2025 Funded Research

Prioritizing Returns Measured in Scientific Progress—Not Potential Profits

Cure Alzheimer's Fund measures success in scientific progress—not financial returns. In 2025, the majority of funding—92% of awards—supported early-stage research, prioritizing the identification of promising targets over proprietary drug development. The ideas we fund help advance the broader field, catalyzing new therapeutics and, when warranted, new companies. As discoveries progress, we continue to support the most promising work as it moves toward clinical application and, ultimately, patients.

Diversifying Our Research Portfolio by Following the Science

Each year, Cure Alzheimer's Fund strategically balances our research portfolio, extending vital stability to projects demonstrating compelling progress and creating opportunity for the most promising emerging ideas.

53% new projects

32% new investigators

15% new institutions

For more information about the 2025 research projects listed below, visit **curealz.org/2025research**.

Foundational Research

GENETIC RISK FACTORS

Mapping the X Chromosome Multi-Ome in Alzheimer's and Parkinson's Disease

Michael Belloy, Ph.D.
Washington University School of Medicine in St. Louis

Systematic Assessment of Tandem Repeats in Alzheimer's Disease (STaR-AD)

Lars Bertram, M.D.
Valerija Dobricic, Ph.D.
University of Lübeck, Germany

Integrating Single-Cell Genomics for Pathways to Protection and Resilience Against Alzheimer's Disease

Winston Hide, Ph.D.
Beth Israel Deaconess Medical Center; Harvard Medical School

Moving the Cure Alzheimer's Fund Alzheimer's Genome Project™ Beyond Simple Associations: Integrating Functional Information, Fine-Mapping and Causal Inference Approaches into the Family-Based Analysis of the Cure Alzheimer's Fund Whole-Genome Sequencing (WGS) Family Study

Christoph Lange, Ph.D.
Harvard T.H. Chan School of Public Health

Precision Medicine Prediction Model for Alzheimer's Disease Using Cooperative Learning Approaches for Multi-Omic Data

Christoph Lange, Ph.D.
Harvard T.H. Chan School of Public Health

Interpreting Alzheimer's Disease-Associated Genetic Variation at Enhancer Regions

Andreas R. Pfenning, Ph.D.
Carnegie Mellon University

The Alzheimer's Genome Project™

Rudolph E. Tanzi, Ph.D.
Massachusetts General Hospital; Harvard Medical School

BIOMARKERS, DIAGNOSTICS, AND STUDIES OF RISK AND RESILIENCE

BRAIN AGING CONSORTIUM:

Identifying Age-Related Proteomic Changes That Predict Future Onset of Amyloid-Beta Aggregation in Alzheimer's Disease

Randall J. Bateman, M.D.
Washington University School of Medicine in St. Louis

BRAIN AGING CONSORTIUM:

The 100-Plus Study Brain Cohort: Identifying Molecular Determinants of Resistance, Resilience and Early Cognitive Decline in the Oldest-Old

Henne Holstege, Ph.D.
VIB-KU Leuven Center for Neuroscience, Belgium

BRAIN AGING CONSORTIUM:

Brain Region and Cell-Type Specific Aging from Accelerated to Resilient Trajectories

Miranda E. Orr, Ph.D.
Washington University School of Medicine in St. Louis

BRAIN AGING CONSORTIUM:

Investigating Lipidomic Perturbations in the CSF with Age and Alzheimer's Disease Progression: Toward Mechanistic Insights and Accessible Lipid Biomarkers

Li-Huei Tsai, Ph.D.
Massachusetts Institute of Technology; Broad Institute

BRAIN AGING CONSORTIUM:

Choroid Plexus Aging and Alzheimer's Disease

Tony Wyss-Coray, Ph.D.
Stanford University

BRAIN AGING CONSORTIUM:

Establishing Isogenic Models of Human Neuron Aging and Pathways Relevant for Alzheimer's Disease

Andrew S. Yoo, Ph.D.
Washington University School of Medicine in St. Louis

Expanding Postmortem Brain Resources for Alzheimer's Disease in Diverse Populations

Sabina Berretta, M.D.
Harvard Medical School; McLean Hospital; Broad Institute

Thomas Blanchard, Ph.D., J.D.
University of Maryland School of Medicine

Identifying Sex-Aware X-Chromosome Targets for Preclinical Alzheimer's Disease

Rachel Buckley, Ph.D.
Massachusetts General Hospital; Brigham and Women's Hospital; Harvard Medical School

Menopause and Related Midlife Risk Factors and Their Impact on Pathology and Cognition: The WHIMSYAD Study

Rachel Buckley, Ph.D.
Massachusetts General Hospital; Brigham and Women's Hospital; Harvard Medical School

Midlife Autoantibody Profiles and the Risk of Late-Onset Alzheimer's Disease in Women

Yu Chen, Ph.D.
New York University

Viral Infections and Alzheimer's Disease Risk in Women

Yu Chen, Ph.D.
New York University

Stephen J. Elledge, Ph.D.
Brigham and Women's Hospital; Harvard Medical School

Restoring Brain Collection in New York City Through the Mount Sinai Neuropathology Brain Bank

John F. Crary, M.D., Ph.D.
Icahn School of Medicine at Mount Sinai

Plasma Proteins, Sex and Alzheimer's Disease: Proteome-Wide Analyses of the UK Biobank and Framingham Heart Study

P. Murali Doraiswamy, MBBS, FRCP
Duke University School of Medicine

Utility of Blood-Based Markers for Predicting Amyloid-Related Imaging Abnormalities and Their Course in Mild Cognitive Impairment and Alzheimer's Disease Subjects Undergoing Routine Clinical Treatment with Amyloid-Directed Antibodies

P. Murali Doraiswamy, MBBS, FRCP
Duke University School of Medicine

Bioinformatics Platform for Modeling Alzheimer's Progression (MAP-AD Platform)

Ali Ezzati, M.D.
University of California, Irvine

Alzheimer's Disease PET Imaging of Nonfibrillar Amyloid Beta Aggregates Using Azapeptide (AZP) Tracer

Samuel E. Gandy, M.D., Ph.D.
Icahn School of Medicine at Mount Sinai

Brigitte Guérin, Ph.D.
Université de Sherbrooke, Canada

William D. Lubell, Ph.D.
Université de Montréal, Canada

Shai Rahimipour, Ph.D.
Bar-Ilan University, Israel

Understanding Human Brain Resilience to Alzheimer's Pathology

Teresa Gomez-Isla, M.D.
Massachusetts General Hospital; Harvard Medical School

Identification and Validation of Plasma-Based Lipid Biomarkers for Early Alzheimer's Disease in the Unique, Primarily Hispanic, South Texas Population

Xianlin Han, Ph.D.

