



COLUMBIA

COLUMBIA UNIVERSITY
DEPARTMENT OF NEUROLOGY

2nd Annual “T Cells in the Brain” Symposium
Thursday-Friday, January 9-10, 2025
Roy and Diana Vagelos Education Center
104 Haven Ave, Room 401, New York, NY 10032
<https://tcellsbrain.org/>



DAY 1

8:00-8:55 AM

Registration, Poster Setup, and Breakfast

9:00-9:05AM

Opening Remarks and Introduction

Richard Mayeux, MD

Gertrude H. Sergievsky Professor of Neurology, Psychiatry & Epidemiology
Chair of Neurology
Columbia University Irving Medical Center

Session 1:

Immune Dysregulation in Neurodegenerative Diseases

Moderator: Malú G. Tansey, PhD

Professor of Neurology
Indiana University

9:05-9:25AM

Transcriptional Regulation of Regulatory T Cell Dysfunction in Multiple Sclerosis

David Hafler, MD

William S. and Lois Stiles Edgerly Professor of Neurology and Immunobiology
Chair, Neurology
Yale School of Medicine

9:25-9:45AM

Identification of Barrier-Tissue T Cell Subsets in Refractory Epilepsy

Rani Sarkis, MD

Assistant Professor of Neurology
Brigham and Women’s Hospital and Harvard Medical School

9:45-10:05AM

Longitudinal Analysis of Central and Peripheral T Cells in FUS ALS

Wassim Elyaman, PhD

Assistant Professor of Neurological Sciences
Columbia University Irving Medical Center

10:05-10:25AM

T Cell Senescence in Age-Related Diseases

Maria Mittelbrunn, PhD

Group Leader
Consejo Superior de Investigaciones Científicas (CSIC)
Madrid, Spain

10:25-10:35AM

Session - Open Discussion

10:35-10:55AM

BREAK

Session 2:

Mechanisms of Peripheral Immune Regulation in Neurodegenerative Disorders I

Moderator: Towfique Raj, PhD

Associate Professor

Departments of Neuroscience, Genetics and Genomic Sciences
Icahn School of Medicine at Mount Sinai Hospital

10:55AM-11:15AM

T Cell Receptor and Cross-Reactivity in Neuroinflammatory and Neurodegenerative Diseases

Naresha Saligrama, PhD

Assistant Professor of Neurology

Washington University School of Medicine

11:15-11:35AM

T Cell-Mediated Neuroinflammation in Parkinson's Disease

Ashley Harms, PhD

Associate Professor

University of Alabama

11:35-11:55AM

CD4 Trm in CNS Autoimmunity

Roland Liblau, MD, PhD

Professor in Neurology

University of Toulouse, France

11:55-12:15PM

A Leaky Gut and Brain Function

Malú G. Tansey, PhD

Professor of Neurology

Indiana University School of Medicine

12:15-12:25PM

Session - Open Discussion

12:25-1:15PM

LUNCH

Session 3:

Mechanisms of Peripheral Immune Regulation in Neurodegenerative Disorders II

Moderator: Serge Przedborski, MD, PhD

Page and William Black Professor of Neurology

Vice Chair of Research, Department of Neurology

Columbia University Irving Medical Center

1:15-1:35PM

Multiple sclerosis progression: Mechanisms and implications for drug development Diseases

Richard Ransohoff, MD

Co-founder and Clinical Advisor

Abata Therapeutics

Venture Partner, Third Rock Ventures

1:35-1:55PM

Autoimmune Targeting of Mitochondria as a New Biomarker for Parkinson's Disease

Diana Matheoud, PhD

Adjunct Professor

Université de Montréal

1:55-2:15PM

Lessons from Adoptive T Cell Therapy Against CNS Malignancies

Catherine Flores, PhD

Associate Professor

Department of Neurosurgery

University of Florida

- 2:15-2:35PM *Immune Network Dysregulation of the Central Nervous System in Parkinson's Disease*
Lee Zhang, PhD
Assistant Professor of Neurology and of Neuroscience
Yale School of Medicine
- 2:35-2:45PM Trainee-talk 1: Transcriptomic and Proteomic Analysis of Peripheral Immune Signatures in Healthy Individuals at Risk for Alzheimer's Disease
Dallin Dressman, PhD
Postdoctoral Research Scientist
Department of Neurology
Columbia University Irving Medical Center
- 2:45-2:55PM Session - Open Discussion
- 2:55-3:10PM BREAK**
- 3:10-3:15PM GROUP PHOTO**
- Session 4:** *Round Table Discussion: Bridging Science and Industry: Advancing T Cell-Based Therapies for Neurological Diseases*
Moderator: Matthew Kennedy, PhD
Scientific AVP, Neuroscience
Merck
- 3:15-3:20PM *Introduction*
Matthew Kennedy, PhD
Scientific AVP, Neuroscience, Boston
Merck
- 3:20-4:10PM *Discussion/Q&A*
- Leah Sibener, PhD**
3T Co-Founder and Scientific Advisor
Senior Director, Curie.Bio
- Lamya Shihabbudin, PhD**
Chief Scientific Officer
Montai Therapeutics
- Dimitry Ofengeim, PhD**
Head of the Precision Neurology and Neuroinflammation Cluster
Sanofi
- Albert Hsia, PhD**
Executive Director, Head of Oncology and Immunology Business Development, Boston
Merck
- 4:10-5:30PM POSTER and COCKTAIL**

