

CoNDA Center Colloquium

April 1, 2026 | 9:00am - 1:05pm

UNMC Durham Research Center 1 Auditorium

The **CoNDA Center** is a Phase 2 NIGMS/NIH-supported Center of Biomedical Research Excellence (COBRE) based at the University of Nebraska Medical Center in Omaha.

Vision

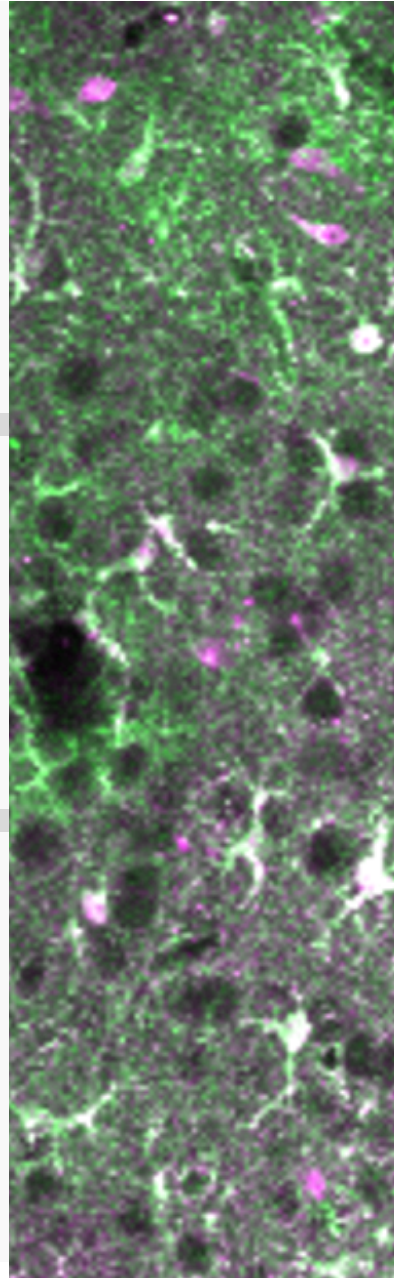
Our vision is to expand translational and clinical neuroscience research in the Omaha region and across the world, and to enhance the ability of current and future generations of local scientists to successfully compete for extramural funding, publish high-impact work and rise to the forefront of the field.

Mission

The CoNDA Center's mission is to build and strengthen strong research infrastructure for junior investigators to thrive by supporting **Research Projects, Pilot Projects, Research Cores (TIBA and NA2), a Seminar Series, skills workshops, faculty recruitment,** and many more activities.

CoNDA Campus

Based at the University of Nebraska Medical Center (**UNMC**) in Omaha, Nebraska, the CoNDA Center partners with the University of Nebraska at Omaha (**UNO**) and Creighton University (**CU**) to extend the "CoNDA-Campus" citywide in our quest to advance neuroscience research across the lifespan in our region.



9:00-9:10am

Welcome

CoNDA Center Director: **Anna Dunaevsky, PhD**
Professor, Department of Neurological Sciences
(UNMC)

9:10-9:30am

Investigating the Role of Attention in Perceptual and Cognitive Consequences of Parkinson's Disease

Research Project Leader: **Christopher Kovach, PhD**
Assistant Professor, Department Neurosurgery (UNMC)

9:30-9:45am

Impacts of Amyloid and Tau Pathology in Visual Brain Regions

Pilot Project Leader: **Matthew Van Hook, PhD**
Associate Professor, Department of Ophthalmology and
Visual Sciences (UNMC)

9:45-10:05am

Molecular and Neural Dissection C1→PAG Circuit in Anxiety-Related Behaviors

Research Project Leader: **Carlos Fernández-Peña, PhD**
Assistant Professor, Department Neurological Sciences
(UNMC)

10:05-10:30am

"PRANK-Generations" Study

Team Science Administrative Supplement Leaders: Drs.
David Warren, Jieqiong Wang, Kuan Chen (UNMC), &
Janelle Beadle (UNO)

10:30-10:45am

Break

10:45am-12:00pm

Poster Session

in DRC1 lobby area

12:00-1:00pm

Keynote: The Hypothalamic Hypocretin/Orexin System as a Target for Treatment of Sleep Disorders and Addiction

Keynote Seminar Speaker: **Thomas Kilduff, PhD**
Director, Center for Neuroscience at SRI International