Tiffany F. Kautz, Ph.D.

Bernard Fongang, Ph.D.
The University of Texas Health Science Center at San Antonio

Utilizing Heterogeneous Mouse Models to Discover Mechanisms Underlying Caloric Restriction (CR) on Cognitive Outcomes

Catherine Kaczorowski, Ph.D.

Kelly Bakulski, Ph.D.
University of Michigan

FBAT-Equivalence Testing in the Presence of Model Uncertainty for the Cure Alzheimer's Fund Alzheimer's Genome Project™

Christoph Lange, Ph.D.

Niklas Hagemann, Ph.D.
Harvard T.H. Chan School of Public Health

Development of a FLAP-Targeted Neuroimmune PET Tracer for Imaging Microglia in Alzheimer's Disease

So Jeong Lee, Ph.D.
Massachusetts General Hospital; Harvard Medical School

Relationship Between Alzheimer's Disease Risk Score and Outcomes of Mild Repetitive Neurotrauma

Thomas W. McAllister, M.D.
Indiana University School of Medicine

Michael McCrea, Ph.D., ABPP
Medical College of Wisconsin; Wisconsin Institute of NeuroScience

Bridge Funding for a Younger Diverse Human Brain Bank to Investigate Early Alzheimer's Disease Pathology

Meaghan Morris, M.D., Ph.D.
Juan Troncoso, M.D.
Johns Hopkins University
Ling Li, M.D.
University of Maryland School of Medicine

Characterization of Alzheimer's Disease Molecular Biomarker Profiles Throughout the Pathobiological Continuum

Krista L. Moulder, Ph.D.
Washington University School of Medicine in St. Louis

Characterization of the Longitudinal Trajectories of the Synaptic Blood Marker Beta-Synuclein During Alzheimer's Disease Pathogenesis and Improvement of the Measurement Procedure

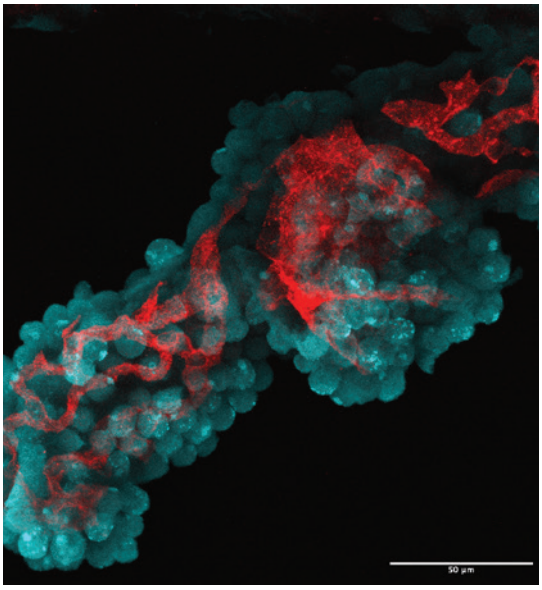
Patrick Oeckl, Ph.D.
German Center for Neurodegenerative Disease (DZNE), Germany
Markus Otto, M.D.
Martin-Luther-University Halle-Wittenberg, Germany

Cross-Species Analysis of Microglial States in Heterogeneous Alzheimer's Disease Progression

Towfique Raj, Ph.D.
Icahn School of Medicine at Mount Sinai
David Knowles, Ph.D.
Columbia University

Dynamic Investigation of Lymphatic Pathway Interconnections for Cerebrospinal Fluid Clearance of the Human Central Nervous System in Vivo Under Physiological Conditions of the Brain's Borders

Daniel S. Reich, M.D., Ph.D.
National Institute of Neurological Disorders and Stroke, National Institutes of Health
Lina C. Anderhalten, M.D., Ph.D.
National Institute of Neurological Disorders and Stroke, National Institutes of Health; Charité – Universitätsmedizin Berlin, Germany



The choroid plexus is a highly vascularized tissue that floats within the brain ventricles, produces cerebrospinal fluid (CSF), and forms the blood-CSF barrier. Epithelial cells (cyan) envelop a dense vasculature (red), forming a dynamic secretory interface that delivers a milieu of factors critical for brain homeostasis. Despite this central role, how the choroid plexus ages and how its dysfunction contributes to Alzheimer's disease remains poorly understood. Tracking newly synthesized choroid plexus proteins across brain, CSF, and blood opens new avenues to identify biomarkers, therapeutic targets, and molecular signatures of brain resilience.

Image attribution: Bhawika Sharma Lamichhane, Ph.D., from the lab of Tony Wyss-Coray, Ph.D., at Stanford University.

Expanding Deep South Inclusion in the UAB ADRC Neuropathology Core Brain Bank

Kirsten E. Schoonover, Ph.D.
Rati Chkheidze, M.D.
University of Alabama at Birmingham

Cognitively Healthy Nonagenarians in the Cross-Cohort Collaboration (CCC)

Sudha Seshadri, M.D.
The University of Texas Health Science Center at San Antonio

Digital Neuropathology Infrastructure for Precision Medicine in South Texas Hispanic Alzheimer's Disease and Alzheimer's Disease Related Dementias (AD/ADRD) Populations

Sudha Seshadri, M.D.
The University of Texas Health Science Center at San Antonio

A Three-Dimensional Tissue Model Linking Tau Tangles, Amyloid Beta and Microglial CD33-Isoform State to Gene- and Isoform-Expression Dysregulation

Hagen Tilgner, Ph.D.
Weill Cornell Medicine

A Temporally Aligned Multimodal Framework for Individualized Alzheimer's Disease Risk Assessment and Deep Learning-Driven Prognosis

Zheyu Wang, Ph.D.
Brian Caffo, Ph.D.
Johns Hopkins University

Reference Intervals for Plasma P-Tau217 in the Canadian Population

Cheryl Wellington, Ph.D.
Isabella DiBerardino, B.S.
University of British Columbia, Canada

