The NKI-Rockland Sample research program is getting ready to launch a newly funded (NIMH 1R01MH124045) next generation study with enrollment beginning this winter. The NKI-Rockland Sample (NKI-RS) has served as a beacon for lifespan connectomics research, providing a model for accelerating the pace of psychiatric discovery science. More than 200 publications have used NKI-RS data, generated largely by independent investigators and in major journals. Since 2011, NKI-RS has generated and publicly shared a large-scale (N > 1400), deeply phenotyped, community-ascertained, cross-sectional, lifespan sample (ages 6–85 years old) with advanced connectomics-focused neuroimaging (i.e., diffusion MRI [dMRI], resting state fMRI [R-fMRI]) and genetic samples.

Recently launched large-scale efforts, such as the HCP (Human Connectome Project) Lifespan Studies and the NIH ABCD (Adolescent Brain Cognitive Development) Study, are working to bring to scale human connectome mapping and brain function across the lifespan using “battle-tested” imaging technologies and strategies. These ongoing studies are less focused on mental health. Moreover, technologies and ideas continue to evolve – often too rapidly to permit timely testing and inclusion in ongoing research.

The overarching goal of the current study, led by MPIs Mike Milham and Stan Colcombe, is to create the next generation NKI-RS initiative that will once again extend the vanguard in the study of lifespan connectomics by enriching and expanding the landscape for neuroscientific advancement and biomarker discovery. Three major themes have guided the design of this new NKI-RS-II lifespan resource: 1) multimodal measurement integration across functional domains (e.g., fMRI, EEG, mobile brain/body imaging [MoBI] framework); 2) ecological sampling (e.g., wearables, sensors, smartphones apps); and 3) enhanced physiological phenotyping for cardiovascular fitness and obesity.

Specifically, in a community-ascertained lifespan sample (N = 600; ages 9-75; M:F = 1:1; age range selected to maximize data yield and tolerability), this work aims to: 1) Generate and share large-scale multimodal MRI/EEG imaging data complemented...
by comprehensive phenotyping of cognition, behavior, and psychiatric status, from human and sensor-based informants; 2) Optimize brain-age prediction across the lifespan using multimodal data (R-fMRI, Naturalistic Viewing fMRI [NV-fMRI], dMRI, T2/T1, R-EEG, NV-EEG) and relate deviations from chronological age to dimensions of psychopathology and cognitive performance; and 3) Identify the relationship of modifiable health risk factors (e.g., fitness, obesity, physical activity, substance use) to deviations between predicted brain age and chronological age across the lifespan.

Consistent with the model established by the previously funded NKI-RS initiatives, all data will be shared prospectively, on a quarterly basis, via the International Neuroimaging Data-sharing Initiative (INDI) and the NIMH Data Archive (NDA). If you have any questions about the existing NKI-RS data resource or the new study and measures that will soon be available, please feel free to contact our research group at RocklandSample@nki.rfmh.org.

**GRANTS RECEIVED**

**NEW VISION RESEARCH**

**Dr. Ralph Nixon,** Director of the Center for Dementia Research, has been selected as the first recipient of The Leonard Litwin Scholar Award that was introduced in 2021 as a means of supporting scientists who have demonstrated commitment to the advancement of research in Alzheimer’s disease (AD). The award, funded through **New Vision Research**, recognizes Dr. Nixon’s significant contribution to the AD research field and provides funding for his research on **the molecular basis of synapse failure in Alzheimer’s disease and related dementias**, in order to foster continuing contributions in the future. There is no formal application required for The Leonard Litwin Scholar Award, as it is presented “ut visum fit” to individuals.

**New Book Examines Everyday Language**

**Diana Sidtis, PhD, CCC/SLP,** (Brain & Behavior Laboratory) has published her second book. **Foundations of Familiar Language** is a new contribution to the study of conversational speech formulas, idioms, proverbs, expletives collocations, and an array of other conventional phrases, which make up nearly one fourth of our verbal communication together and are known to speakers of a language community. Examples from everyday talk, the media, and literature highlight the importance and constant presence of these familiar expressions. The book covers topics such as the role of fixed expressions in education, social sciences, cognitive psychology, and brain science. It also presents new research on the neurological and psychiatric foundations of familiar language drawn from clinical observations and experimental studies in stroke, dementia, schizophrenia, and Parkinson’s disease.

Dr. Sidtis is a Research Scientist at NKI and Professor Emerita of Communicative Sciences and Disorders at New York University. She is the co-author of **Foundations of Voice Studies**, which won the 2011 Prose Award for Scholarly Excellence in Linguistics from the American Publishers Association. Her research examining voice, aphasia, motor speech, prosody, and formulaic language has been published in more than 130 peer-reviewed journals and other publications.
IN MEMORIAM

Maria Hui
1950 – 2021

NKI mourns the passing of long-time employee Maria Hui, PhD. The following remembrance was contributed by Mariko Saito, whose lab Maria worked in most recently.

