

### REGISTRATION:

The IADC Fall Research symposium is offered free of charge, however, registration is required. **Please register online at <http://iadc.medicine.iu.edu/>.** If unable to register online, you may call 317-963-7297 or email [dwert@iupui.edu](mailto:dwert@iupui.edu) to register or learn more about this program.

Indiana Alzheimer Disease Center staff wants everyone to feel welcome at this event. If you have a disability and need an accommodation to participate in this program, we will try to provide it. Please contact us with your needs 72 hours prior to the event by calling (317) 963-7297.

### LOCATION:

Goodman Hall Auditorium is in the IU Health Neuroscience Center located at 355 W. 16<sup>th</sup> Street, Indianapolis, IN 46202. Parking is available in Goodman Hall Garage, located at the corner of Missouri and 15<sup>th</sup> Street (use 362 West 15th Street for GPS purposes). Parking is \$5 per day. Bring parking ticket inside as automated payment machines are located in the building.

### OTHER:

Lodging information may be obtained by contacting the Indianapolis Convention and Visitors Association at (800) 556-INDY(4639) or <https://www.visitindy.com/>



**INDIANA UNIVERSITY**  
INDIANA ALZHEIMER DISEASE CENTER



**INDIANA UNIVERSITY**  
INDIANA ALZHEIMER DISEASE CENTER  
School of Medicine

## 2017 Fall Research Symposium

## Gene Environment Interaction



**GET IN**

**Thursday, October 5, 2017**  
**8:00 am to 4:30 pm**

LOCATION:  
IU Health Neuroscience Center  
Goodman Hall Auditorium  
355 W. 16th Street  
Indianapolis, IN 46202

### Description:

The Indiana Alzheimer Disease Center (IADC) at the Indiana University School of Medicine (IUSM), hosts an integrative overview of Alzheimer's disease (AD) research. Major themes include Genetics and Epigenetics, Lifestyle and Epigenetic therapies, and Neuroimaging and Systems Biology. Investigators, who use multiple approaches in AD research, will present on a wide range of topics, united primarily by the concept of AD as a complex disorder significantly influenced by both genetic and environmental factors.

### Objectives:

At the conclusion of this program, participants will:

- ◆ Increase familiarity with how epigenetic and regulatory aspects of AD would foster novel therapeutic approaches. These include consideration of both preventive and therapeutic strategies that include a combinatorial approach and go beyond identifying a single gene product.
- ◆ Be exposed to the concept of AD as a significantly heterologous condition, which, thus, may be amenable to diverse interventions, including dietary, lifestyle, and environmental modifications.

### Course Directors:

Debomoy K. Lahiri, PhD  
Professor of Neuroscience, Psychiatry and Medical & Molecular Genetics, and Leader of the Research Education Core for the IADC, IUSM

Andrew J. Saykin, PsyD  
Raymond C. Beeler Professor of Radiology & Imaging Sciences and Director of the IADC, IUSM

For more information and registration:  
<http://iadc.medicine.iu.edu/>

### AGENDA

8.00 am	Registration and Check-In
<b>Session I: Major theme- Epigenetics &amp; Alzheimer's disease</b>	
8:30 am	<b>Andrew J. Saykin, PsyD:</b> Welcome and Update on IADC Research Initiatives.
9:00 am <b>Keynote</b>	<b>Steve Horvath, PhD, ScD:</b> <i>Epigenetic clock analysis of Alzheimer's disease and other dementias.</i>
10:00 am	<b>Brea L. Perry, PhD:</b> <i>Social networks and cognitive performance in older adults with normal cognition, mild cognitive impairment, and mild Alzheimer's disease.</i>
10.35 am	Coffee break
11.00 am	<b>Liana Apostolova, MD, MSc:</b> <i>Tackling the heterogeneity of early onset AD – the LEAD study.</i>
11:30 am	<b>Debomoy K. Lahiri, PhD:</b> <i>Lean to LEARN Alzheimer's.</i>
12:00	Lunch & Poster Viewing
<b>Session II: Exercise, Lifestyle &amp; Epigenetic drugs</b>	
1:00 pm	<b>Frederick W. Unverzagt, PhD:</b> <i>Exercise and cognitive training: Pathways for improved brain health.</i>
1:30 pm	<b>Baindu L. Bayon, PhD:</b> <i>Testing amyloid-beta pathway genes by epigenetic drugs: A novel approach in Alzheimer's.</i>
2.00 pm	Coffee break
<b>Session III: Neuroimaging, System Biology and Therapeutic Targets</b>	
2:15 pm	<b>Kelly Nudelman, PhD:</b> <i>MicroRNA and gene networks underlying the inverse association of cancer and Alzheimer's.</i>
2:45 pm	<b>Kwangsik Nho, PhD:</b> <i>The gut-brain axis: Implication in Alzheimer's disease.</i>
3:15 pm	<b>Cristian Lasagna-Reeves, PhD:</b> <i>Regulation of tau levels by Nuak1 as a novel therapeutic entry point for Alzheimer's disease.</i>
3:50 pm	<b>Debomoy K. Lahiri, PhD:</b> Q & A plus EFFECT session: Evaluation, Feedbacks, Feeling & Comments.
4:15 pm	<b>Andrew J. Saykin, PsyD:</b> Concluding remarks.

