tests the consequences of AD-associated genomic risk using induced pluripotent stem cells (iPSC)-derived microglia cells for hypothesis-driven *in vitro* experiments. She frequently collaborates with colleagues in UW Genome Sciences, UW Medical Genetics, and the Institute for Stem Cell and Regenerative Medicine.
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Matt Kaeberlein, PhD, (mentors both postdocs and predocs) is Professor, UW Department of Pathology; Co-Director of the UW Nathan Shock Center of Excellence in the Basic Biology of Aging; Director of the Healthy Aging and Longevity Research Institute; and Director of the Dog Aging Project. His work focuses on understanding molecular mechanisms of biological aging and how these mechanisms drive age-associated diseases, particularly AD. Age is the single greatest risk factor for AD, and changes associated with normative aging are at least permissive for, and perhaps causal in, AD progression. Dr. Kaeberlein and his trainees use both nematode (*C. elegans*) and mammalian (companion dog) models to study the relationship between normative aging and AD. They have developed and utilized several nematode transgenic models of amyloid beta, alpha-synuclein, and tau toxicity to identify genetic and pharmacological modifiers of AD-associated toxicity. In companion dogs, they are pioneering studies combining assessment of cognitive function, identification of serum biomarkers, and neuropathological hallmarks of AD-like dementia to identify the influence of genetic and environmental factors in a socially-relevant animal model that shares the human environment.
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C. Dirk Keene, MD, PhD, (mentors both postdocs and predocs) is Professor of Pathology, Ophthalmology, and Neurological Surgery, as well as Director of Neuropathology. His research program seeks to contribute knowledge and resources to brain aging, neurodegenerative disease, and neurotrauma research that lead to mechanistic discoveries and effective preventive and therapeutic strategies through neuropathological research and innovation, collaborative science, and education. He is board-certified in anatomic pathology and neuropathology, and he performs hundreds of comprehensive neurodegenerative disease autopsies for diverse clinical and research studies, including the UW ADRC, ACT, Pacific Northwest Brain Donor Network, Seattle Longitudinal Study, and Pacific Udall Center of Excellence for Parkinson's disease.
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Su-In Lee, PhD (mentors both postdocs and predocs) is Associate Professor of Computer Science & Engineering, Genome Sciences, and Biomedical Informatics. She completed her PhD

in 2009 at Stanford University with Prof. Daphne Koller in the Stanford Artificial Intelligence Laboratory. Before joining the UW in 2010, she was a visiting professor in the Computational Biology Department at Carnegie Mellon University. Dr. Lee's systems biology research seeks to develop interpretable machine learning techniques to learn from big data: (1) how the human genome or protein works, (2) how to improve health care, and (3) how to treat challenging and complex diseases such as AD.
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Ed Lein, PhD, (mentors both postdocs and predocs) is an Investigator at the Allen Institute for Brain Science and Affiliate Professor, UW Dept. of Neurological Surgery. He has provided scientific guidance for the creation of large-scale gene-expression atlases of the adult and developing mammalian brain as catalytic community resources, including the inaugural Allen Mouse Brain Atlas and a range of developmental and adult human and non-human primate brain atlases. Dr. Lein's particular interests include using the transcriptome as a core phenotype to understand brain organization at the regional, cellular, and functional level, to understand what is unique about the human brain, and to understand what is disrupted in brain diseases. He now co-leads the Cell Types Program and directs the Human Cell Types Department, which aim to create a comprehensive understanding of human cortical cell types, circuits, and human cortex specialization; this work uses quantitative single-cell transcriptomic, anatomical, and functional methods. Dr. Lein has also recently turned his attention to how AD perturbs brain gene expression and organization at the molecular and cellular level and is collaborating with Dr. Keene on an AD focused U19 project (see **Table A**).
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Gail Li, MD, PhD, (mentors both postdocs &and predocs) is Associate Professor, UW Dept. of Psychiatry and Behavioral Sciences. She has completed several epidemiological studies investigating the associations between AD and cardiovascular risk or protective factors (e.g., hypertension, hypercholesterolemia, and hyperglycemia) in a longitudinal cohort. In this work, Dr. Li and her colleagues have found that the cholesterol-lowering statin drugs are associated with both a decreased risk of dementia and fewer neurofibrillary tangles in the brain. Recently, she has expanded her interests to include examining the effects of air pollution on the aging brain and AD. She is currently mentoring a PhD graduate student, Ms. Rachel Shaffer, and they recently published their research findings together on an association between air pollution and vascular damage biomarkers. Dr. Li is an integral part of the UW AD biofluid biomarker research team.
