PARTNERING OVERVIEW:
Neurodegenerative Disease

Prepared by
USC Stevens
Center for Innovation

Photo courtesy of the USC Laboratory of Neuro Imaging and Athinoula A. Martinos Center for Biomedical Imaging, Consortium of the Human Connectome Project (www.humanconnectomeproject.org)
Our mission is to maximize the translation of **USC research** into products for public benefit through **licensing, collaborations** and the promotion of **entrepreneurship** and **innovation**.

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Introduction

Neurodegenerative diseases affect millions of people worldwide, and Alzheimer’s disease and Parkinson’s disease are the most common types. The risk of being affected by a neurodegenerative disease increases dramatically with age and despite substantial research and development investments, effective therapeutics for the millions of patients with neurodegenerative diseases remain elusive. This creates a critical need to improve our understanding of what causes neurodegenerative diseases and develop new approaches for treatment and prevention.

USC is uniquely positioned as one of the top research institutions in the nation with comprehensive neurodegenerative disease research capabilities from bench to bedside and back. USC is comprised of leading scientists contributing to better understanding of the pathogenesis and treatment of neurological disorders such as Alzheimer’s disease and stroke, and leading experts in big data neuro-informatics, neuroimaging, structure-based drug discovery, systems pharmacology, predictive cellular and animal discovery models, clinical trials, regulatory science, and health policy. Collectively, these capabilities are crucial components to improve the scientific understanding of complex neurodegenerative diseases, develop the next generation of therapeutic approaches, and enhance the social care and structures for patients, their families and health care providers.

The mission at The USC Stevens Center for Innovation is to maximize the translation of USC research into products for public benefit through licensing, collaborations, and the promotion of entrepreneurship and innovation. In order to achieve maximum impact, USC will need meaningful collaborative public and private partnerships. We welcome the opportunity to share with public and private sectors the breadth and depth of USC’s unparalleled resources focused on neurodegenerative research and explore partnering opportunities.

USC...

UNDERSTANDS complex neurodegenerative diseases

DEVELOPS next generation therapeutic approaches

ENHANCES social care for patients, families, and healthcare providers
More than 70 USC researchers from across disciplines are dedicated to the prevention, treatment and potential cure of Alzheimer’s disease, which kills more than breast cancer and prostate cancer combined.

USC researchers are analyzing brain scans and big data, creating preventive medication, developing a vaccine, tracing disease progression, helping caregivers, building socially assistive robots and more to address Alzheimer’s and the complex problems that come with it.

One of the trends researchers at USC have discovered is that the hippocampus — the brain’s memory center — is smaller than average in depressed people. The longer people suffer from this illness, the more the brain will differ from a typical brain, meaning the ability to treat depression could early could slow the progression of brain tissue deterioration.

USC harness research leadership from across its institutes and colleges to collaborate towards comprehensive cures that often require advanced cross disciplinary solutions.
The USC Mark and Mary Stevens Neuroimaging and Informatics Institute aims to enhance discovery through the application of imaging and information technologies in the study of the brain. The Institute is dedicated to excellence in data acquisition, analysis, stewardship and computational innovation for the purpose of biomedical research.

- Established in 2016, resulting from a $50M gift by benefactors Mark and Mary Stevens.
- The largest brain data repository in the world, currently holding about 3 petabytes of information from every continent except Antarctica.
- An on-site, high-performance computing cluster with 4,096 processor cores.
- Established in 2016, resulting from a $50M gift by benefactors Mark and Mary Stevens.
- The largest brain data repository in the world, currently holding about 3 petabytes of information from every continent except Antarctica.
- Home to the Global Alzheimer's Association Interactive Network (GAAIN), which is the first usable online platform that provides scientists with Alzheimer's disease research.

Arthur W. Toga, Ph.D.
Provost Professor of Ophthalmology, Neurology, Psychiatry, Radiology and Biomedical Engineering and
Director, USC Mark and Mary Stevens Neuroimaging and Informatics Institute

Paul Thompson, Ph.D.
Professor of Ophthalmology, Neurology, Psychiatry and The Behavioral Sciences, Radiology, Psychiatry, and Engineering
Associate Director, USC Mark and Mary Stevens Neuroimaging and Informatics Institute
The Laboratory of Neuro Imaging (LONI) seeks to improve understanding of the brain in health and disease. The laboratory is dedicated to the development of scientific approaches for the comprehensive mapping of brain structure and function.