## FACULTY:



**Andrew J. Saykin, PsyD**, Raymond C. Beeler Professor of Radiology and Imaging Sciences and Director of both the Indiana Alzheimer Disease Center (IADC), and the IU Center for Neuroimaging, Indiana University School of Medicine (IUSM).

The IADC is one of 30 centers sponsored by the National Institute on Aging. Dr. Saykin is a neuropsychologist whose research focuses on using advanced brain imaging and genetics to understand disorders affecting memory and cognition. Advances in brain imaging have become increasingly important for the early detection of disorders leading to dementia.



**Steve Horvath, PhD, ScD**, Professor, Department of Human Genetics, David Geffen School of Medicine, UCLA, Los Angeles, CA. Steve Horvath received a Ph.D. in Mathematics from the University of North Carolina, Chapel Hill in 1995 and a Doctorate of Science in Biostatistics from the Harvard School of Public Health in 2000.

Dr Horvath's research lies at the intersection of epidemiology, chronic diseases, epigenetics, genetics, and systems biology. He developed systems-biologic approaches such as weighted gene co-expression network analysis. He works on all aspects of biomarker development with a particular focus on genomic biomarkers of aging. He developed a highly accurate non-genomic multi-tissue biomarker of aging known as the epigenetic clock, which has high accuracy to a broad spectrum of tissues and cell types. He develops and applies methods for analyzing and integrating gene expression, DNA methylation, microRNA, genetic marker, and complex phenotype data. His lab members apply and develop data mining methods to study a broad spectrum of diseases, e.g. aging research, cancer, cardiovascular disease, HIV, Huntington's disease, neurodegenerative diseases.



**Brea L. Perry, PhD**, Associate Professor of Sociology and an affiliated faculty of the Indiana University Network Science Institute. Her research focuses on the intersections of medical sociology, biosociology, and social networks.

Her recent research has examined the interrelated roles of dynamic social networks, peer and family relationships, social inequality, and biological systems in disease etiology and the illness career. She has a strong interest in longitudinal research, dynamic social processes, and quantitative methods, especially personal social network

analysis. Much of her work examines how and why social network structure and function evolve in response to the onset of mental illness, focusing on stigma and the activation of supportive ties. Her current NIH-funded projects investigate social network indicators of prescription drug seeking behavior, the role of personal social networks in neurodegeneration and older adults' cognitive decline, and the coevolution of recent Mexican immigrants' social networks and oral health attitudes, behaviors, and outcomes.



**Liana Apostolova, MD, MSc**, Barbara and Peer Baekgaard Professor in Alzheimer's Disease Research; Professor of Neurology, Radiology and Medical & Molecular Genetics. Dr. Apostolova has been at IU since June of 2015. She is a prolific researcher with over

100 original peer-reviewed publications. Her research focuses on early symptomatic and presymptomatic stages of AD and on development and validation of sensitive imaging and genetic biomarkers for AD and other dementing disorders. Dr. Apostolova is a former recipient of the K23 Beeson Career Development Award as well as several grants from the NIH, private foundations and industry. She was awarded the 2010 American Academy of Neurology Research Award in Geriatric Neurology, the 2010 American Federation for Aging Research GE-Healthcare Junior Investigator Award for Excellence in Imaging and Aging Research and 2007 Turken Research Award. She serves as Editor for Alzheimer's and Dementia: Disease Assessment and Monitoring and as Chair of the Neuroimaging Professional Interest Area for the Alzheimer's Association.



**Debomoy K. Lahiri, PhD**, Professor of Neuroscience, Psychiatry and Medical & Molecular Genetics, and leader of the Research Education Core for the IADC, IUSM.

