

# KEVIN N. HASCUP, PHD



## CURRENT POSITION

Assistant Professor  
[Southern Illinois Univ. School of Medicine](#)  
Springfield, IL, USA  
Depts. of [Neurology](#), Pharmacology, MMICB  
[Center for Alzheimer's Disease](#)

## RESEARCH INTERESTS

- **Glutamatergic Signaling & Cognition**
- **Lifestyle Factors in AD Etiology**
- **Disease Stage Specific AD Therapies**
- **Geroscience Approaches to AD**

## CONTACT

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<https://www.siumed.edu/faculty/kevin-n-hascup.html>

## SOCIAL

 [researchgate.net/profile/Kevin\\_Hascup](https://www.researchgate.net/profile/Kevin_Hascup)

 [linkedin.com/in/kevin-hascup-4662a529/](https://www.linkedin.com/in/kevin-hascup-4662a529/)

 [@HascupLab](https://twitter.com/HascupLab)

## OVERVIEW

### EDUCATION

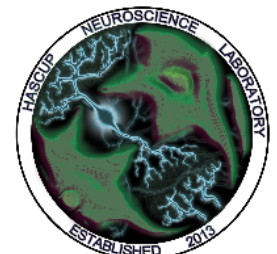
Fellowships: McGill Univ. & Karolinska Institute  
PhD: Neurobiology (Univ. of Kentucky – 2007)  
BS: Biochemistry (Univ. of Delaware – 2001)

### RECENT PUBLICATIONS

- Does SARS-CoV-2 Infection Cause Chronic Neurological Complications? - *GeroScience*
- Lifespan of long-lived growth hormone receptor knockout mice was not normalized by housing at 30°C since weaning - *Aging Cell*

### CURRENT SUPPORT

- R01 AG057767 – Glutamate Neurotransmission in AD Progression
- R01 AG061937 – Cellular Senescence, Inflammation, and Neurotransmission in AD
- IDPH 03282005H – Thermoneutral Housing Conditions for AD Treatment



# KEVIN N. HASCUP, PH.D.

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Current Position: Assistant Professor  
Department of Neurology / Neurosciences Institute  
Center for Alzheimer's Disease and Related Disorders (CADRD)  
Southern Illinois University School of Medicine  
801 N. Rutledge / Room 4324  
Springfield, IL 62702

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Personal: 217-231-1899 / Email: kevinhascup@gmail.com

## AREAS OF RESEARCH

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- Altered glutamatergic signaling in neurodegenerative disorders.
- Relationship among insulin signaling, bioenergetics, neurotransmission, and cognition in AD.
- Modifiable lifestyle factors that accelerate or decelerate AD progression.
- Biomarker targeted, disease stage specific pharmacotherapies to improve AD patient outcome.

## EDUCATION

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### *Undergraduate & Graduate*

**2003 - 2007** Ph.D. ANATOMY & NEUROBIOLOGY  
UNIVERSITY OF KENTUCKY, COLLEGE OF MEDICINE Lexington, KY, USA

**1997 - 2001** B.S. BIOCHEMISTRY (BIOLOGY MINOR)  
UNIVERSITY OF DELAWARE Newark, DE, USA

### *Postgraduate*

**2018 -** ASSISTANT PROFESSOR / SOUTHERN ILLINOIS UNIVERSITY SCHOOL OF MEDICINE  
Department of Neurology Springfield, IL, USA

**2014 - 2018** RESEARCH ASSOCIATE / SOUTHERN ILLINOIS UNIVERSITY SCHOOL OF MEDICINE  
Department of Neurology Springfield, IL, USA

- Mentor: Tom Ala, M.D.

**2009 - 2011** POSTDOCTORAL FELLOW / MCGILL UNIVERSITY  
Department of Psychiatry Montréal, QC, CA

- Mentor: Alain A. Gratton, Ph.D.

**2008 - 2009** POSTDOCTORAL FELLOW / KAROLINSKA INSTITUTE  
Department of Physiology & Pharmacology Stockholm, SE

- Mentors: Jan Kehr, Ph.D.; Per Svenningsson, Ph.D.; Aleksander Mathé, M.D., Ph.D.