1:00-1:05pm

Conclusion

and poster award presentation

1. Gopal P. Jadhav, Creighton University. **Therapeutic potential of 2-(1H-benzo[d]imidazol-1-yl)-N-(diphenylpyridinyl)-acetamide analogs in Alzheimer's Disease Rat model: Chemical synthesis, Molecular Docking, Histology and Cognitive Studies.** Co-Authors: Yogeshwari S. Aherao, Jitendra Bhosale, Pooja Deshmukh, Smita Sadar, Shubhangi Daswadkar

2. Alexandria Anding, UNMC. **Investigating the role of astrocytes in deficient sleep in Fragile X syndrome mouse model.** Co-Authors: Nividetha Sankar, Peng Zhong, Anna Dunaevsky

3. Micah Summerlin, UNMC. **Long-Acting Antiretroviral Formulations Restore the Fetal Neurometabolome.** Co-Authors: Mariano G. Uberti, Dhananjay Shinde, Emma G. Foster, Brady Sillman, Manjeet Kumar, Baojin Yao, Christine Adalikwu, Sandip Godse, Jhyama Gurung, Benson J. Edagwa, Howard E. Gendelman, Yutong Liu, Aditya N. Bade

4. Jakson Martens, UNMC. **Examining the effects of prenatal alcohol exposure on the auditory system in a mouse model of fetal alcohol spectrum disorders.** Co-Authors: Mia Garcia, Mariam Garcia Escobar, Padmashri Ragunathan

5. Jingxian Gu, UNO. **Deep phenotyping of ASD requires continuous home-based evaluation of interpersonal synchrony: A proposal for a gamified social and motor skills.** Co-Author: Dobromir Dotov

6. Christopher P. Engsborg, UNO. **Classification of Gait-Like Plantar Stimulation from fMRI BOLD Activity.** Co-Authors: Aaron D. Likens, Yingying Wang, Steven Barlow, David E. Warren, Mukul Mukherjee

7. Dobromir Dotov, UNO. **Endogenous and exogenous rhythmic auditory cueing for manipulating the gait of young healthy adults and persons with Parkinsons' disease.** Co-Author: Jingxian Gu

8. Mohamed Azzam, UNMC. **Scalable AI for Fetal Ultrasound: Congenital Heart Disease Detection and Foundations for Downstream Prenatal Imaging Tasks.** Co-Authors: Ziyang Xu, Ruobing Liu, Esther C. Ugwueke, Shibiao Wan, Jason Christensen, Ling Li, Jieqiong Wang

9. Jordan B. Hernandez, UNO. **Training a convolutional neural network to identify altered locomotion patterns in socially isolated marmosets treated with antibiotics.** Co-Authors: Dobromir Dotov, Xin Zhong, Abdullah Tanvir, and Jonathan B. Clayton

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10. Ruobing Liu, UNMC. **Classifying Adolescent Drinking from Baseline Behavioral, Biological, and Environmental Features.** Co-Authors: Mohamed Azzam, Nikki Zabik, Shibiao Wan, Jennifer Blackford, Jieqiong Wang
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11. Narendra Kumar, UNMC. **Hamster model of post-acute sequelae of SARS-CoV-2 (PASC) parallels with human PASC.** Co-Authors: Arpan Acharya, Urvinder K Sardarni, Swathi P Murakonda, Samuel D Johnson, Debapriya Sutar, Balasrinivasa R Sajja, Mystera M Samuelson, Samuel M Cohen, Siddappa N Byrareddy
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12. Niveditha Sankar, UNMC. **Neural circuits underlying sleep impairments in Fragile X syndrome.** Co-Authors: Yadira Tirado Cabrera, Carmela Huntington, Alexandria Anding, Peng Zhong, Anna Dunaevsky
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13. Ziyang Xu, UNMC. **Semi-supervised Domain Adversarial Automated Segmentation Pipeline for the Bed Nucleus of the Stria Terminalis.** Co-Authors: Mohamed Azzam, Marshall Biven, Marcus Dustin, Shibiao Wan, Jennifer Urbano Blackford, Jieqiong Wang
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14. Peiting Tsai, UNL. **Systematic Review of Neuroimaging Evidence Supporting the Last-In-First-Out Theory in Brain Aging.** Co-Author: Yingying Wang
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15. Yingying Wang, UNL. **Age-Related Hearing Decline and Resting-State Networks.** Co-Authors: Lucas Kortus, Steven Barlow, Judith Harvey
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16. Ke Pang, UNMC. **Dysfunction of MCH neurons in the tauopathy condition of Alzheimer's disease.** Co-Authors: Siyin Guo, Wyatt Morse, Leann Xu, Peng Zhong
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17. Siyin Guo, UNMC. **Sleep Disruptions in a transgenic mouse model of Alzheimer's Disease.** Co-Authors: Wyatt Morse, Ke Pang, Leann Xu, Peng Zhong