Research Projects

Alzheimer's Disease
Investigating structural, functional, metabolic and pathological changes triggered by Alzheimer's disease

Normal Development & Developmental Disorders
Focused on assessing structural brain changes in development and disease

Optical Intrinsic Signals
Mapping the brain by measuring intrinsic activity-related changes in tissue reflectance

Schizophrenia
Mapping heritability and effects of risk genes on structural features in the brain

The Imaging Genetics Center (IGC) is a research team of neuroscientists, engineers, medical doctors, and computer scientists, involved in studying brain imaging, genetics, and the connections between them. For 20 years, IGC has made advances in understanding the major diseases and disorders of the human brain, with over a thousand collaborators worldwide.

Research Projects

Connectomics & Diffusion Imaging
Advanced diffusion models and methods

Applied Machine Learning
Learning Anatomic Representations

Computational Anatomy & Shape Analyses
Tensor Based Morphometry and Shape

Diseases
Alzheimers, Bipolar Disorder, Traumatic Brain Injury, HIV/AIDS

The Center for Image Acquisition (CIA) is a brand new MRI facility that will house a Siemens Magnetom Prisma, a new 3 Tesla MRI scanner, and a Siemens Magnetom 7T MRI scanner.

Key Capabilities

• High-resolution high-field imaging capabilities for both neuroscientific research and clinical applications.

• The MAGNETOM Prisma 3T includes unparalleled simultaneous 80mT/m @ 200T/m/s gradients, a new, high-end gradient system that delivers high gradient amplitudes and fast switching capabilities in a combination that is currently truly innovative.

• The Siemens Magnetom 7T MRI system is an investigational device. Both MRI scanners are at the leading edge for neuroimaging.

• Researchers may elect, with participant consent, to share properly de-identified data through the integrated Image and Data Archive (IDA), a massive repository for imaging data powered by the Laboratory of Neuro Imaging (LONI).

• The IDA is a global leader in enabling the aggregation and sharing of research data, making possible all sorts of collaborative projects with groups around the world who are able to combine forces, tools, and information to accelerate the pace of scientific discovery.
RESEARCH AT USC: NEURODEGENERATIVE DISEASE

Imaging

TRANSLATIONAL IMAGING CENTER
Develop new technologies for the imaging of biological structure and function. The technologies range from conventional light microscopy and laser scanning microscopy, to optical coherence tomography and Magnetic Resonance Imaging (MRI) microscopy.

Scott E. Fraser, Ph.D.
Provost Professor, Director of Science Initiatives

MAGNETIC RESONANCE ENGINEERING LABORATORY
Rapid magnetic resonance imaging, medical image acquisition and reconstruction.

Krishna S. Nayak, Ph.D.
Professor, Ming Hsieh Department of Electrical Engineering, Viterbi School of Engineering

ULTRASONIC TRANSDUCER RESOURCE CENTER
Development of high-frequency (>20MHz) transducers and arrays.

K. Kirk Shung, Ph.D.
Dean’s Professor in Biomedical Engineering

MOLECULAR IMAGING CENTER
Design, synthesis, and production of radioactive or stable agents for imaging of cancer.

Peter Conti, M.D., Ph.D.
Professor, Biomedical Engineering, Radiology, Pharmacy
Keck School of Medicine, School of Pharmacy, Viterbi School of Engineering

NEUROPLASTICITY AND IMAGING LABORATORY (NAIL)
NAIL utilizes the full spectrum of transcranial magnetic stimulation (TMS) research techniques including single pulse, paired-pulse, and repetitive TMS.

Beth Fisher, Ph.D., PT
Associate Professor of Clinical Physical Therapy

THE DANA AND DAVID DORNISFE COGNITIVE NEUROIMAGING CENTER (DNI)
Structural and functional imaging studies of the human brain with access to 3 Tesla Siemens MAGNETON Prismafit MRI scanner, along with a broad range of ancillary equipment and workspace for participant in-take, data processing and meetings.