▶ BIOLOGICAL RESEARCH MATERIALS: NEW ANIMAL AND CELLULAR MODELS, AND HUMAN SAMPLES

Investigating the Serial Pathologies Related to Plasma Biomarkers in NLFTaum/h Mice: A New Mouse Model Featuring Neurofibrillary Tangles as a Result of Rising Amyloid Beta without Microtubule-Associated Protein Tau (MAPT) Mutations

Frances Edwards, Ph.D.
John Hardy, Ph.D.
University College London, England

Engineering a Human Region-Specific System to Probe APOE-Linked Cellular Vulnerability and Resilience in Alzheimer's Disease

Mehdi Jorfi, Ph.D.
Massachusetts General Hospital; Harvard Medical School

Personalized Disease Prediction for Alzheimer's Disease Using Proteome Profiling: The EPIC4AD Study

Christina M. Lill, M.D., M.Sc.
University of Münster, Germany; Imperial College London, England
Lars Bertram, M.D.
University of Lübeck, Germany

Growth, Characterization and Distribution of a Neurodegenerative Disease-Focused Fibroblast/iPS Cell Bank to Support Molecular Models of Patient-Specific Variation with Validation in Matched Donated Brain Tissues

Derek H. Oakley, M.D., Ph.D.
Massachusetts General Hospital; Harvard Medical School

Characterization and Validation of Two Recently Created Sheep Models of Alzheimer's Disease in Preparation for Use as a Preclinical Pharmaceutical Testing Model

Russell G. Snell, Ph.D.
Natasha McKean, Ph.D.
University of Auckland, New Zealand

From Molecular Heterogeneity to Predictive Medicine: Transforming Neurodegenerative Disease Research Through Spatial Multi-Omics and Interpretable AI

Genevieve Stein-O'Brien, M.H.S., Ph.D.
Johns Hopkins University

Genes to Therapies™ (G2T) Research Models and Materials

Taconic Biosciences

Effect of APOE Genotype in a Novel Rat Model of Cerebral Amyloid Angiopathy

William Van Nostrand, Ph.D.
The University of Rhode Island

Decoding Protein Transport Across the Blood-Brain Barrier to Enable New Alzheimer's Therapies

Andrew Yang, Ph.D.
Gladstone Institutes; University of California, San Francisco

2025 Jeffrey L. Morby Prize for Exceptional Research

Andrew S. Yoo, Ph.D.
Washington University School of Medicine in St. Louis

Dissecting Alzheimer's Disease Phenotypes in Directly Reprogrammed Patient-Derived Neurons

Andrew S. Yoo, Ph.D.
Washington University School of Medicine in St. Louis

▶ EPIGENETIC FACTORS

CIRCUITS: Characterizing Epigenetic Biomarkers of Human Cognitive Aging

Lars Bertram, M.D.
University of Lübeck, Germany

Translational Research

▶ STUDIES OF NOVEL ALZHEIMER'S DISEASE GENES

Neural Stem Cell Rejuvenation for Symptomatic Alzheimer's Disease

Michael A. Bonaguidi, Ph.D.
Wynnie Nguyen, B.S.
University of Southern California

Multiomic and Functional Characterization of Soluble TREM2 Modifiers

Carlos Cruchaga, Ph.D.
Washington University School of Medicine in St. Louis

The Impact of Mutations in the Ligand-Binding Domain of CD33 on Alzheimer's Disease Pathogenesis

Ana Griciuc, Ph.D.
Massachusetts General Hospital; Harvard Medical School

Dissecting the Modulatory Roles of Interleukin-17 Receptor D in Alzheimer's Disease

Jun Huh, Ph.D.
Harvard Medical School

Elucidating the Therapeutic Potential of the Endo-Lysosome Pathway for Alzheimer's Disease

Jessica Young, Ph.D.
University of Washington

▶ STUDIES OF AMYLOID PRECURSOR PROTEIN AND AMYLOID BETA

RIN3 and BIN1 Interaction Connects Endosomal Pathology with Amyloid Pathology

Raja Bhattacharyya, Ph.D.
Massachusetts General Hospital; Harvard Medical School

Role of Stabilization of MAMs and MAM-associated Palmitoylated APP (MAM-palAPP) in Alzheimer's Disease

Raja Bhattacharyya, Ph.D.
Massachusetts General Hospital; Harvard Medical School

Understanding Amyloid Pathology—Multiomic Activity Imaging of Plaque Formation Dynamics (AmyMAP)

Frances Edwards, Ph.D.
University College London, England
Jörg Hanrieder, Ph.D.
University of Gothenburg, Sweden

Assessing the Role of APOE in Glial Lipid Droplet Metabolism and Function

Lance A. Johnson, Ph.D.
University of Kentucky

Structural Mimicry in Microbial and Antimicrobial Amyloids Connected to Neurodegenerative Diseases

Meytal Landau, B.Pharm, M.Sc., Ph.D.
Technion, Israel Institute of Technology, Israel; Deutsches Elektronen-Synchrotron (DESY), Germany

APP Gene Dose-Mediated Dysregulation of the Endolysosomal Network Acts to Compromise Synaptic Structure and Function Leading to Alzheimer's Disease in Down Syndrome

William C. Mobley, M.D., Ph.D.
University of California, San Diego

ADAM10 Cleavage of Amyloid Precursor Protein: Physiological Function in the Brain and Therapeutic Potential for Alzheimer's Disease

Jaehong Suh, Ph.D.
Massachusetts General Hospital; Harvard Medical School

BIN1 in Microglial Heterogeneity Along Alzheimer's Disease Progression and Microglial Function

Gopal Thinakaran, Ph.D.
University of South Florida

STUDIES OF TAU

ALZHEIMER'S DISEASE TAU CONSORTIUM:

Strain Replication in Mouse and Cell Models

Marc I. Diamond, M.D.
University of Texas Southwestern Medical Center

ALZHEIMER'S DISEASE TAU CONSORTIUM:

Post-Translational Modifications and Tau Ultrastructure; Impact of Amyloid Beta on Tau In Vivo

Karen E. Duff, Ph.D.
University College London, England

René Frank, Ph.D.
University of Leeds, England

ALZHEIMER'S DISEASE TAU CONSORTIUM:

Toxic Consequences of Early Tau Seeding

Bradley T. Hyman, M.D., Ph.D.

