

WAYNE STATE UNIVERSITY

news release

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Wayne State receives \$3.6 million grant to advance understanding of Alzheimer's and other dementias

DETROIT – Wayne State University has received a \$3.6 million grant from the National Institute on Aging (National Institutes of Health) for a project that will advance knowledge of the brain aging, its relation to cognitive performance and the role of common vascular and metabolic risk factors in shaping the trajectories of aging. The project is a continuation of the longitudinal study of healthy volunteers from the Metro Detroit area.

According to the principal investigator, Naftali Raz, Ph.D., professor of psychology and director of lifespan cognitive neuroscience program in the Institute of Gerontology at Wayne State University, the focus of the study is on healthy aging. “Although dementia is a major health concern and its prevention is the ultimate aim of many leading programs of basic and clinical research, advancement towards that goal necessitates understanding of normal aging,” emphasized Raz.

“The main focus of this project, which has been funded by the National Institute on Aging for the past 23 years, is elucidating the relationships between changes in in the brain properties, (regional volume, cortical thickness, iron content, energy metabolism, myelin content and connectivity among the brain regions), changes in cognitive performance across multiple domains (memory, speed of processing, complex reasoning skills) as well as modifying effects of risk factors for vascular and metabolic disease on these relationships,” explained Raz. The research involves noninvasive evaluation of the brain through MRI, assessment of cognitive performance and examination of blood biomarkers and genetic variants with known links to vascular and metabolic diseases.

Over the past two decades, Dr. Raz, his research team and his colleagues and collaborators Drs. Jeffrey Stanley and E. Mark Haacke have been charting the natural course of aging in healthy adults and determining the neural mechanism of change. Their earlier studies from the Raz lab demonstrated increased vulnerability to aging in distinct brain regions: hippocampus, orbital-frontal cortex, entorhinal/parahippocampal cortex and cerebellum, and suggested a role of common vascular risk factors such as hypertension as well as genetic markers of increased pro-inflammatory response in exacerbating the negative changes. In the first of its kind longitudinal study, Raz and his graduate student Ana Daugherty found that an increase in iron content of the striatum increases shrinkage of that region and affects cognitive skill such as working

memory. “This illustrates just how indispensable longitudinal studies are for understanding the mechanisms of adult development and aging. Identifying vascular and metabolic risk factors that exacerbate brain aging is particularly important because many of them can be mitigated by life-style changes and behavioral interventions,” concluded Raz.

“Dr. Raz’s research has made important strides in furthering our understanding of dementia and Alzheimer’s disease,” said Gloria Heppner, Ph.D., vice president for Research at Wayne State University. “It is our great hope that Dr. Raz’s work will one day offer new treatments to reverse – or at a minimum – stop the progression of these unpleasant syndromes.”

The project number for this grant is AG011230.

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About Wayne State University

Wayne State University is one of the nation’s pre-eminent public research universities in an urban setting. Through its multidisciplinary approach to research and education, and its ongoing collaboration with government, industry and other institutions, the university seeks to enhance economic growth and improve the quality of life in the city of Detroit, state of Michigan and throughout the world. For more information about research at Wayne State University, visit research.wayne.edu.