Hanna Damasio, M.D.
Dornsife Professor of Neuroscience and Co-Director of the Dana and David Dornsife Cognitive Neuroscience Imaging Center

OCCUPATIONAL SCIENCE AND OCCUPATIONAL THERAPY

Neural Plasticity and Neurorehabilitation Laboratory
Focus on neuroimaging, noninvasive brain stimulation, and real-time fMRI neurofeedback to characterize processes of neural plasticity during learning and rehabilitation.

Sook-Lei Liew, Ph.D.
Assistant Professor, USC Division of Biokinesiology and Physical Therapy
Keck School of Medicine of USC, Department of Neurology
RESEARCH AT USC: NEURODEGENERATIVE DISEASE

Discovery Research

NEUROSCIENCE RESEARCH

Zilkha Neurogenetic Institute
Broad focus on pathogenesis and treatment of neurological and psychiatric disorders. For example, Investigators study Alzheimer and Related Diseases in multiple labs at ZNI. The Protein Structure group investigates the structure of proteins involved in Alzheimer’s, Parkinson’s and Huntington’s disease. These studies aim to help investigators understand the molecular basis of neural pathology, looking toward devising new treatments for the cure and prevention. Other investigators are studying the wiring of the brain, the role of the immune system in dementia and the role of cerebral blood vessels and blood-brain barrier in pathogenesis of neurodegenerative disorders.

Berislav Zlokovic, M.D., Ph.D.
Director, Zilkha Neurogenetic Institute (ZNI) and Director of the Center for Neurodegeneration and Regeneration at ZNI Professor and chair of the Department of Physiology and Biophysics at the Keck School of Medicine

PREDICTIVE CELLULAR AND ANIMAL MODEL SYSTEMS

Broad Center for Regenerative Medicine
Patient-specific in vitro models of neurodegenerative disease. Using precise combinations of transcription factors, small molecules and growth factors, we can convert fibroblasts from patients into disease-affected neural cells while preserving their genotypes.

Andrew McMahon, Ph.D.
Director, Eli and Edythe Broad Center for Regenerative Medicine and Stem Cell Research at USC W.M. Keck Provost Professor of Stem Cell Biology and Regenerative Medicine, Keck School of Medicine of USC

STRUCTURE-BASED DRUG DISCOVERY

Multi-Scale Biology (The Bridge@USC)
Building first atomic resolution structure of man. This dynamic model will accelerate the creation and implementation of novel therapies, biomarkers and cures for intractable diseases and conditions like Alzheimer’s.

Raymond Stevens, Ph.D.
Provost Professor of Biological Sciences and Chemistry and Director, The Bridge@USC
Rare Cell Detection, Single Cell Proteogenomics, Clinical Program in Fluid Biopsy (The Bridge@USC)
Accelerate the convergence of single cell research and rare cell detection to enable first in class research and discovery in precision medicine. First academic partner with industry to evaluate a novel imaging mass cytometer (IMC).

**SINGLE CELL RESEARCH**

*Peter Kuhn, Ph.D.*
Dean’s Professor of Biological Sciences and Professor of Medicine, Biomedical Engineering, and Aerospace & Mechanical Engineering and Associate Director of The Bridge@USC

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**BIOGERONTOLOGY RESEARCH**

**USC Center for Digital Aging**
Dedicated to finding, creating and developing technology of use to older adults in their daily lives as well as clinicians and researchers.

*Elizabeth Zelinski, Ph.D.*
Rita and Edward Polusky Chair in Education and Aging and Professor of Gerontology and Psychology

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**USC Longevity Institute**
Leading translational research on aging and age-related diseases. Focus on testing dietary, pharmacological, regenerative and engineering approaches to prevent multiple diseases of aging and maximize healthspan.