Rachel Bennett, Ph.D.
Massachusetts General Hospital; Harvard Medical School

ALZHEIMER'S DISEASE TAU CONSORTIUM:

The Role of Amyloid Beta-Induced Membrane Damage in Tau Pathology

Katherine Sadleir, Ph.D.

Robert Vassar, Ph.D.
Northwestern University Feinberg School of Medicine

ALZHEIMER'S DISEASE TAU CONSORTIUM:

Deep Mass Spectrometry Profiling of Tau Aggregates in Alzheimer's Disease and Other Tauopathies

Henrik Zetterberg, M.D., Ph.D.
University of Gothenburg, Sweden; University College London, England

Gunnar Brinkmalm, Ph.D.
University of Gothenburg, Sweden

Bridging the Gap: Sex-Specific Drivers of Senescence Underlying Neurodegeneration

Darren J. Baker, Ph.D.
Mayo Clinic, Rochester

Microglial Mitochondrial Dysfunction and Tau Toxicity in Alzheimer's Disease

George S. Bloom, Ph.D.

Andrés Norambuena, Ph.D.
University of Virginia

Cellular Vulnerability to Pathological Tau Protein Accumulation in Alzheimer's Disease

Mathieu Bourdenx, Ph.D.

Karen E. Duff, Ph.D.
University College London, England

Multiomics Characterization of Tau Pathology Onset and Its Relationship with Amyloid in the Human Hippocampus

Inma Cobos, M.D., Ph.D.
Stanford University

Identifying Mediators of Tau-Mediated Neuronal Necroptosis Using an Innovative In Vivo CRISPR Screen

Bart De Strooper, M.D., Ph.D.
VIB-KU Leuven Center for Neuroscience, Belgium; University College London, England

Engineered CAR-Macrophages to Clear Tau

Marc I. Diamond, M.D.
University of Texas Southwestern Medical Center

Mathew Blurton-Jones, Ph.D.
University of California, Irvine

Selective Vulnerability in Posterior Cortical Atrophy

John R. Dickson, M.D., Ph.D.

Bradley T. Hyman, M.D., Ph.D.
Massachusetts General Hospital; Harvard Medical School

Using Long-Read Sequencing to Investigate the MAPT Locus and Transcripts in Neurodegeneration

John Hardy, Ph.D.
University College London, England

Sleep Augmentation Reinforces Neural Computation, Enhances Cognition and Mitigates Neurodegenerative Disease Symptoms

Keith B. Hengen, Ph.D.

James McGregor, Ph.D.
Washington University in St. Louis

Tau-Induced Postsynaptic Dysfunction in Tauopathy Models

Karin Hochrainer, Ph.D.
Weill Cornell Medicine

Costantino Iadecola, M.D.
Weill Cornell Medical College

How Do Microglia Contribute to the Spread of Tau Pathology in Alzheimer's Disease?

Sarah C. Hopp, Ph.D.
University of Texas Health Science Center at San Antonio

Hypertension, Tau and Neurodegeneration

Costantino Iadecola, M.D.

Giuseppe Faraco, M.D., Ph.D.
Weill Cornell Medical College

Modulating the Levels of Tau-Seed Interactors to Treat Alzheimer's Disease

Cristian Lasagna-Reeves, Ph.D.
Indiana University School of Medicine

Characterization of Tau Pathology Heterogeneity Across the Alzheimer's Disease Spectrum

Niklas Mattsson-Carlgren, M.D., Ph.D.
Oskar Hansson, M.D., Ph.D.
Lund University, Sweden

Deciphering Phosphorylation-Dependent Tau Envelope Dysfunction to Prevent Alzheimer's Neurodegeneration

Richard J. McKenney, Ph.D.
University of California, Davis

Investigating the Role of Tau Protein in Neuronal Senescence

Miranda E. Orr, Ph.D.
Washington University School of Medicine in St. Louis

Define ADGRG1-Mediated Protective Microglial Response to Tau Tangles in Alzheimer's Disease

Xianhua Piao, M.D., Ph.D.
Jarin Tusnim, Ph.D.
University of California, San Francisco

Role of Tau in Presynaptic Dysfunction During the Cellular Phase of Alzheimer's Disease

Jeffrey Savas, Ph.D.
Northwestern University Feinberg School of Medicine

The Role of Planar Cell Polarity Proteins in Tau Oligomer-Induced Synapse Degeneration

Yimin Zou, Ph.D.
University of California, San Diego
Lulu Jiang, M.D., Ph.D.
University of Virginia

STUDIES OF APOLIPOPROTEIN E (APOE)

FLEMING APOE CONSORTIUM:

APOE Genotype-Specific Effects of Human Young Plasma on Cerebrovasculature and Alzheimer's Disease Pathology

Guojun Bu, Ph.D.
The Hong Kong University of Science and Technology

FLEMING APOE CONSORTIUM:

APOE4 Accelerates CD8 Exhaustion Via Glucocorticoid Signaling in Alzheimer's Female Carriers

Oleg Butovsky, Ph.D.
Vijay K. Kuchroo, D.V.M., Ph.D.
Brigham and Women's Hospital; Harvard Medical School

FLEMING APOE CONSORTIUM:

Cell Autonomous Roles of Protective APOE Variants in Microglia in Response to Amyloid Pathology

Michael Haney, Ph.D.
University of Pennsylvania

FLEMING APOE CONSORTIUM:

Investigating Potential Cell Autonomous Neuroprotection of APOE Protective Variants

David M. Holtzman, M.D.
Washington University School of Medicine in St. Louis

FLEMING APOE CONSORTIUM:

Modulation of Selective Neuronal Vulnerability in Alzheimer's Disease by Apolipoprotein E

Jean-Pierre Roussarie, Ph.D.
Boston University

FLEMING APOE CONSORTIUM:

APOE and Immune Checkpoint Regulation During Aging

Cheryl Wellington, Ph.D.
Phillip Domeier, Ph.D.
Marc Horwitz, Ph.D.
University of British Columbia, Canada

Investigating Lysosomal Mechanisms of Risk and Resilience in Alzheimer's Disease

Joel Blanchard, Ph.D.
Icahn School of Medicine at Mount Sinai

APOE in Choroid Plexus Function and Related Alzheimer's Disease Pathogenesis

Guojun Bu, Ph.D.
The Hong Kong University of Science and Technology

Mitochondrial Alzheimer's Risk Factors Control APOE Expression and Secretion

Victor Faundez, M.D., Ph.D.
Emory University

Unravelling Precision Hormone Therapy Using Menopause and Hormone Therapy Type Across APOE Genotype

