

**Toni Pak, Ph.D.**

James R. DePauw Professor and Chair,  
Department of Cell and Molecular Physiology  
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2002 - Ph.D. – Neuroscience - University of Colorado at Boulder

1997 - MA – Education (Science) - University of Colorado at Boulder

1995 - BA – Environmental, Population and Organismic Biology - University of Colorado at Boulder

Dr. Toni Pak holds an endowed Professorship for research in Physiology and has been the Chair of the Department of Cell and Molecular Physiology at Loyola University Chicago for over 5 years; prior to that she served as the Director of the Neuroscience Division of the Cardiovascular Research Institute. Dr. Pak was trained as a molecular neuroendocrinologist and has devoted her career to understanding how fundamental molecular signaling pathways change across the normal lifespan, and in the context of various disease states. She is an expert in RNA biology with a primary focus on non-coding RNAs and their regulation across the lifespan, projects for which she has been continuously funded throughout her career by the National Institutes of Health. Most recently she led the initiative to form the Center for Healthy Aging and Resilience Mechanisms (CHARM) at Loyola University Chicago, whose mission is to foster collaborative interdisciplinary research on the molecular mechanisms driving normal aging processes, with a specific emphasis on women's health. She has proven leadership in stimulating collaborative research across multiple scientific disciplines, and emphasizes the importance of considering biological context (i.e. environmental, hormonal, age, genetic, epigenetic) as a critical variable in her research.

Our research is focused on the molecular signaling mechanisms of nuclear steroid receptors in the brain during both pubertal development and aging/menopause. Elucidating the molecular basis of nuclear steroid receptor-mediated gene expression is critical to understanding how steroid hormones modulate a variety of physiological and disease processes. We currently have 2 active areas of research in the lab: A) estrogen receptor signaling in the aging brain; B) glucocorticoid receptor signaling in the adolescent brain. Our approaches include direct modification (gene splicing, post-translational modifications), accessory regulation (association with co-regulatory proteins), and epigenetic modulation (regulation of microRNAs, target gene availability).