*Valter Longo, Ph.D.*
Edna M. Jones Professor of Gerontology Professor of Biological Sciences
RESEARCH AT USC: NEURODEGENERATIVE DISEASE

Translational Research

IMPLANTABLE DEVICES TO TREAT VISUAL AND NEUROLOGICAL DISORDERS

Bioelectronics Research Lab
The mission of the bioelectronics research lab is to create and translate innovative treatments for blindness and other neurological disorders. It is also home to the Argus II Retinal Prosthesis System, the first FDA-approved implanted device to treat adults with advanced retinitis pigmentosa.

Mark S. Humayun, M.D., Ph.D.
Cornelius J. Pings Chair in Biomedical Sciences and University Professor of Ophthalmology, Biomedical Engineering, Cell & Neurobiology; Director, USC Eye Institute; and Director, Sensory Science Initiatives

Bioelectronics Research Lab
The mission of the bioelectronics research lab is to create and translate innovative treatments for blindness and other neurological disorders. It is also home to the Argus II Retinal Prosthesis System, the first FDA-approved implanted device to treat adults with advanced retinitis pigmentosa.

Jack Whalen, Ph.D.
Director of Industry Partnerships and Business Development

BASIC SCIENCE RESEARCH IN NEUROIMMUNOLOGY, STEM CELLS, POPULATION STUDIES AND CLINICAL TRIALS

USC Multiple Sclerosis Comprehensive Care Center & Research Group
Research focused on novel neuroimaging techniques to predict, monitor and more accurately define factors responsible for multiple sclerosis (MS) progression.

Daniel Pelletier, M.D.
Professor of Neurology, Vice Chair of Research, Chief, Division of Multiple Sclerosis, Department of Neurology, Keck School of Medicine of USC

TRANSLATIONAL NEURO RESTORATION

USC Neurorestoration Center and USC Comprehensive Epilepsy Program
New technologies that harness advances in basic neuroscience and neural engineering.

Charles Liu, M.D., Ph.D.
Professor of Neurological Surgery and Neurology; Director, USC Neurorestoration Center; Surgical Director, USC Comprehensive Epilepsy Program

Christianne Heck M.D., MMM
Associate Professor of Neurology; Medical Director, USC Comprehensive Epilepsy Program; Co-director, USC Neurorestoration Center

VIRTUAL AND IMMERSIVE THERAPIES

Institute for Creative Technologies
Post traumatic stress disorder treatment

Albert “Skip” Rizzo, Ph.D.
Director for Medical Virtual Reality, Institute for Creative Technologies Research Professor, USC Davis School of Gerontology and USC Keck School of Medicine Department of Psychiatry & Behavioral Sciences
USC ATRI EXTENDS FAR BEYOND THE WORKERS IN ONE BUILDING ON ONE CAMPUS

• USC ATRI is an academic organization leading a consortium dedicated to the acceleration of therapeutic interventions for Alzheimer’s disease (AD). We are collectively committed to developing new models of AD to test, characterize biomarkers and develop and minimize variability through enhanced quality control of outcome measures by applying novel analytic methods and enact highly innovative regulatory pathways.

• Our facility is located in San Diego, California, and forms an integral part of the Los Angeles-based USC Keck School of Medicine’s mission to create a leading hub of basic, translational and clinical research in neuroscience and neurological diseases. There is a great deal of focused and celebrated collaboration with sites and investigators around the world.

• USC ATRI promotes extensive collaboration and data sharing across academia, industry, regulators, and advocacy groups.

• An additional goal includes training future leaders in AD clinical research.

HISTORY

USC ATRI was established at the Keck School of Medicine of USC in 2015 as a commitment to build upon their strategic neuroscience presence. However, USC ATRI team has been engaged in the field of AD therapeutics since its inception in the late 1980s. ATRI director, Paul Aisen, and many other members of the team worked closely with Dr. Leon Thal who is widely recognized as the father of Alzheimer therapeutics. USC ATRI members have designed and provided leadership to dozens of therapeutic trials, driving innovation in the field.