Liisa Galea, Ph.D.
University of Toronto, Canada; Centre for Addiction and Mental Health, Canada
Annie Ciernia, Ph.D.
University of British Columbia, Canada

Circuit Dynamics in APOE4 Mice

Ksenia Kastanenka, Ph.D.
Massachusetts General Hospital; Harvard Medical School

Neuroproteasomes Mechanistically Connect APOE Isoforms to Endogenous Tau Aggregation

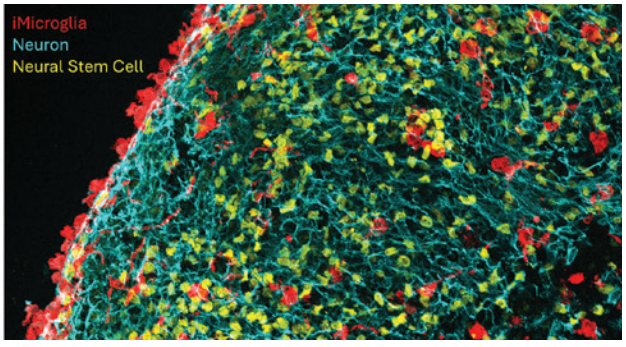
Kapil V. Ramachandran, Ph.D.
Columbia University

Elucidating the Interplay Between Alzheimer's Disease Genetic Variants Using Human iPSC-Derived Microglia-Like Cells

Giuseppina Tesco, M.D., Ph.D.
Tufts University School of Medicine
Doo Yeon Kim, Ph.D.
Massachusetts General Hospital; Harvard Medical School

Elucidating the Protective Effects of APOE2 in the Presence of APOE4 Gene Allele in Animal Models

Na Zhao, M.D., Ph.D.
Yingxue Ren, Ph.D.
Mayo Clinic, Jacksonville



Model of human-induced pluripotent stem cell-derived brain organoids to investigate microglia-specific phenotypes in Alzheimer's disease.

Image attribution: Satish Tiwari from the lab of Florent Ginhoux, Ph.D., Singapore Immunology Network (SIgN), A*STAR.

STUDIES OF THE IMMUNE RESPONSE IN ALZHEIMER'S DISEASE

NEUROIMMUNE CONSORTIUM:

Examining the Impact of Peripherally Derived Human Macrophages in Alzheimer's Disease Pathogenesis

Mathew Blurton-Jones, Ph.D.
University of California, Irvine

NEUROIMMUNE CONSORTIUM:

Mechanisms Mediating Microglia Sensing of Peripheral Inflammation

Christopher K. Glass, M.D., Ph.D.
University of California, San Diego

NEUROIMMUNE CONSORTIUM:

Astrocyte Inflammatory Contributions to Alzheimer's Disease

Shane A. Liddelow, Ph.D.
New York University

NEUROIMMUNE CONSORTIUM:

Effects of Peripheral Inflammation on Myeloid Cell Function in Alzheimer's Disease

Beth Stevens, Ph.D.
Boston Children's Hospital; Harvard Medical School; Broad Institute

NEUROIMMUNE CONSORTIUM:

Impact of AD Polygenic Risk Score on Microglial Response to Peripheral Inflammation

Martine Therrien, Ph.D.
University of California, Davis

The Role of Astrocyte-Secreted Insulin-Like Growth Factor Binding Protein 2 (IGFBP2) in the Progression of Alzheimer's Disease

Nicola Allen, Ph.D.
Salk Institute for Biological Studies

Contributions of IL34 Signaling to Microglial Function and Alzheimer's Pathology in Mice

Staci Bilbo, Ph.D.
Duke University School of Medicine

Prenatal Inflammation Effects on Blood-Brain Barrier Function and Alzheimer's Disease-Related Pathologies Across the Lifespan

Alexandre Bonnin, Ph.D.
University of Southern California

A New Model of Microglia Genetic Perturbation in Vivo to Screen All Risk Factors Associated with Alzheimer's Disease

Oleg Butovsky, Ph.D.
Vijay K. Kuchroo, D.V.M., Ph.D.
Brigham and Women's Hospital; Harvard Medical School

Mechanisms Regulating Neurovascular Function in Alzheimer's Disease

Richard Daneman, Ph.D.
Nicole Lummis, Ph.D.
University of California, San Diego

Defining a Role for the MS4A Genes in Alzheimer's Disease

Sandeep Robert Datta, M.D., Ph.D.
Harvard Medical School

VGF-Derived Peptide Therapy for Alzheimer's Disease: Studies of Mouse and Human TLQP-21 and its Receptor, C3aR1

Michelle E. Ehrlich, M.D.
Stephen R. Salton, M.D., Ph.D.
Icahn School of Medicine at Mount Sinai

Tau and Amyloid Beta are Innate Immune Antimicrobial Peptides in the Brain

William Eimer, Ph.D.
Massachusetts General Hospital; Harvard Medical School

Suppressing Neuroinflammation with a Targeted Protein Degradation Strategy in a Tauopathy Mouse Model

Gilbert Gallardo, Ph.D.
Aisan Farhadi Gharehgheshlaghi, Ph.D.
Washington University School of Medicine in St. Louis

Targeting Reactive Astrocytes AMPK Signaling to Suppress Inflammation in Alzheimer's Disease

Gilbert Gallardo, Ph.D.
Washington University School of Medicine in St. Louis

Microglial-Astrocytic Mechanisms of APOE3 Christchurch-Mediated Resilience to Tauopathy

Li Gan, Ph.D.
Sarah Naguib, Ph.D.
Weill Cornell Medicine

Sex-Specific Mechanisms of Neuroinflammation in the Alzheimer's Disease Hypothalamus

David M. Gate, Ph.D.
Northwestern University Feinberg School of Medicine

Impact of DNA Damage-Mediated Stimulator of Interferon Genes (STING) Activation on Myelin Function in an Alzheimer's Disease Animal Model

Alban Gaultier, Ph.D.
University of Virginia

Multidimensional Profiling of TREM2-Mutated or APOE4-Mutated Microglia in Human Brain Organoids to Understand Dysregulated Microglia Neuronal Crosstalk in Alzheimer's Disease