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Michael MacCoss, PhD, (mentors both postdocs and predocs) is Professor of Genome Sciences. He leads a laboratory that focuses on the development and application of cutting-edge mass

spectrometry–based technologies for the analysis of complex protein mixtures. His laboratory applies these approaches to study AD- and ADRD-related changes in the CSF and brain proteomes. Dr. MacCoss's primary areas of expertise are in protein biochemistry, nanoflow liquid chromatography, mass spectrometry instrumentation, and computational analysis of mass spectrometry (MS) data. He has >20 years of MS experience that bridges the fields of protein MS, isotope ratio MS, and quantitative MS. His laboratory is also experienced in all aspects of computational analysis of MS data, which is essential for any large-scale proteome analysis, and his laboratory is widely known for its expertise in the development and support of proteomics software tools. Dr. MacCoss has trained >12 postdoctoral fellows and >9 graduate students in the use and application of MS.
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Ahbinav Nath, PhD, (mentors both postdocs and predocs) is Associate Professor, UW Dept. of Medicinal Chemistry. His research focuses on understanding how highly dynamic and intrinsically disordered proteins recognize small molecules and biological binding partners and how they self-assemble or aggregate in ways important to normal function or pathological dysfunction. His laboratory employs a variety of experimental and computational biophysics techniques, including single-molecule fluorescence, NMR, MS, molecular simulations, and machine learning. Much of his recent work has focused on microtubule-associated protein tau, a key player in AD, FTDs, chronic traumatic encephalopathy (CTE), and related dementias. Dr. Nath and his trainees have developed novel families of tau-binding small molecules, and they have explored the relationships between chemical structure and the molecules' ability to inhibit tau aggregation *in vitro*. Their work has also revealed how different molecular chaperones interact with tau to delay or halt its aggregation, and they have defined the quasi-ordered nature of certain tau/chaperone complexes.
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Daniel Promislow, PhD, (mentors both postdocs and predocs) is Professor of Pathology and Biology. His laboratory focuses on the genetics and systems biology of aging and age-related traits. More particularly, they use genetically variable populations of the fruit fly, *Drosophila melanogaster*, to identify genetic and metabolomic signatures of variation. Working in collaboration with other researchers at UW, he serves as PI on an NIH R01 using the fruit fly as a model to identify natural genetic variations that modify the toxic effects of Aβ and tau in the fly brain. Ten years ago, he also began epidemiological studies of aging in companion dogs, work that led to an NIA-funded U19 grant to support a long-term longitudinal study of aging in companion dogs, the Dog Aging Project. As PI of this project, Dr. Promislow leads a nationwide interdisciplinary long-term study of tens of thousands of dogs across the US; the work focuses on the genetic and environmental determinants of aging and age-related disease. A recently funded ancillary study is measuring Aβ and tau in the brains of deceased dogs, and his laboratory is also developing new metrics to allow "citizen scientists" to measure age-related cognitive decline in their companion dogs.

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Wendy Raskind, MD, PhD, (mentors postdocs only) is UW Professor of Medicine, Psychiatry, and Genome Sciences. She is an affiliate of the UW Center on Human Development and Disability, Graduate Program in Neurobiology and Behavior, Institute for Stem Cell and Regenerative Medicine, Cancer Consortium/Cancer Basic Biology Program, and Fred Hutchinson Cancer Research Center. She is a member of the UW Huntington Disease Center of Excellence Advisory Board and the Northwest Autopsy Repository Oversight Committee. Her research focuses on identifying and further studying genes that cause neurodegenerative disorders, including AD, unusual parkinsonian disorders, and cerebellar atrophy. In collaboration with ADTP AAC member, Dr. Thomas Bird, and through the UW Neurogenetics clinic, her research ascertains participants, collects biological samples, and recruits family members. Then, candidate causative genes are selected through exome sequencing and are further analyzed for co-segregation with disease in the pedigree. Her laboratory group is actively studying the pathogeneses of multiple diseases whose causative genes they have identified, including a parkinsonian disorder with tauopathy (XPDS) and a movement disorder in which abnormal tau deposits were found in a brain (ADCY5). In addition, they are studying the effects of familial TREM2 variants.
