

From the bench to the brain:

Molecular imaging's critical role in the treatment of Alzheimer's, Parkinson's and more.



WELCOME

AGENDA

Welcome to the 2022 J. Allyn Taylor International Prize in Medicine Symposium. Each year, the Symposium brings together experts across the research spectrum to share their discoveries in one of the principal areas of research at Robarts Research Institute.

The theme of this year's symposium is Molecular Imaging of the Brain. This year, we celebrate how this important work helps us better understand neurological disorders and diseases – on our way to finding more effective treatments. Importantly, we have talks spanning a wide spectrum of molecular imaging methods, demonstrating the breadth and versatility of these visualization techniques.

We also have the privilege to welcome the recipient of the J. Allyn Taylor International Prize in Medicine, Dr. Xiaowei Zhuang and hear her keynote lecture highlighting her pioneering work in super-resolution imaging and genome-scale imaging techniques.

It is with the sustained dedication of researchers from across the globe, at Schulich School of Medicine and Dentistry and Roberts Research Institute that we continue to gain a deeper understanding of the complexities of the human brain and ultimately improve patient care.

Our scientists continue to build research capacity in a number of areas, including neuroscience, imaging and molecular medicine. We have big plans on the horizon, including expansion of imaging facilities and capabilities, development of the medtech incubator BioNext, and development of programs to support and strengthen our state-of-the art research core facilities.

At today's Symposium, we look forward to sharing knowledge to coordinate and strengthen our approach on tackling the challenges that many Canadians experience each day due to neurodegenerative disorders. This will allow researchers to developing enhanced methods of diagnosis, treatment and prevention.

Thank you for joining us today.

Dr. Robert Bartha. PhD

Vice Dean, Research and Innovation Schulich School of Medicine & Dentistry **10:00 a.m.** Welcome and Opening Remarks

10:05 a.m. **Community Partner Impact**

Alzheimer's Society Southwest Partners

10:15 a.m. Pedro Rosa-Neto, PhD

Pathways of AD Pathophysiology Propagation

10:45 a.m. Paula Foster, PhD

In Vivo Cellular and Molecular Neuroimaging

11:15 a.m. Adam Shuhendler, PhD

Mapping Concussion Early After Injury

11:45 a.m. Marco Prado, PhD

Bridging the Translational Gap in Neurodegeneration Research

12:15 p.m. Lunch Break

1:15 p.m. Keynote Lecture: Xiaowei Zhuang, PhD

2022 J. Allyn Taylor International Prize in Medicine recipient

Illuminating Biology at the Nanoscale and Genome-scale by

Imaging

2:30 p.m. Xiaowei Zhuang, PhD, Stephen Pasternak, PhD

and Pedro Rosa-Neto, PhD

Breakthroughs in Molecular Imaging: Basic Science Accelerates Medical Research. Discussion Panel Moderated by Elizabeth Finger

3:30 p.m. Closing Remarks

THE PRIZE

For more than 30 years, Robarts Research Institute has awarded the J. Allyn Taylor International Prize in Medicine to some of the world's leading researchers across a range of scientific disciplines.

The Taylor Prize is awarded to an individual or individuals who have made significant contributions to a field of basic or clinical research in one of Robarts' principal areas of research.

Each year, the scientific community is invited to nominate scientists within a particular field of research. The prize consists of a cash award, engraved medal and framed certificate.

2022 J. ALLYN TAYLOR INTERNATIONAL PRIZE IN MEDICINE RECIPIENT

Xiaowei Zhuang, PhD



Dr. Xiaowei Zhuang is an investigator at the Howard Hughes Medical Institute and the David B. Arnold Professor of Science at Harvard University. With her pioneering work in superresolution imaging and genome-scale imaging techniques, Xiaowei Zhuang, PhD, is making great strides in the area of molecular imaging of the brain.

Zhuang's work in advanced imaging technologies has led to the development of a super-resolution imaging method, called STORM, which is used by researchers worldwide. Using STORM, she discovered previously unknown molecular structures in neurons and provided molecular views of many cellular structures with unprecedented resolution.

Zhuang also invented a single-cell transcriptome and genome imaging method, MERFISH, which has enabled spatially resolved single-cell genomics. This has in turn allowed in situ identification of molecularly distinct cell types and the mapping of their spatial organization and functions in tissues.

Dr. Zhuang's inspirational work now permits researchers to see cellular structures like never before.

CELEBRATING A LEGACY OF GIVING

The J. Allyn Taylor International Prize in Medicine is generously supported by the C.H. Stiller Memorial Foundation and the family of the late J. Allyn Taylor, who was the founding Chair of the Board at Robarts Research Institute.

The support from the Foundation paid tribute to C.H. Stiller's memory and his remarkable personal legacy, as well as the outstanding achievements of J. Allyn Taylor.