Florent Ginhoux, Ph.D.
Agency for Science, Technology and Research, Singapore

Endogenous Human Antibodies Associated with Alzheimer's Disease

Charles Glabe, Ph.D.
University of California, Irvine

Combinatorial Roles of EED and PICALM in Microglial Clearance Pathways in Alzheimer's Disease

Alison M. Goate, D.Phil.
Hyo Lee, Ph.D.
Icahn School of Medicine at Mount Sinai

Investigating MEF2C Transcription Factor as a Therapeutic Target to Reprogram Pathological Microglial States in Alzheimer's Disease

Alison M. Goate, D.Phil.
Edoardo Marcora, Ph.D.
Icahn School of Medicine at Mount Sinai

Investigating the Pathogenetic Role of Microglial MEF2C in Alzheimer's Disease Across the Lifespan: Developmental Priming vs. Adult Response to Injury

Alison M. Goate, D.Phil.
Edoardo Marcora, Ph.D.
Icahn School of Medicine at Mount Sinai

Investigating Alzheimer's Disease-Associated Membrane Biology in Microglia and Neurons

Anna Greka, M.D., Ph.D.
Brigham and Women's Hospital; Harvard Medical School; Broad Institute
Beth Stevens, Ph.D.
Boston Children's Hospital; Harvard Medical School; Broad Institute

Precision Gene Therapy Targeting Microglia in Alzheimer's Disease

Ana Griciuc, Ph.D.
Brigham and Women's Hospital; Harvard Medical School; Broad Institute

Casey A. Maguire, Ph.D.
Massachusetts General Hospital; Harvard Medical School

Signaling Function of TREM2 Cleavage Products, Which Are Affected by Agonistic Antibodies to the Stalk Region

Christian Haass, Ph.D.

Kai Schlepckow, Ph.D.
German Center for Neurodegenerative Diseases (DZNE), Germany

Antiviral Cytokine Signaling Promotes Neurodegeneration in Alzheimer's Disease

Jasmin Herz, Ph.D.
Washington University School of Medicine in St. Louis

Antiviral T Cell Infiltration to the Meninges and Brain Influences Neurodegeneration in Alzheimer's Disease

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2024 Jeffrey L. Morby Prize for Exceptional Research

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An Engineered Platform to Model the Yolk Sac-Brain Interactions in Alzheimer's Disease

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Role of CD8+ T Cell-Glial Interactions in Mediating Alzheimer's Disease Pathogenesis

Mehdi Jorfi, Ph.D.

Joseph Park, Ph.D.

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To Elucidate the Role of Memory T Cells as a Determinant of Age-Related Inflammation in Alzheimer's Disease

Susan Kaech, Ph.D.
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Semaphorin Regulation of Disease-Associated Microglia in Alzheimer's Disease

Tae-Wan Kim, Ph.D.
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Role of Checkpoint Molecules TIM-3 and LAG-3 in Microglial Function in Alzheimer's Disease

Vijay K. Kuchroo, D.V.M., Ph.D.
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Tracking Inflammation and Repair at the Choroid Plexus in Alzheimer's Disease

Maria K. Lehtinen, Ph.D.

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Do Classical Complement Activation and the Route of Administration of Anti-Amyloid Antibodies Contribute to Vascular Side Effects Known as Amyloid-Related Imaging Abnormalities?

Cynthia A. Lemere, Ph.D.
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The Role of Interferon-Induced Transmembrane Protein 3 (IFITM3) and Gamma-Secretase in Microglia

Yueming Li, Ph.D.
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Mechanisms of Astrocyte-Derived Lipid Toxicity in Alzheimer's Disease

Shane A. Liddelow, Ph.D.
New York University

Elucidating the Role of CLEC7A in Tau-Mediated Neurodegenerative Disease

John R. Lukens, Ph.D.
University of Virginia

Meningeal Regulatory T Cells (Tregs) in Individuals with Versus without Alzheimer's Disease

Diane Mathis, Ph.D.
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Investigating the Association Between Clonal Hematopoiesis and Alzheimer's Disease

Cameron McAlpine, Ph.D.
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Elucidating Mechanisms Driving the Compromised Balance Between Mitophagy and cGAS-STING-Initiated Inflammation Toward a Treatment for Alzheimer's Disease

Per Nilsson, Ph.D.
Karolinska Institutet, Sweden

Evandro F. Fang, Ph.D.
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Centenarian Microglia Reveal a Neprilysin-Dependent Mechanism of Resilience in Alzheimer's Disease

Joseph Park, Ph.D.

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Probing the Molecular Underpinnings of G Protein-Coupled Receptor ADGRG1 Mediated Protective Microglial Responses to Alzheimer's Disease

Xianhua Piao, M.D., Ph.D.
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Extracellular ATP is a Key Factor in Promoting Alzheimer's Disease Neuroinflammation

Paola Pizzo, Ph.D.
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Anna Lisa Giuliani, Ph.D.
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Specificity of T-Cell Responses in Autosomal Dominant Alzheimer's Disease (ADAD)

Naresha Saligrama, Ph.D.
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Ventricular Ependymal Cells: A Novel Neural-Immune Signaling Axis During Aging and Neurodegeneration

Dorothy P. Schafer, Ph.D.
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How Body-Brain Inflammatory Signals Via Border Macrophages Alter the Neuroimmune Landscape and Drive Alzheimer's Pathology

Beth Stevens, Ph.D.
Boston Children's Hospital; Harvard Medical School; Broad Institute

Helena Barr, Ph.D.
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Non-Invasive Modulation of Microglia Gene Expression Using Peripherally Administered Antibody Conjugates

Peter M. Tessier, Ph.D.
Colin F. Greineder, M.D., Ph.D.
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Dissecting Microglial State Dynamics in Alzheimer's Disease

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Understanding the Dynamic Lipid-Immunometabolome of Protective and Risk Alzheimer's Microglia

Rik van der Kant, Ph.D.
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T-Cell Modulation of Microglia to Treat Alzheimer's Disease

Howard L. Weiner, M.D.
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Cancer-Derived Extracellular Vesicle microRNAs as Systemic Modulators of Alzheimer's Disease

Stephen T.C. Wong, Ph.D.
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Decipher the Astrocyte Cell-Surface Proteome in Alzheimer's Disease