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May Reed, MD, (mentors both postdocs and predocs) is Professor, Division of Gerontology and Geriatric Medicine, UW Dept. of Medicine. She has a longstanding research interest in defining the effects of aging on tissue repair, the microvasculature, and the extracellular matrix (ECM) *in vitro* and *in vivo*. Her laboratory studies the ECM component, hyaluronan (HA), a widely expressed non-sulfated glycosaminoglycan that can range from a single disaccharide to thousands of repeating disaccharide units. As the quantity and size of HA determines its effect on surrounding cells and ECM, she is especially interested in matrix components that regulate HA synthesis and degradation, such as TSG-6. Dr. Reed has found that the brain and brain microvasculature is rich in HA and TSG-6 and that these components markedly increase during neuroinflammation and neurodegeneration. However, little is known regarding the underlying mechanisms of HA accumulation and size changes or the subsequent impacts on aging and neurodegenerative processes. Dr. Reed's studies use archived human brain tissues from normal persons and those with AD and amyloid angiopathy, as well as murine and cell culture models, to elucidate the relationship between ECM and brain aging, neuropathology, and microvasculature.
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Debby Tsuang, MD, MSc, (mentors both postdocs and predocs) is Director of the GRECC and Professor in the UW Dept. of Psychiatry and Behavioral Sciences. She has directed

multidisciplinary efforts to better understand the biology, genetics, etiology, prevention, and treatment of neurodegenerative disorders, particularly by using innovative genomic, bioinformatics, and in-home technologies to characterize AD and Lewy body dementias. Most recently, she has been involved in big-data analytic projects using the VA's electronic health records system. Given that dementia is underdiagnosed in the Veterans Health Administration (VHA), she has developed machine learning models to identify undiagnosed AD and ADRD. Finally, in line with her interests in the earlier detection of dementia, she is leading a pilot study to determine if objective measures of sleep and movement patterns can effectively differentiate between people living with AD and Lewy body dementia.
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Ellen Wijsman, PhD, (mentors both postdocs & predocs) is Professor in the Division of Medical Genetics, Dept. of Medicine. She uses both family-based and population-based designs to examine genomic data at various levels of resolution to track inherited variability, with the goal of identifying genes of medical importance in humans, especially in relation to neurodegenerative, aging, and neurodevelopmental diseases. In this context, her group's research is directed toward the development and application of statistical and quantitative methods for the analysis of human complex traits. She works on AD data collected in collaboration with local and external clinical and molecular experts, as well as on AD data aggregated through large consortia like the ADSP. Late-onset diseases, such as AD and the phenotypes associated with aging, are typically considered complex traits that provide many statistical and analytical challenges, and to address these challenges, Dr. Wijsman's laboratory uses and develops statistical methodologies associated with gene localization, including modeling the genetic architecture, genetic inheritance, population structure, and linkage disequilibrium; performing haplotype analyses; and performing genotype imputation. Using these methods, she seeks to characterize DNA sequence variability and gene expression associated with disease risk to provide evidence for causal variants.
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Jessica Young, PhD, (mentors both postdocs and predocs) is Associate Professor of Pathology. Her group studies the molecular and biochemical mechanisms that drive sporadic AD pathogenesis using human stem cell models. This includes work studying AD-associated risk variants in genes regulating endocytic trafficking, epigenetic factors that affect human neuronal maturation and aging and which are dysregulated in AD, and building a cohort of autopsy confirmed AD patient stem cell lines to investigate varying genetic backgrounds for cellular AD phenotypes. She collaborates with many groups at UW, including with Senior Preceptor, Dr. Keene, of the ADRC Neuropathology Core to develop stem cell lines from autopsy tissue (leptomeninges) and a collaboration with Senior Preceptor, Dr. Jayadev, to understand cellular and molecular mechanisms of variation in the *SORL1* gene using patient-derived and gene-edited human iPSCs.
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Chang-En Yu, PhD, (mentors postdocs only) is Research Associate Professor, Division of Gerontology and Geriatric Medicine, UW Dept. of Medicine. He focuses on the genetics and epigenetics of AD. His laboratory has been working on the *APOE* gene to identify additional functional elements that might contribute biological effects to AD risk. Recently, his lab has identified a circular RNA (circRNA) of *APOE*, which has never been reported before. Their finding on human *postmortem* brain suggests that expression levels of this circRNA are associated with both AD disease status and age at onset. Thus, this *APOE* circRNA has a potential to serve as a new biomarker for early detection of AD. Dr. Yu's long-term goal is to apply this knowledge toward the development of preventive or interventive strategies for AD and other age-related neurodegenerative disorders.