Carl Hilmer Stiller (1910-1971) earned considerable success and recognition as a clergyman in Saskatchewan while raising a family of five children with his wife, Mildred. Personally and professionally, he demonstrated an unerring integrity, intense loyalty and consistency of purpose. Following Reverend Stiller's death, J. Allyn Taylor played a significant role in the lives of the Stiller family members, embodying many of the same qualities of integrity and dedication displayed by their father.

J. Allyn Taylor (1907-2006) was a proud Canadian and Londoner, a business leader and community builder. He expected excellence and exuded enthusiasm.

He believed passionately in the importance of medical research, a conviction motivated by the memory of his father who died of congestive heart failure when Allyn was 12 years old.

Following Allyn's retirement as President and Chairman of the Canada Trust Company, he was instrumental in the creation of Robarts Research Institute and became its founding board chair. Consequently, he helped establish London as an international centre for health and medical research excellence.

Allyn was an Officer of the Order of Canada, member of the Canadian Business Hall of Fame and Chancellor of Western University. He and his wife, Betty, were dedicated philanthropists and the Taylor family has extended their generosity to Robarts. The Taylor Prize in Medicine is one of Canada's most prestigious awards.

SPEAKER BIOGRAPHIES

Pedro Rosa Neto, MD, PhD



Dr. Pedro Rosa-Neto, is a full professor of Neurology, Neurosurgery and Psychiatry at McGill University, affiliated with the Douglas Research Centre. He is a neurologist specializing in developing neuroimaging techniques and analytical frameworks for modeling neurodegenerative processes.

Dr. Rosa-Neto is a Fonds de Recherche Santé - Québec Merit Scholar, Director of the McGill Centre for Studies in Aging, and

vice chair of the CCNA team 2 'Inflammation and Trophic Factor deregulation in Alzheimer's disease. Dr. Rosa-Neto's research is funded by Alzheimer's Association, Canadian Foundation for innovation (CFI), Fonds de Recherche Santé - Québec (FRQ-S), Canadian Institutes of Health Research (CIHR) and the Weston Brain Institute.

Paula Foster, PhD



Dr. Paula Foster is a Professor in the Department of Medical Biophysics at Western University. She leads the Cellular and Molecular Imaging Research Program at Robarts Research Institute and is the Director of Western's Collaborative Specialization in Molecular Imaging.

Her research is focused on the development and application of in vivo cell tracking technologies using nanoparticles with

magnetic resonance imaging (MRI) and magnetic particle imaging (MPI). Major areas of research in the Foster lab include tracking cancer cell dormancy and metastasis in the brain, and imaging immune cells associated with the tumour microenvironment in preclinical models of cancer.

Adam Shuhendler, PhD



Dr. Shuhendler completed his graduate training in the Faculty of Pharmacy at the University of Toronto, where he studied biochemical toxicology and novel nanoformulations of combination chemotherapeutics to overcome multidrug resistance in breast cancer. His post-doctoral training centered further worked to worked to develop novel imaging diagnostics for inflammation and cancer therapy response monitoring by optical photoacoustic, MRI, and PET imaging techniques.

Dr. Shuhendler now works at the University of Ottawa as a Canada Research Chair (Tier 2) in Chemical Biology in 2015, and as a Scientist at the University of Ottawa Heart Institute. Here, his lab has worked to develop a suite of imaging probes useful for cancer, nephrology, and neurology.

Marco Prado, PhD



Dr. Marco A. M. Prado is the Tier 1 Canada Research Chair in Neurochemistry of Dementia, a Robarts Scientist and a Professor in Physiology and Pharmacology and Anatomy & Cell Biology here at Western. Dr. Prado is known for his work in generating and characterizing mouse models of dementia and understanding how neurochemical alterations in neurodegenerative diseases contribute to protein misfolding and cognitive dysfunction.

His research group combines the use of sophisticated touchscreen tests of highlevel cognition and detailed neurochemical, imaging, and genetic analysis to reveal mechanisms regulating pathological changes relevant to human disease.

PAST J. ALLYN TAYLOR INTERNATIONAL PRIZE IN MEDICINE RECIPIENTS

2000: Dr. T. Hunter

2021: Dr. Heather Dean

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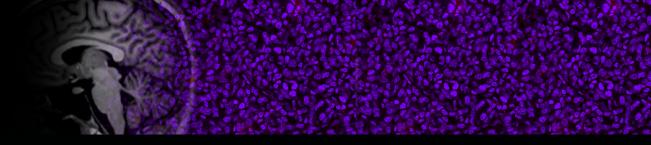






CIBC PRIVATE WEALTH HINES INVESTMENTS





TAYLOR SYMPOSIUM 2022



Thank you for joining us for the 2022 J. Allyn Taylor International Prize in Medicine Symposium.

Details on the nomination process for the 2023 J. Allyn Taylor Prize will be available on www.robarts.ca in the new year.