Hui Zheng, Ph.D.
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Junmin Peng, Ph.D.
St. Jude Children's Research Hospital

STUDIES OF ALTERNATIVE NEURODEGENERATIVE PATHWAYS

BRAIN ENTRY & EXIT CONSORTIUM:

Central Nervous System Fluid Homeostasis and Waste Clearance in Alzheimer's Disease Characterized by MRI

Helene Benveniste, M.D., Ph.D.
Yale School of Medicine
David Xianfeng Gu, Ph.D.
State University of New York at Stony Brook

BRAIN ENTRY & EXIT CONSORTIUM:

Human Three-Dimensional Neurovascular Interaction and Meningeal Lymphatics Models with Application to Alzheimer's Disease

Se Hoon Choi, Ph.D.
Massachusetts General Hospital; Harvard Medical School
Roger D. Kamm, Ph.D.
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BRAIN ENTRY & EXIT CONSORTIUM:

How Does Vascular Fatty Acid Metabolism Regulate the Pathophysiology of Alzheimer's Disease?

Richard Daneman, Ph.D.
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BRAIN ENTRY & EXIT CONSORTIUM:

Meningeal Mast Cell Control of Cerebrospinal Fluid Dynamics in Homeostasis and Alzheimer's Disease

Jonathan Kipnis, Ph.D.
Washington University School of Medicine in St. Louis

BRAIN ENTRY & EXIT CONSORTIUM:

Neuroinflammation at the Choroid Plexus in Alzheimer's Disease

Maria K. Lehtinen, Ph.D.
Harvard Medical School; Boston Children's Hospital
Liisa Myllykangas, M.D., Ph.D.
University of Helsinki, Finland

BRAIN ENTRY & EXIT CONSORTIUM:

Does Subarachnoid Lymphatic-like Membrane (SLYM) Failure Compromise Glymphatic Clearance in Alzheimer's Disease?

Maiken Nedergaard, M.D., D.M.Sc.
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BRAIN ENTRY & EXIT CONSORTIUM:

High-Resolution Magnetic Resonance Imaging of the Brain Borders

Daniel S. Reich, M.D., Ph.D.
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BRAIN ENTRY & EXIT CONSORTIUM:

Biochemical and Functional Analysis of Cerebrospinal Fluid and Lymph Following Changes in Brain Fluid Dynamics

Laura Santambrogio, M.D., Ph.D.
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MICROBIOME CONSORTIUM:

Harnessing Diet-Microbe Interactions to Prevent Alzheimer's Disease Pathogenesis

Laura M. Cox, Ph.D.
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MICROBIOME CONSORTIUM:

The Role of Gut Microbial Metabolism in Tau-Mediated Neurodegeneration

David M. Holtzman, M.D.
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MICROBIOME CONSORTIUM:

Temporal Relationships Between Gut Dysbiosis, Brain Amyloid Beta Metabolism and Microglia Cell Activation Following Antibiotic Treatment

Sangram S. Sisodia, Ph.D.
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MICROBIOME CONSORTIUM:

Microbial Profiling of Human Brain and Gut Microbiomes in Alzheimer's Disease

Rudolph E. Tanzi, Ph.D.
Nanda Kumar Navalpur Shanmugam, Ph.D.
Massachusetts General Hospital; Harvard Medical School

MICROBIOME CONSORTIUM:

Interaction of the Microbiome with Astrocytes and Amyloid Pathology

Robert Vassar, Ph.D.
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BMP Lipid Metabolism as a Therapeutic Target for Lysosomal Function and Alzheimer's Disease Pathogenesis

Monther Abu-Remaileh, Ph.D.
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Alzheimer's Disease Pathophysiology Alters the Level of Electrical and Chemical Synapse Coupling in the Network of GABAergic PV+ Interneurons Early in Disease Course

Srdjan D. Antic, M.D.
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Disentangling the Role of Intracranial Arteriosclerosis in Alzheimer's Disease

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Geert Jan Biessels, M.D., Ph.D.
University Medical Centre Utrecht, The Netherlands
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Scaling the Divide in Alzheimer's Disease: An Integrated Molecular, Cellular and Network-Level Study

Marc Aurel Busche, M.D., Ph.D.
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Neuroprotective Effects of the Exercise Hormone Irisin in Alzheimer's Disease

Se Hoon Choi, Ph.D.
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Restore Meningeal Lymphatic Drainage to Alleviate White Matter Damage and Cerebral Amyloid Angiopathy in a Model of Alzheimer's Disease

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Decoding Microbial Products Modulating Alzheimer's Disease—Toward Precision Postbiotics Treatment

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Turning Up Mitophagy to Blunt Alzheimer's Tau Pathologies

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Air Pollution and Alzheimer's Disease Risk Interact with Premature Aging of Neural Stem Cells and Apolipoprotein E Alleles

Caleb E. Finch, Ph.D.
Michael A. Bonaguidi, Ph.D.
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Bridging Myelin and Vascular Dementia: Oligodendrocyte Stress Responses in Aging and Cerebrovascular Disease

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In Vivo Models for Golgi Fragmentation and the Molecular Pathogenesis of Alzheimer's Disease

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Oligodendroglial Dynamics and Myelination in Alzheimer's Disease

Erin M. Gibson, Ph.D.
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Understanding the Mechanism Underlying Vaccination for Alzheimer's Disease

Charles L. Greenblatt, M.D.
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Linking Sleep Dysfunction to Tau-Related Degeneration Across Alzheimer's Disease Variants

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The Role of Calcium Homeostasis in Axonal Spheroid Formation in Alzheimer's Disease

Jaime Grutzendler, M.D.
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Proteomic Signatures of Cerebrovascular Neuropathology in Down Syndrome with Alzheimer's Disease

Elizabeth Head, Ph.D.
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Deciphering and Restoring Computational Setpoints in Alzheimer's Disease Through Sleep-Enhanced Network Homeostasis

Keith B. Hengen, Ph.D.
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Sleep Reinforces Homeostatic Setpoints in Neural Activity and Mitigates Neurodegenerative Disease

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Novel Artificial Intelligence (AI) Decodes Aging Neurons

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Lowering Microglial Lipid Burden Via Perilipin-2 (PLIN2) Modulation in Alzheimer's Disease