FACTS & FIGURES

• USC ATRI is currently involved in 14 clinical trials

• The faculty and staff of USC ATRI have been involved in running over 50 Alzheimer’s disease clinical trials dating back to 1991

• USC ATRI operates the clinical core for the ADNI project which has revolutionized the field and resulted in over 1200 publications

Paul Aisen, M.D.
Director of the USC Alzheimer’s Therapeutic Research Institute
Clinical Research

CLINICAL ANALYSIS
USC Alzheimer’s Disease Research Center (ADRC)
Advanced diagnostic and treatment services for Alzheimer’s Disease, other types of dementia and diseases related to aging

Helena Chui, M.D.
Holder of Raymond and Betty McCarron Chair in Neurology
Co-director, McCarron Clinical Research and Education Center for Alzheimer’s Disease and Related Disorders

PHYSICAL THERAPY ON BRAIN PLASTICITY AND REPAIR
USC Phillips-Fisher Center for Brain Repair and Rehabilitation
Biokinesiology and Physical Therapy approaches to neurorehabilitation.

Beth Fisher, Ph.D., PT
Associate Professor of Clinical Physical Therapy

REGULATORY SCIENCE
The Regulatory Science Consulting Center
The Regulatory Science Center provides advice and services to faculty with new grants, start-up companies with interesting products

Frances J. Richmond, Ph.D.
Professor and director of Regulatory Science Program
USC School of Pharmacy
Multi-scale Computational Modeling of Brain Function

Center for Neural Engineering
Brain prosthesis currently being tested in human patients that is designed to help individuals suffering from memory loss.

Theodore W. Berger, Ph.D.
Professor of Biomedical Engineering, David Packard Chair of Engineering and Director, Center for Neural Engineering

Biomedical Systems Modeling and Simulation Methodologies and Tools

Biomedical Simulations Resource (BMSR)
Model-based “functional biomarkers” for diagnosing early-stage Alzheimer’s patients.

David Z. D’Argenio, Ph.D.
Dwight C. and Hildagarde E. Baum Chair in Biomedical Engineering and Professor and Chair of Biomedical Engineering and Co-director, Biomedical Simulations Resource Center

Vasilis Z. Marmarelis, Ph.D.
Professor of Biomedical Engineering

Big Data Processing

Information Sciences Institute
The Informatics Group of the Information Sciences Institute explores the intersection of healthcare and informatics. The research work of this group focuses on grid computing, information security, service-oriented architecture, knowledge engineering, and imaging and medical informatics. The Information Sciences Institute also leads the national Biomedical Informatics Research Network for online collaboration and data analysis.

Prem Natarajan, Ph.D.
Michael Keston Executive Director and Research Professor, USC Information Sciences Institute

Carl Kesselman, Ph.D.
Director, Center for Health Informatics, USC Information Sciences Institute and Research Associate Professor of Computer Science
Cognitive Research

NEURAL ARCHITECTURE RESEARCH

The USC Brain and Creativity Institute
Institute focuses on how motor performance and sensory experience are essential contributors to higher cognitive processes in both typically developing individuals and in clinical populations (e.g., individuals with amputations, stroke, dyspraxia, and autism).

Antonio Damasio, M.D., Ph.D.
Dornsife Professor of Neuroscience and Director, Brain and Creativity Institute

Hanna Damasio, M.D.
Dornsife Professor of Neuroscience and Director of the Dana and David Dornsife Cognitive Neuroscience Imaging Center

Vascular Senescence and Cognition (VaSC) Laboratory
Research focuses on the role of vascular cognitive impairment in Alzheimer’s disease, and specifically on the development of cognitive and biological markers of cerebrovascular aging.

Daniel A. Nation, Ph.D.
Assistant Professor of Psychology, USC Dornsife College of Letters, Arts and Sciences

Clinical Research in Aging and Psychology

Margaret Gatz, Ph.D.
Professor of Psychology, Gerontology and Preventive Medicine, USC Dornsife College of Letters, Arts and Sciences
Director, Education Core, Alzheimer’s Disease Research Center

Research under the direction of Dr. Margaret Gatz addresses mental health of older adults. Studies in the lab encompass age-related change in depressive symptoms, personality, and cognition; risk and protective factors for Alzheimer’s disease and other dementias; how families manage aging and dementia; and evaluations of the effects of interventions to treat mental disorder or to improve preventive health behavior.