Thomas Kilduff, PhD



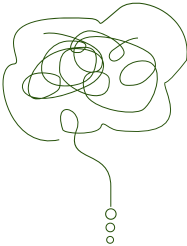
Thomas S. Kilduff, Ph.D. is Director of the Center for Neuroscience in the Biosciences Division at the non-profit SRI International in Menlo Park, California. He is co-discoverer of the hypothalamic neuropeptide hypocretin (also known as orexin), a key neurotransmitter in the maintenance of wakefulness. His laboratory also identified a population of cortical interneurons that are activated during sleep in proportion to homeostatic sleep drive. In addition to research on the neural circuitry that controls sleep and wakefulness, his laboratory is also focused on

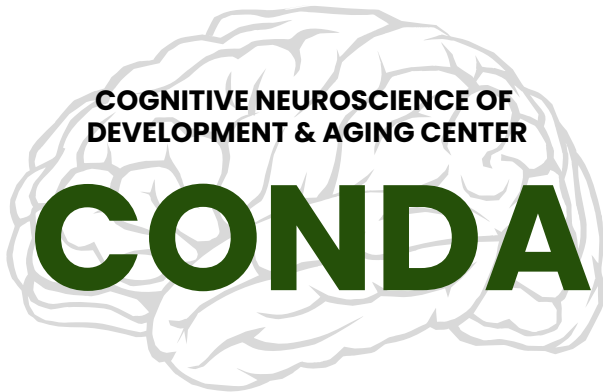
development of pharmacotherapeutics for sleep disorders such as insomnia and narcolepsy. Tom received his MS and PhD degrees from Stanford University where he was a Danforth Foundation Fellow, a National Science Foundation Fellow, and a Grass Foundation Fellow at the Marine Biological Laboratory in Woods Hole. Upon completion of his PhD, he became a National Academy of Sciences-National Research Council Research Associate at NASA-Ames Research Center before he joined the Stanford University Sleep Disorders Research Center. In 1999, he founded the Sleep Neurobiology Program at SRI International and was appointed to direct the Center for Neuroscience in 2008.

The Hypothalamic Hypocretin/Orexin System as a Target for Treatment of Sleep Disorders and Addiction

The neuropeptidergic hypocretin/orexin (Hcrt) system, identified independently by two groups in 1998, has since been established as a central regulator of energy balance, sleep-wake states, and arousal stability. Hcrt-producing neurons in the lateral hypothalamus have been shown to integrate circadian, metabolic, and environmental signals to promote wakefulness and suppress REM sleep, thereby playing a critical role in the regulation of sleep-wake cycles. Hcrt signaling also is involved in hedonic/motivational functions and goal-directed behaviors, as these neurons heavily innervate the limbic system. Accordingly, disruption of this system has been implicated in sleep disorders including Narcolepsy Type 1 (NT1), insomnia, and hypersomnia, as well as substance use disorders. Growing evidence also suggests a role for the Hcrt system in neurodegenerative diseases, neurodevelopmental disorders, and psychiatric conditions. Advances in neuroimaging, electrophysiology, genetics, and pharmacology - particularly the development of orexin receptor agonists and antagonists - have furthered understanding how the Hcrt system interacts with sleep architecture, motivational drive and reward-related processes, and the interplay between sleep and substance use disorders. The discovery that NT1 was due to loss of Hcrt neurons was crucial in understanding not only the neuropathology underlying this disorder but also provided a critical clue regarding the role of this system in the maintenance of wakefulness. In this presentation, I will discuss the physiological consequences of partial vs. complete degeneration of the Hcrt neurons and the relevance for the more prevalent Narcolepsy Type 2 (NT2) and other disorders of hypersomnolence.

Notes





Visit our website to learn more about the
Cognitive Neuroscience of Development & Aging (CoNDA)
Center!

[P20GM130447]



<https://www.unmc.edu/neurologicalsciences/research/conda/index.html>