Educated in Hong Kong, Maria came to the United States in 1977 with her husband Koon-Sea to work at the New York State Research Institute for Neurochemistry and Addiction, located on Wards Island in New York City. Later they moved to NKI from the Research Institute, which merged with NKI. At NKI, Maria mainly studied puromycin-sensitive aminopeptidase with Koon-Sea. Notably, they identified and purified neuron-specific puromycin-sensitive aminopeptidase. That work was very important, because later studies of theirs and others indicated that puromycin-sensitive aminopeptidase is a modifier of neurodegeneration, such as tau-induced neurodegeneration.

Since I met Maria in 1986 at NKI, she was my close friend for 35 years. Fortunately, I had opportunities to work with her including the last several years, during which Maria studied mechanisms of alcohol-induced toxicity in the developing brain. It was wonderful working with her, because she was always “Maria”, sincere, unassuming, calm, and friendly to everybody. She was not only a skillful and a reliable researcher but also a person who can make people around her comfortable and happy. On a personal level, I learned a lot of things from her, even how to raise children, because she was wise and knowledgeable in every way. I always admired her conscientious and loving way to raise her children even when she was very busy. I am sure everybody who knew Maria will miss her very much.

KUDOS

Two NKI investigators have once again been recognized for their high-impact research. Drs. F. Xavier Castellanos (Clinical Research) and Michael Milham (Center for Biomedical Imaging & Neuromodulation) both appear on the 2021 list of Highly Cited Researchers compiled by Clarivate. Both have made the list every year since 2014, demonstrating their consistent output and influence.

The Highly Cited Researchers list recognizes the world’s most influential researchers of the past decade, demonstrated by the production of multiple highly cited papers that rank in the top 1% by citations for field and year. This select group includes only 1 in 1,000 of the world’s researchers.
FROM AROUND THE INSTITUTE

Kuldeep Sachdeva, PhD, is a new postdoctoral fellow who joined Dr. Nixon’s lab in October. Kuldeep completed his undergraduate studies in Biotechnology at the Kurukshetra University in India followed by a master’s degree in Molecular Biology and Biotechnology at CCS Haryana Agriculture University (CCSHAU). In 2014, Kuldeep joined the National Centre for Biological Sciences (NCBS | TIFR) at Bengaluru, India for his PhD under the supervision of Dr. Varadharajan Sundaramurthy. There, he investigated modulations in the host Endo-Lysosomal network upon *Mycobacterium tuberculosis* (the tuberculosis disease-causing pathogen) infection in both *in vitro* and *in vivo* model systems.

Thank You

NKI’s Community Building Committee (CBC) once again organized a Thanksgiving food drive to help feed the hungry in Rockland County. The CBC is pleased to announce that NKI donated over 290 pounds of food and over $500 virtually during the food drive, with a total value estimated at well over $1300!

PUBLICATIONS OF NOTE

**ANNUAL REVIEW OF DEVELOPMENTAL PSYCHOLOGY**

Michael Milham (Biomedical Imaging & Neuromodulation) coauthored this paper in the *Annual Review of Developmental Psychology*.


**ANNUAL REVIEW OF PSYCHOLOGY**

Lila Davachi (Biomedical Imaging & Neuromodulation) and colleagues published this review in the *Annual Review of Psychology*.


**PNAS**

Donald Wilson, Emotional Brain Institute Director, is a coauthor of this open access paper recently published in *PNAS*.

Two papers by NKI authors were published recently in JAMA Psychiatry.

Katlyn Nemani (Clinical Research) and Donald Goff are the lead authors, with NYU colleagues, of this Research Letter published in the December issue. This study was highlighted in Medscape Medical News and in a Psychiatric News Alert.


The second JAMA Psychiatry paper was coauthored by Panos Roussos (Dementia Research).


Maya Opendak, Regina Sullivan, and Emotional Brain Institute colleagues have a new article in Neuron.


Also recently published in Neuron is this meeting report. Michael Milham is the corresponding author, and Stan Colcombe, Henry Evrard, Alex Franco, Brian Russ, and Charles Schroeder (Center for Biomedical Imaging & Neuromodulation) were all participants.


Pejman Sehatpour, Joshua Kantrowitz, and Daniel Javitt (Schizophrenia Research) are coauthors of this article published in Neuropsychopharmacology.


Aidong Yuan and Ralph Nixon (Dementia Research) published this open access review in Frontiers in Neuroscience.

Jean-Pierre Lindenmayer and colleagues (Manhattan Psychiatric Center) published this case report in the *Journal of Clinical Psychopharmacology*.


Vilma Gabbay (Clinical Research) coauthored this paper in *The American Journal of Psychotherapy* with colleagues at Albert Einstein College of Medicine.


Stephen Ginsberg (Dementia Research) is the first author of this open access review article appearing in *Journal of Neurochemistry*.