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Cyrus Zabetian, MD, MS, (mentors postdocs only) is Professor in the UW Department of Neurology. He uses family-based, case-control, and longitudinal cohort studies to elucidate genes that increase the risk or modify the phenotypic characteristics of PD and related disorders. Efforts to discover causative genes are performed in over 200 multiplex PD families enrolled across North America through the Parkinson's Genetic Research Study. Dr. Zabetian leads the PD Cognitive Genetics Consortium, and through this endeavor, he has discovered several genes that modify the rate of cognitive decline and/or the patterns of cognitive dysfunction in PD patients. His group is now using machine learning methods to uncover complex relationships between genotype and phenotype in PD and to build predictive models aimed at identifying patients who are at high risk for rapid symptom progression.
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Ning Zheng, PhD, (mentors both postdocs and predocs) is an Investigator at the Howard Hughes Medical Institute and Professor, UW Dept. of Pharmacology. Research in his laboratory focuses on the molecular and structural mechanisms by which protein-protein, protein-nucleic acid, and protein-small molecule interactions control eukaryotic biology and human diseases. His research group has made major contributions to the field of protein ubiquitination and ubiquitin-dependent protein degradation. Through studies of plant hormone perception, his lab raised the concept of "molecule glue" in chemically induced ubiquitin ligase-substrate interactions. His group is now actively pursuing the discovery of therapeutic compounds that promote the ubiquitination and degradation of tau and other proteins involved in neurodegenerative diseases. A newly established collaboration between his group and Dr. Kraemer's lab holds the promise to reveal the structure-function relationships of MSUT2 and to enable the development of its inhibitor as a therapeutic target for AD.
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Roster of Junior Preceptors:

Erik Carlson, MD, PhD, (mentors both postdocs and predocs) is Assistant Professor of Psychiatry and a Clinician-Scientist in the VA Puget Sound GRECC. Dr. Carlson focuses on understanding cerebellar circuits as they relate to psychiatric illnesses and neurodegenerative diseases, and utilizes this knowledge to inform and improve current and novel treatments for cognitive disorders. His research utilizes mouse behavior, *in vivo* electrophysiological recordings, gene targeting, viral vector production, translational profiling, chemo- and optogenetic tools, site-specific intracranial viral vector injection, and protein chemistry. As such, he utilizes a multidisciplinary approach combining genetic, electrophysiological, pharmacological, and behavioral techniques. One of his laboratory's discoveries has been the role of a catecholaminergic circuit from the *locus coeruleus* to the lateral or dentate nucleus of the cerebellum, which supports several cognitive functions involved in neurodegenerative diseases such as AD. Drs. Tsuang and/or Kraemer will serve as the Senior Co-Preceptor with Dr. Carlson for any ADTP trainees joining his group.
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Marie Davis, MD, PhD, (mentors both postdocs and predocs) is Assistant Professor of Neurology and investigates the cellular mechanisms underlying the spread of pathogenic protein aggregation in neurodegenerative diseases. Her focus is on understanding how mutations in the gene GBA increase the risk for developing Parkinson's disease and accelerate disease progression. She utilizes both *Drosophila* models of glucocerebrosidase (GBA) deficiency, as well as cell culture models of neurons and glia differentiated from iPSCs from Parkinson's disease patients heterozygous for a GBA mutations. She is investigating how GBA mutations impair endolysosomal trafficking and may accelerate propagation of pathogenic proteins in neurons via dysregulation of lipid metabolism and extracellular vesicles. Dr. Davis was awarded the 2020 John H. Tietze Stem Cell Scientist Award. Drs. Tsuang and/or Kraemer will serve as the Senior Co-Preceptor with Dr. Davis for any ADTP trainees joining her group.