DAY 2

- Session 5:** *Innovative Approaches to Antigen-Specific T Cell Discovery for Next-Gen Immunotherapies*
Moderator: Olivia Rifai, PhD
Postdoctoral Research Scientist
Department of Neurology
Columbia University Irving Medical Center
- 9:00-9:20AM *Unbiased Detection of Antigens in the Human Degenerating Brain*
Lawrence Stern, PhD
Professor, Department of Pathology,
University of Massachusetts Chan Medical School
- 9:20-9:40AM *High-Throughput Profiling of Antigen-Specific T Cells in Neurodegenerative Diseases*
Ning (Jenny) Jiang, PhD
J. Peter and Geri Skirkanich Associate Professor of Innovation,
Department of Bioengineering
University of Pennsylvania
- 9:40-10:00AM *Rapid Parallel Reconstruction and Specificity Screening of Hundreds of T Cell Receptors*
Giacomo Oliveira, PhD
Instructor in Medicine
Dana Farber Cancer Institute
- 10:00-10:20AM *Strategies to Improve CAR Treg Therapies for Induction of Immune Tolerance*
Mohsen Khosravi Maharlooei, MD
Assistant Professor of Immunology
Mayo Clinic Arizona
- 10:20-10:30AM Session - Open Discussion
- 10:30-10:50AM BREAK**
- Session 6:** *Genes x Metabolism x Environmental Factors*
Moderator: Jaime Imitola, MD
Professor of Neurology
Director, Division of Multiple Sclerosis and Translational Neuroimmunology
UConn Health
- 10:50-11:05AM *Neurotropic Infectious Diseases and Cognitive Impairment*
Kiran Thakur, MD
Herbert Irving Associate Professor of Neurology
Columbia University Irving Medical Center
- 11:05-11:20AM *Peripheral Inflammatory Insults in Alzheimer's Disease*
Keenan Walker, PhD
Chief of the Multimodal Imaging of Neurodegenerative Disease Unit. the
Laboratory of Behavioral Neuroscience
NIH

- 11:20-11:35AM *Multi-Omics Datasets from Caribbean Families with High Rate of Alzheimer's Disease*
Badri Vardarajan, PhD
 Associate Professor of Neurological Science
 Columbia University Irving Medical Center
- 11:35-11:50AM *Genetic Zebrafish as an Experimental and Preclinical Model to Study Neurodegenerative Disorders*
Caghan Kizil, PhD
 Associate Professor in Neurological Sciences
 Department of Neurology
 Columbia University Irving Medical Center
- 11:50-12:00PM *Trainee-talk 2: HLA-DRB1*04 restricted responses to alpha synuclein in Parkinson's disease, idiopathic REM sleep behavior disorder and controls*
Guo Luo, PhD
 Instructor
 Stanford University
- 12:00-12:10PM Session - Open Discussion
- 12:10-12:40PM LUNCH**
- Session 7:** *Immune Dynamics at Barrier Tissues: Gut and Brain in Neurodegenerative Disorders*
Moderator: Jennifer Hall
 PhD Candidate
 Department of Neurology
 Columbia University Irving Medical Center
- 12:40-1:00PM *Transforming the understanding of Brain Immunity: Protective autoimmunity, and monocytes supporting the brain in health and disease*
Michal Schwartz, PhD
 Professor of Neuroimmunology
 Weizmann Institute of Science
 Rehovot, Israel
- 1:00-1:20PM *Neuroimmune signaling across gut-brain axis modulates brain synucleinopathy*
Soyon Hong, PhD
 Group Leader
 UK Dementia Research Institute
 UCL, London
- 1:20-1:40PM *Meningeal Lymphatic Function Promotes Oligodendrocyte Survival and Brain Myelination*
Sandro Da Mesquita, PhD
 Assistant Professor of Neuroscience
 Mayo Clinic, Jacksonville, Florida
- 1:40-2:00PM *T Cells, Microglia and the Blood-Brain Barrier in the Human PD Brain*
Elizabeth Bradshaw, PhD
 Adler Assistant Professor of Neurological Sciences
 Columbia University Irving Medical Center

- 2:00-2:10PM *Trainee-talk 3: Clonal CD8 T Cells Accumulate in the Leptomeninges and Coordinate with Immune Cells in the Degenerating Human Brain*
Ryan Hobson, PhD
Postdoctoral Research Scientist
Department of Neurology
Columbia University Irving Medical Center
- 2:10-2:20PM Session - Open Discussion
- 2:20-2:35PM BREAK**
- Session 8: *Immunotherapy Strategies for Neurodegenerative Diseases***
Moderator: Neil Shneider, MD, PhD
Clare Tow Professor of Neurology
Director, Eleanor and Lou Gehrig ALS Center at Columbia
Columbia University Irving Medical Center
- 2:35-2:55PM *Proinflammatory Macrophages and Regulatory T Cells in Neurodegenerative Diseases*
Stanley Appel, MD
Professor of Neurology
Peggy & Gary Edwards Distinguished Chair in ALS Research
Houston Methodist
- 2:55-3:15PM *T Cells in Alzheimer's Disease: Therapeutic Opportunities*
Guillaume Dorothée, PhD
Group Leader – Neuroimmunology
INSERM U938 Centre de Recherche Saint Antoine
Paris, France
- 3:15-3:35PM *Enhancing Treg Therapy Through Cell Engineering*
Qizhi Tang, PhD
Professor of Surgery
UCSF Diabetes Center | Department of Surgery | Gladstone Institute of Genomic Immunology
Scientific Advisor, Sonoma Biotherapeutics
University of California, San Francisco
- 3:35-3:55PM *Investigating the effects low dose IL-2 immunotherapy on T cell phenotypes in peripheral blood and CSF in individuals with ALS*
Timothy Tree, PhD
Professor of Immune Regulation and Immunotherapy
King's College London
- 3:55-4:05PM Session - Open Discussion
- 4:05PM Special Recognition for Best Poster Presentations and Closing Remarks**