Lance A. Johnson, Ph.D.
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Morphological, Electrophysiological and Transcriptional Characterization of Single Neurons from Resilient and Susceptible Models of Human Alzheimer's Disease

Catherine Kaczorowski, Ph.D.
Shannon Moore, Ph.D.
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Neuronal Mechanisms Driving Synapse Loss in Alzheimer's Disease

Martin Kampmann, Ph.D.
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The Multiomic Roadmap to Neuronal Senescence in Alzheimer's Disease

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Interneuron Therapy for Alzheimer's Disease

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Neuroprotective T Cell-Based Therapy for Alzheimer's Disease

Jonathan Kipnis, Ph.D.
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Characterizing Gut Bacteriome-Mycobiome Synergy in Correlation to Amylin-Amyloid Beta Antimicrobial Synergy in Alzheimer's Disease (AD) in AD Mouse Models

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Astrocyte Network Structure and Function in Alzheimer's Disease

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Circadian Perturbations of the Vasculome and Microgliome in Alzheimer's Disease

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Elucidating the Role of Emerging Genomic Stress Sensors in Alzheimer's Disease

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Circadian Desynchrony, Glial Dysfunction and Alzheimer's Disease Pathogenesis

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Dysregulation of Signaling on Post Synaptic Density Scaffolds in Alzheimer's Disease

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Developing Cell-Type-Specific Enhancer-AAV Vectors to Characterize and Restore Amyloid Beta- and Tau-Dependent Circuit and Cognitive Deficits in Humanized Alzheimer's Mouse Models

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Evaluating the Contribution of TDP-43 Dysfunction and Cryptic Mis-Splicing to Alzheimer's Disease Pathogenesis

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Unraveling Mixed Pathology and Its Impact on the Proteome in Alzheimer's Disease

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Protection Against Alzheimer's Disease with Longevity-Promoting Intervention 17a-Estradiol

Christian Pike, Ph.D.
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2-Deoxyglucose and Its Analogs as Novel Therapeutics to Build Resilience to Alzheimer's Disease

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The Impact of Soluble Dietary Fiber on Tau-Mediated Neurodegeneration in a Mouse Model of Tauopathy

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Pre-Clinical Testing of CDK4/6 Inhibitors as a Therapeutic Strategy in Alzheimer's Disease Using Alzheimer's Disease Tauopathy Mouse Model

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Identifying the Sex-Specific Roles of the Gut Microbiome-Brain Axis in a Mouse Model of Amyloid Beta Amyloidosis

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Role of Psychosocial Stress in Alzheimer's Disease

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Role of Annexin A6-Mediated Membrane Repair in Alzheimer's Pathology

Robert Vassar, Ph.D.
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Role of Platelet-Derived Factors in Ameliorating Alzheimer's Disease Pathology

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A Multimodality Study on the Lipid Molecular Basis of Obesity and Its Roles in Regulating Alzheimer's Pathogenesis for Developing Potential Targeted Interventions

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Noncoding Translation Feedback Loop in Alzheimer's Disease

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Drug Discovery and Enabling Technologies

▶ DRUG SCREENING AND LEAD DRUG EVALUATION PROJECTS

Development of Small Molecule Inhibitors of Cholesterol 25-hydroxylase

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Validation and Characterization of Compounds Modulating Neuroinflammation and Amyloid Beta Uptake in Microglial Cells

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Exploring Novel Drug Candidates for Alzheimer's Disease Through Integrative Pathway Analysis and Validation in 3D Cellular Models

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Development and Mechanism of Autophagy Activators for Treatment of Alzheimer's Disease

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Identification and Development of CD33 Inhibitors and Pre-RNA Splicing Modulators

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▶ DRUG DELIVERY AND ENABLING TECHNOLOGIES

Developing Brain-Targeted AAVs Using Human Blood-Brain Barrier Receptors

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Preclinical and Clinical Drug Development and Trials

▶ PRECLINICAL DRUG DEVELOPMENT

SON-Dependent Nuclear Speckle Rejuvenation: A Novel Proteostasis-Based Therapeutic Strategy for Alzheimer's Disease

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Brain-Penetrant Complement Blocking VHHs to Reduce Neuroinflammation in Alzheimer's Disease

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Sex-Biased Toll-Like Receptor 7 (TLR7) Signaling in Demyelination and Its Inhibition by Small Molecules

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Targeting Neuroinflammation with Nasal Administration of Anti-CD3 Monoclonal Antibody to Treat Alzheimer's Disease

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Non-Invasive Delivery of IL-2 to the CNS for Local Expansion of Regulatory T Cells and Prevention of Neurodegeneration in Tauopathy

Peter M. Tessier, Ph.D.
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Preclinical Analysis of Synaptogyrin-3 Oligonucleotides to Target Tauopathy

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Characterization and Optimization of CNS-Penetrant HDAC11-Selective Inhibitors in Alzheimer's Disease Models

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▶ CLINICAL TRIALS

A Proposal to Evaluate the Effect of Bacillus Calmette-Guérin Vaccination on Alzheimer's Disease Development

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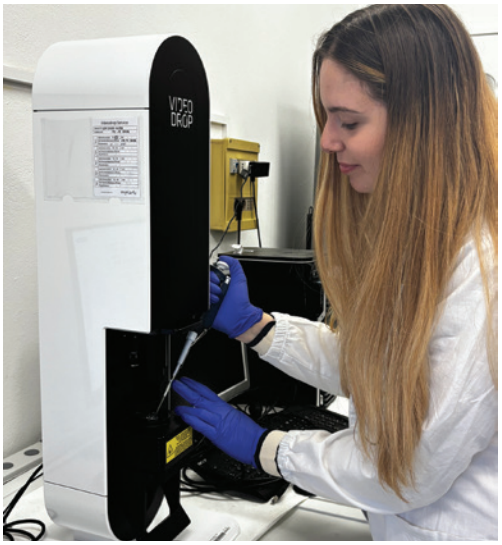
Continuous Monitoring and Enhancement of Glymphatic Flow in Human Sleep

Seattle Neurosound Solutions



A researcher analyzes extracellular vesicles using a VideoDrop system, capturing a precise moment in Alzheimer's research. This work reflects her focus on understanding how cellular communication contributes to the disease. It also embodies resilience: the persistence to explore complex, often invisible processes, driven by the shared hope of improving the lives of patients and their families.

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