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Shelly Erickson, PhD, (mentors both postdocs and predocs) is Research Assistant Professor of Medicine in the Division of Gerontology. She explores mechanisms by which systemic inflammation contributes to cognitive dysfunction and dementias such as AD, with a focus on the BBB as a disease-modifying interface. Her work focuses on mechanisms of CNS dysfunction contributing to AD following exposure to ozone, a widespread toxicant in air pollution that epidemiological studies have shown increases AD dementia risk. The primary reactions of ozone occur exclusively in the lungs, and so it has been proposed that CNS dysfunction following ozone exposure occurs, in part, through circulating factors that interact with the BBB. She is studying one such factor, serum amyloid A, and its contributions to neurovascular dysfunction,

neuroinflammation, and amyloid beta accumulation in the CNS in the context of acute and chronic ozone exposures in mice. Dr. Banks will serve as the Senior Co-Preceptor with Dr. Erickson for any ADTP trainees joining her group.
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Caitlin Latimer, MD, PhD, (mentors both postdocs and predocs) is Assistant Professor, UW Dept. of Pathology. She has performed neuropathologic evaluations and research brain autopsies in several iconic studies, including the ACT Study, UW ADRC, Seattle Longitudinal Study, Nun Study, and Honolulu-Asia Aging Study. As a junior faculty member, she received a competitive NIA Career Development Award in Neuropathology Core Leadership through a supplement to the UW ADRC, which provided her with the opportunity to further develop diagnostic expertise and skills in neuropathology core leadership, both at UW and at other nationally renowned neuropathology cores. Her research focus is on neuropathologic changes of age-related neurodegeneration, particularly on the underlying pathophysiology, and potential synergies of multiple pathologic proteins of late-onset AD. Her work utilizing *C. elegans* as a model system for studying the interactions of pathologic proteins and underlying genetic pathways will address critical gaps in knowledge surrounding the interactions between TDP-43 and tau pathology. Drs. Keene and/or Kraemer will serve as the Senior Co-Preceptor with Dr. Latimer for any ADTP trainees joining her group.
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Nicole Liachko, PhD, (mentors both postdocs and predocs) is Research Assistant Professor, Division of Gerontology and Geriatric Medicine, UW Dept. of Medicine, and a Core Investigator in the VA Puget Sound GRECC. Her research program uses *C. elegans*, mammalian cultured cells, and mouse primary neurons to study the biology underlying neurodegenerative diseases of aging, including amyotrophic lateral sclerosis (ALS), frontotemporal lobar degeneration (FTLD), and AD. Her lab particularly focuses on the role of pathological TDP-43 in these diseases. Current projects seek to characterize cellular mechanisms driving TDP-43 neurotoxicity, regulation of its post-translational modifications, and interactions with other neurodegenerative disease proteins (e.g., tau and Aβ). Dr. Kraemer will serve as the Senior Co-Preceptor with Dr. Liachko for the ADTP.
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James Meabon, PhD, (mentors postdocs only) is Research Assistant Professor of Psychiatry. His research group studies neuroimmune mechanisms during recovery from TBI and their contribution to neurodegeneration. Using advanced microscopy technologies to follow the behavior of cells inside the intact brain, Dr. Meabon's laboratory has shown that myeloid cells (i.e., microglia, macrophages, and monocytes) continuously survey their environment and can

rapidly contain small vascular injuries that dynamically open and close within a few minutes following TBI. Dr. Meabon's lab is developing novel methods for imaging the 3-dimensional brain multiplexed with high-dimensional imaging mass cytometry to gain an unprecedented view of the TBI lesion and disrupted BBB microenvironment. These same techniques are then applied to understand how TBI, as the most validated environmental risk factor for AD, may precipitate AD-related pathological processes. Drs. Peskind and/or Iliff will serve as the Senior Co-Preceptor with Dr. Meabon for any ADTP trainees joining his group.
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Kathleen Pagulayan, PhD, (mentors postdocs only) is Associate Professor in the UW Department of Psychiatry and Behavioral Sciences, an investigator in the MIRECC, and a clinical neuropsychologist at VA Puget Sound. She is also Track Director of the Clinical Neuropsychology Fellowship Program at VA Puget Sound. Her research focuses on improving functional outcomes after TBI, with an emphasis on understanding neural substrates of post-injury cognitive difficulties and evaluating novel treatment interventions. Current projects include improving access to cognitive rehabilitation treatment following mild TBI, and assessing whether the microbiome contributes to adverse outcomes from mild TBI and PTSD. Dr Peskind will serve as the Senior Co-Preceptor with Dr. Pagulayan for any ADTP trainees joining her group.