Carol A. Prescott, Ph.D.
Professor of Psychology and Gerontology, USC Dornsife College of Letters, Arts and Sciences

Studies the genetic and environmental influences on change in cognitive abilities and health associated with aging. Study participants are members of the Intergenerational Studies, a collection of three longitudinal studies begun in the 1920s and 1930s at the Institute of Human Development at UC Berkeley and now housed at UC Davis.
RESEARCH AT USC: NEURODEGENERATIVE DISEASE

Clinic & Community Practice

PHARMACO-ECONOMICS AND HEALTH

USC Schaeffer Center for Health Policy & Economics
One of the nation’s premier policy research centers that investigates a wide array of topics, including: promoting value in health care spending; understanding how public policy affects medical innovation; improving insurance design; encouraging cost-effective care; and identifying the broader macroeconomic consequences of health care trends.

Dana Goldman, Ph.D.
Professor and Leonard D. Schaeffer Chair and Director of the USC Schaeffer Center for Health Policy and Economics

RESEARCH AND COMMUNITY OUTREACH

USC Geriatric Studies Center
Evaluation, diagnosis and treatment recommendations, referral to caregiver services and support groups, and the opportunity to participate in clinical drug trials with the most recent advances in medications for memory problems.

Julie Zissimopoulos, Ph.D.
Assistant Professor, Sol Price School of Public Policy
Associate Director, USC Schaeffer Center for Health Policy and Economics
Interdisciplinary Collaboration Fund

USC MULTIDISCIPLINARY COLLABORATION FUNDED PROJECTS

The USC Collaboration Research Fund (http://research.usc.edu/collaboration-fund-current-projects) supports the creation and development of expansive research collaborations among faculty and students working on broad interdisciplinary research topics such as neurodegenerative disorders.

Neuroplasticity and Repair in Degenerative Disorders
USC research leaders from the Keck School of Medicine, Davis School of Gerontology, and Ostrow School of Dentistry will use the Collaboration Fund to support novel insights towards the identification of new therapeutic targets for treating neurological disorders. The goals of this collaboration are to better understand the underlying molecular mechanisms of neurodegenerative disorders, and to carryout translational studies that include both applications of basic research findings to the clinic, as well as using clinical observations to better design studies within the lab.

Leaders:
• Michael Jakowec, Ph.D., Keck School of Medicine, Department of Neurology
• Giselle Petzinger, M.D., Keck School of Medicine, Department of Neurology
• John Walsh, Ph.D., Davis School of Gerontology, Bio-Gerontology/Striatal Synaptic Research
• Beth Fisher, Ph.D., PT, Ostrow School of Dentistry, Department of Biokinesiology
## Available Technologies for Licensing

### Alzheimer’s Disease

<table>
<thead>
<tr>
<th>Tech ID #</th>
<th>Technology Title</th>
</tr>
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<tbody>
<tr>
<td>12-188</td>
<td>Bioenergetic Formulations to Promote Healthy Cognitive Aging and to Prevent Alzheimer’s Disease</td>
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<tr>
<td>2015-006</td>
<td>Non-invasive Imaging of the Nerve Connectome in Transgenic Alzheimer’s Rats</td>
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<tr>
<td>2015-153</td>
<td>Protective Effects of Hormone Therapy on Diet-induced Obesity and AD Neuropathology in Middle-aged Female 3xTg-AD Mice</td>
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<tr>
<td>2015-156</td>
<td>Interactive Effects of High Fat Diet and Testosterone on Neuroinflammation and Alzheimer’s Disease Outcomes</td>
</tr>
<tr>
<td>2015-237</td>
<td>ProLon®, A Fasting Mimicking and Enhancing Diet</td>
</tr>
<tr>
<td>3182</td>
<td>Role of the Brain Vascular System and Blood-brain Barrier Transport in Clearance of Alzheimer’s Amyloid-beta Peptides from the Central Nervous System via Brain Endothelia LDL Receptor-Related protein-1 (LRP)</td>
</tr>
<tr>
<td>3614</td>
<td>Allopregnanolone (NeuroGen): Agents, Compositions and Methods for Enhancing Neurologic Function</td>
</tr>
<tr>
<td>3633</td>
<td>Composition and Methods for Preventing Neurodegenerative Disorder by Plant-Based Estrogen Receptor Subtype Modulators</td>
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### Parkinson’s Disease