Dr. Lahiri studies the mechanism of aging, origin and biogenesis of the amyloid plaque, and tests potential drug targets for AD and other brain disorders. His group elucidated the role of environmental factors, epigenetics, and specific microRNA on AD, and made significant contributions to map biochemical pathways for neurodevelopment disorders, such as autism and fragile X syndrome. Dr. Lahiri has been awarded multiple R01 and R21 grants as a Principal Investigator from the National Institute on Aging, NIH; Alzheimer's Association, and IIRG from Baxter Healthcare, Forest Research labs, and Novartis, Inc, USA. He is a member of the Scientific Advisory Board of several biotech companies. Dr. Lahiri has several patents and published over 300 scientific articles in neurobiology,

genetics, and AD. He is the Founding Editor-In-Chief of 'Current Alzheimer Research'. He authored books, such as 'Protective Strategies for Neurodegenerative Diseases' published by New York Academy of Sciences. Dr. Lahiri's honors include receiving the 'Zenith Fellow Award'.



**Frederick W. Unverzagt, PhD**, Professor of Psychiatry, Department of Psychiatry; Associate Leader, IADC Clinical Core, IUSM.

Dr. Unverzagt is also the training director for the residency in Clinical Neuropsychology and he provides outpatient consultations for patients with possible brain disorders, in the Neuropsychology Clinic in the Department of Psychiatry. His research interests are focused on clinical assessment of memory loss and cognitive impairment in the U.S. and abroad. He is IU's site Principal Investigator for one of the largest randomized, controlled trials of a cognitive intervention ever undertaken, the ACTIVE (Advanced Cognitive Training for Independent Vital Elderly) study.



**Baidou L. Bayon, PhD**, Postdoctoral Fellow, Department of Psychiatry, IUSM.

Dr. Bayon's current research focus is on the neurogenetics of Alzheimer's disease and regulation of amyloid production via modulating transcription factors as well as epigenetic factors. She serves on the board of directors for Adult & Child Health and is a graduate of the Indianapolis Urban League Exchange Fellows Program in conjunction with the Kelley School of Business and the Randall L. Tobias Center for Leadership Excellence. Dr. Bayon was honored as an Indianapolis Business Journal Forty Under 40 and IUPUI's Elite 50 and William M. Plater Civic Engagement Medallion awards in 2017. She was a recipient of the 2016 Center for Leadership Development Achievement in Science and Technical Disciplines Award and the 2016 Dr. George Rawls Emerging Leader Award for Excellence in Medicine & Science by the 100 Black Men of Indianapolis, Inc. She is an advocate for equal representation and opportunity in Science, Technology, Engineering, and Mathematics (STEM).



**Kelly Nudelman, PhD**, Assistant Research Professor of Medical and Molecular Genetics, IADC Imaging and Genetics Cores and IU Center for Neuroimaging, IUSM.

Dr. Nudelman's research interests lie at the intersection of normal cognitive aging and age-related diseases, particularly cancer and neurodegenerative disease. Dr. Nudelman received her PhD from the IUSM's Graduate Division in 2015, for her thesis on

cognitive dysfunction in cancer. During this time she also initiated a project investigating cancer comorbidity in neurodegenerative diseases, which she continues to pursue as a post-doctoral appointee for Dr. Andrew Saykin. Her research utilizes a systems-biology approach to analyze molecular networks underlying the inverse association of cancer and neurodegenerative disease.



**Kwangsik Nho, PhD**, Assistant Professor of Radiology and Imaging Sciences, IUSM.

Dr. Nho's research expertise is in the areas of bioinformatics, imaging informatics, and medical informatics, particularly, in bringing together bio-, medical, and imaging informatics methodologies in an integrated manner to study the genetic etiology of complex diseases including Alzheimer's disease. Dr. Nho was the PI of a NLM K99/R00 Award focusing on a novel integrated informatics strategy to combine next generation sequencing from an extreme-trait design and neuroimaging genetics in a larger sample to identify novel "functional" non-synonymous variants associated with multimodal biomarkers of AD progression. Dr. Nho is developing novel statistical methods and strategies to integrate multi-omics, multimodal neuroimaging (MRI, PET), and clinical/behavioral data sets.



**Cristian Lasagna-Reeves, PhD**, Investigator with Stark Neuroscience Research Institute.

He has always been intrigued by the role that native physiological interactions play in the aggregation process of a specific protein. The main focus of the Lasagna-Reeves lab is to comprehensively elucidate the cellular and molecular mechanisms involved in the transition that the microtubule associated protein tau undergoes from its physiological function to aggregated toxic function in neurodegenerative tauopathies. To investigate the mechanisms of these diseases, Dr. Lasagna-Reeves has used a broad range of strategies, such as in vitro aggregation assays, disease cellular models, mouse genetic interaction, behavioral studies, and human neuropathology.

**CALL FOR POSTERS: Attendees are invited to submit abstracts highlighting their research related to the symposium theme. Up to 20 abstracts will be selected for poster presentations during the symposium. Posters are to be displayed for the full day; an author will be expected to be at their posters during the poster presentation time. Please submit a 250 word abstract to [iadc@iu.edu](mailto:iadc@iu.edu) by September 22 .**