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Swati Rane, PhD (mentors postdocs only) is Assistant Professor of Radiology at UW. She is a member of UW IBIC and Director of the Diagnostic Imaging Sciences Center (DISC). The primary focus of Dr. Rane's research group (Cerebrovascular Imaging & Analytics) at IBIC is the development of clinically feasible targeted imaging, end-to-end analyses pipelines for functional and anatomical imaging to improve the diagnostic capabilities of MRI, and developing novel perfusion imaging approaches to better understand cerebrovascular pathology. Central to her research is work in vascular pathology imaging in AD. Her laboratory has focused on optimizing perfusion measurements and vascular reserve mapping in older adults and applying an optimized arterial spin labeling (ASL) sequence to measure cerebral perfusion. She has also developed and validated a simple breath-hold paradigm that can be used in older adults with greater compliance, while producing similar results to those using gas challenges. She has recently shown that perfusion and vascular reserve are strongly correlated with memory performance and that reserve appears to be more sensitive to neuronal damage. Dr. Grabowski will serve as the Senior Co-Preceptor with Dr. Rane for any ADTP trainees joining her group.
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Elizabeth Rhea, PhD, (mentors both postdocs & predocs) is Assistant Professor, Division of Gerontology and Geriatric Medicine, UW Dept. of Medicine. Her laboratory works to understand brain metabolism and impacts on the BBB. The brain requires insulin to function and

acquires it primarily from the periphery. However, for insulin to enter the brain from the blood, it must cross a tight BBB. In AD, insulin content and signaling in the brain diminishes, which can lead to impairments in cognition. Her research focuses on identifying targets and regulators of insulin BBB transport, including modifiable risk factors such as diet and exercise, such that brain levels of insulin might be restored. She also investigates insulin signaling in the CNS in a mouse model of AD following manipulation of CNS insulin levels. Dr. Rhea recently received the 2019 Outstanding Research Mentor Award from the UW SOM. Dr. Banks will serve as the Senior Co-Preceptor with Dr. Rhea on the ADTP.
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Abigail Schindler, PhD (mentors both postdocs and predocs) is a Research Biologist in the GRECC, and Assistant Professor in the Dept. of Psychiatry and Behavioral Sciences at UW. Her group utilizes computational medicine and systems biology approaches (e.g., machine learning, big data, electronic health records, biomarkers) and are committed to open-source science. Her research focuses on traumatic stress and its comorbidities and neurodegeneration. Using an iterative translation approach, she utilizes both human and animal participants and focuses on reciprocal connections between the brain and peripheral organs to understand adverse outcomes of traumatic stress from a systems biology standpoint. Dr. Cook will serve as the Senior Co-Preceptor with Dr. Schindler for any ADTP trainees joining her group.
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Min Shi, PhD (mentors postdocs only) is an Assistant Professor in the Department of Pathology. Work in his lab focuses on understanding the processes of neurodegeneration, and development of biomarkers to better identify and trace these diseases in patients. Current projects feature the use of mass spectrometry and other technologies to quantify protein and RNA biomarkers for Alzheimer disease, Parkinson disease, and related disorders; plasma extracellular vesicles as sources of biomarkers, as vectors for spread of pathology within the body, and as a tool to deliver drugs from peripheral blood into the brain. Drs. Peskind and/or Keene will serve as the Senior Co-Preceptor with Dr. Shi for any ADTP trainees joining his group.
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Garth Terry, MD, PhD, (mentors postdocs only) is a psychiatrist and Research Scientist Investigator in the MIRECC, and Acting Assistant Professor in the UW Depts. of Psychiatry and Behavioral Sciences and Radiology. His research interests are two-fold. First, he is dedicated to the development and use of novel radioligands in positron emission tomography (PET) for neuropsychiatric translational and pre-clinical research. He has active projects in the identification of PET imaging biomarkers of neuroinflammation following blast mTBI and in the development of novel radioligands for CNS targets. Second, he is active as a speaker, educator, and researcher in the field of cannabis and cannabinoid pharmacology and its intersection with

mental health. He has previously co-developed a novel radioligand for imaging the cannabinoid CB1 receptor using PET, and he is conducting a pilot study to assess the feasibility of prazosin in treatment of cannabis use disorder. He is the PI of a VA Career Development Award-2 and multiple pilot grants, and he is a Co-Investigator on multiple projects at the VA. Dr. Peskind will serve as the Senior Co-Preceptor with Dr. Terry for any ADTP trainees.

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https://sharepoint.washington.edu/uwpsychiatry/Research/Neurosciences/Terry_Garth.pdf