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<tr>
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<tr>
<td>09-029</td>
<td>Eye-tracking Apparatus for Screening Human Diseases</td>
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<tr>
<td>2015-219</td>
<td>Avermectins enhance L-Dopa activity Implications for Parkinson’s Disease Therapy</td>
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<tr>
<td>3614</td>
<td>Allopregnanolone (NeuroGen): Agents, Compositions and Methods for Enhancing Neurologic Function</td>
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### Multiple Sclerosis

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<tbody>
<tr>
<td>2016-045</td>
<td>myMS mobile application</td>
</tr>
<tr>
<td>2670</td>
<td>T Cell Vaccination in Multiple Sclerosis</td>
</tr>
</tbody>
</table>
# Research at USC: Neurodegenerative Disease

## Technologies Available for Licensing

### Stroke

<table>
<thead>
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<tbody>
<tr>
<td>09-181</td>
<td>A Method to Measure and Re-train Arm Movements after Brain Lesion</td>
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<tr>
<td>2014-168</td>
<td>The use of Argonaute-2 (Ago-2) as Systemic miRNA Carrier for the Treatment of Brain Vascular Diseases</td>
</tr>
<tr>
<td>2014-236</td>
<td>Swallow Exerciser</td>
</tr>
<tr>
<td>2015-185</td>
<td>Novel Combination Therapy for Ischemic Stroke</td>
</tr>
<tr>
<td>3553</td>
<td>Use of Endovascular Hydrogel Device for Stroke Therapy, Drug Delivery, and Intravascular Foreign Body Retrieval</td>
</tr>
<tr>
<td>3705</td>
<td>A Robotic Task Automated System for Arm &amp; Hand Rehabilitation of Patients with Strokes</td>
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### Traumatic Brain Injury

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<th>Technology Title</th>
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<tbody>
<tr>
<td>13-116</td>
<td>A Novel Early Treatment for Traumatic Brain Injury</td>
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### Ischemic

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<tr>
<td>10-005</td>
<td>Method and Apparatus for Treating Ischemic Diseases</td>
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<tr>
<td>2015-185</td>
<td>Novel Combination Therapy for Ischemic Stroke</td>
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<tr>
<td>2016-016</td>
<td>Small Molecule Transport Device for Drug Delivery or Waste Removal</td>
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### Neurodegeneration

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<tr>
<td>2015-155</td>
<td>The Mitochondrial-Derived Peptide Humanin Enhances Healthspan and Improves Metabolic Markers in Aged Mice</td>
</tr>
<tr>
<td>2015-285</td>
<td>Protection of ALS and FTD Patient Neurons by Restoring C9ORF72 levels and Modulating Endosomal Trafficking</td>
</tr>
<tr>
<td>3633</td>
<td>Composition and Methods for Preventing Neurodegenerative Disorder by Plant-Based Estrogen Receptor Subtype Modulators</td>
</tr>
<tr>
<td>3878</td>
<td>A New Method for Treating Neurodegeneration</td>
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Visit [http://usc.flintbox.com](http://usc.flintbox.com) for details on all available technologies
# Available Technologies for Licensing

## MEDICAL IMAGING

<table>
<thead>
<tr>
<th>Tech ID #</th>
<th>Technology Title</th>
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<tbody>
<tr>
<td>3969</td>
<td>Method and Apparatus for 3-D Euclidean Reconstruction and Registration of Images of Near-Planar Surfaces</td>
</tr>
<tr>
<td>12-514</td>
<td>Development of 64Cu Labeled Myocardial Perfusion PET Imaging Agents</td>
</tr>
<tr>
<td>13-037</td>
<td>Novel 18F radiolabeling method based on vinyl sulfone</td>
</tr>
<tr>
<td>13-052</td>
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Contact the USC Stevens Center for Innovation

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