Daniel Javitt, Schizophrenia Research Director, published this editorial in the October issue of *The American Journal of Psychiatry*.


Ricardo Osorio (Clinical Research) is a coauthor of this paper appearing in the *European Respiratory Journal*.


Michael Milham (Biomedical Imaging & Neuromodulation) is the senior author of this article appearing in the open access *Journal of Medical Internet Research*.

INFO UPDATE

All About Preprints

What are preprints, and how are they changing how biomedical research results are shared? Should you use information from preprints? Should you share your own research results in a preprint? If you have questions like these, Preprints: Accelerating Research is a one-hour, self-paced course from the National Library of Medicine (NLM) that explains the basics of preprints and explores the benefits and considerations of using and submitting them.

Happy Anniversary

MEDLINE was launched in 1971 and celebrated its 50th anniversary in October. MEDLINE is the NLM’s premier bibliographic database that contains more than 28 million references to journal articles in life sciences with a concentration on biomedicine. With the launch of PubMed in 1997, MEDLINE data became available via the internet. In fiscal year 2021, there were 2.58 billion PubMed searches!

DEPARTMENT OF WONDER

October saw the publication of a number of papers reporting on monumental brain mapping projects.

BRAIN Initiative Cell Census Network (BICCN)

First is the output of the BRAIN Initiative Cell Census Network (BICCN), part of the NIH’s Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative. The aim of the BICCN is to identify and catalog the diverse cell types in human, monkey, and mouse brain. The first products of this endeavor – a comprehensive mapping of the cell types in the mammalian motor cortex on a molecular level – have now been published in a series of papers in the Nature family of journals. You can read more about this landmark achievement in posts from the NIMH Director (“A Milestone in Mapping the Brain”) and from the NIH Director (“First Comprehensive Census of Cell Types in Brain Area Controlling Movement”).

The American Psychiatric Association Foundation has launched the Mentally Healthy Nation Podcast, which features “candid conversations that will focus on educating the public and providing tangible solutions to our mental health crisis. Each episode will focus on an aspect of mental health that impacts your community, where you live, learn, work, and worship.”
The second notable publication pertains to the fruit fly brain – specifically, an ongoing project to map its connectome. The new publication (more like a book at 360 pages) reports on the connectome of the fly brain central complex, which plays an important role in navigation. You can read more about this milestone in *The New York Times* (“Why Scientists Have Spent Years Mapping This Creature’s Brain”) and see the publication online in *eLife*.

**EVENTS AND SEMINARS**

**Statewide Grand Rounds**

The archived recording of October’s Grand Rounds program on *Addressing Cognitive Health to Improve Quality of Life* presented by Alice Medalia, PhD, along with NKI Director Donald Goff, MD, is now available for viewing at [https://omh.ny.gov/omhwebbps/](https://omh.ny.gov/omhwebbps/).

**Neuroimaging to Real-Time Monitoring: Improving the Prediction of Adolescent Suicide**

*Presenter*

Randy Auerbach, PhD
Associate Professor, Columbia University

Wednesday, December 15th, 1:00 – 2:15 pm

The New York State Office of Mental Health (OMH) regularly hosts an interactive video broadcast covering the latest research, technology, and treatment implementation in the fields of psychiatry and psychology. These programs are recorded, and the archived Statewide Grand Rounds programs can be viewed on the OMH website.

**NKi ON THE (VIRTUAL) ROAD**

Center for Dementia Research Director Ralph Nixon co-chaired a virtual symposium on “Emerging Roles of the Lysosome in Neurodegenerative Disease” at the 2021 Society for Neuroscience meeting in November. During the symposium session, Dr. Nixon gave a pre-recorded presentation titled “Genetic basis for lysosomal dysregulation in Alzheimer’s disease and related disorders”. He also participated in a live Q&A.

Dr. Nixon also presented virtually at the 14th *Clinical Trials on Alzheimer’s Disease* hybrid meeting held in November. In a symposium titled “Back to the Future: Emerging Opportunities to Treat Basal Forebrain Cholinergic Neuron (BFCN) Dysfunction in Alzheimer’s Disease (AD)”, Dr. Nixon gave a talk on “Mechanisms of, and Preclinical Results with Novel Approaches to Treating, BFCN Dysfunction and Degeneration”.

Clinical Research Director Dan Iosifescu, MD, MMSc, gave the OMH Statewide Grand Rounds presentation on November 17th, along with Anne Smith, MD. The topic was “Difficult to Treat Bipolar Disorder”.

In addition, Dr. Iosifescu gave the September 17th grand rounds presentation for the NYU Department of Child and Adolescent Psychiatry on “Novel Treatments in Depression: Ketamine and Photobiomodulation”. A recording of that presentation can be found [here](#).
Below is a list of references that have been added to the NKI publications database since the previous update. The full database contains over 6,700 items dating back to 1995 and can be searched from the myNKI website.