## **HONORS, FELLOWSHIPS, and AWARDS**

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- 2019** Manuscript image featured on the cover of the Journal of Neurochemistry "Diet-induced insulin resistance elevates hippocampal glutamate as well as VGLUT1 and GFAP expression in A $\beta$ PP/PS1 Mice" Vol. 148; Issue 2
- 2017** Selected for oral presentation: "Riluzole, but not LY379268, is an effective prodromal treatment in the A $\beta$ PP/PS1 model of Alzheimer's disease." Society for Neuroscience, Washington, D.C., November 2017.
- Selected for oral presentation: "Neurotransmission spanning the Alzheimer's disease continuum: Glutamatergic tone, cognition, and early intervention." Society for Neuroscience, Washington, D.C., November 2017.
- Selected for oral presentation: "Riluzole is an effective prodromal treatment in the A $\beta$ PP/PS1 model of Alzheimer's disease." Dementia. Rome, Italy, September 2017.
- Selected for oral presentation: "Neurotransmission spanning the Alzheimer's disease continuum: Disease-stage specific changes in glutamatergic tone and what it means for therapeutic interventions." Dementia. Rome, Italy, September 2017.
- 2016** Selected for oral presentation: "Diet-Induced Obesity Causes Glutamatergic Dysregulation and Exacerbates Memory Impairment in A $\beta$ PP/PS1 Mice." Alzheimer's Association International Conference. Toronto, Canada, July 2016.
- 2015** Selected for oral presentation: "Soluble Amyloid-  $\beta_{42}$  Activates  $\alpha 7$ nAChR *In Vivo* and Alters Glutamatergic Neurotransmission in A $\beta$ PP/PS1 Mice." Society for Neuroscience Annual Meeting. Chicago, IL, October 2015.
- Selected for oral presentation: "Soluble Amyloid- $\beta_{42}$  Activates  $\alpha 7$ nAChR *In Vivo* and Alters Glutamatergic Neurotransmission Prior to Cognitive Decline in A $\beta$ PP/PS1 Mice." Alzheimer's Association International Conference. Washington D.C., July 2015.
- 2014** Selected for oral presentation: "Glutamate neurotransmission is altered prior to cognitive decline in APP/PS1 mice, a mouse model of Alzheimer's disease." 44<sup>th</sup> Society for Neuroscience Annual Meeting. Washington, DC.
- Selected for oral presentation: "Local application of  $\beta$ -amyloid<sub>1-42</sub> elicits hippocampal sub-region specific glutamate release in C57BL/6 mice." 44<sup>th</sup> Society for Neuroscience Annual Meeting. Washington, DC.
- 2009** Selected to attend/present (including travel award) the European College of Neuropsychopharmacology Young Scientist Conference in Nice, France.

**2007 - 2008** National Institute for Health Fellowship T32 DA022738-01 Translational Neuroscience Training Grant “Therapeutic Strategies for Neurodegeneration.” Lexington, KY.

**2006** Outstanding graduate poster presentation at the 11<sup>th</sup> International Conference on *In vivo* Methods: Monitoring Molecules in Neuroscience in Cagliari, Italy.

Outstanding graduate poster presentation at the annual Neuroscience Day hosted by the Bluegrass Chapter of the Society for Neuroscience. Lexington, KY

**2004 - 2006** Research Challenge Trust Fund Fellowship

## **PROFESSIONAL EXPERIENCE**

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### SOUTHERN ILLINOIS UNIVERSITY SCHOOL OF MEDICINE, SPRINGFIELD IL, USA

**2018 -** Assistant Professor  
Neuroscience Institute  
Department of Neurology  
The Center for Alzheimer’s Disease and Related Disorder (CADRD)

**2014 – 2018** Research Associate  
Department of Neurology  
The Center for Alzheimer’s Disease and Related Disorders (CADRD)

- Advisor: Tom Ala, M.D.
- *Project:*  $\beta$ -amyloid activation of the glutamatergic system and effects of type 2 diabetes on Alzheimer’s disease.
- *Translational Implication:* Nonpharmacological strategies for Alzheimer’s disease and aging.
- *Technical Competence:* SDS-Page, pharmacodynamics, spatial learning and memory paradigms, immunohistochemistry, insulin/glucose tolerance testing

### BRAINBITS, L.L.C., SPRINGFIELD, IL, USA

**2011 – 2013** Director of Product Development  
Proprietor: Greg Brewer, Ph.D.

- *Project:* Development of proprietary *in vitro* assays for CNS tissue culture and corresponding media.
- *Translational Implication:* *In vitro* assays for Alzheimer’s disease detection and treatment.
- *Technical Competence:* tissue dissection, neuron / glia cultures, medium formulation, western blotting, immunohistochemistry,

MCGILL UNIVERSITY, MONTRÉAL, QC, CA

**2009 – 2011** Postdoctoral Fellow, Department of Psychiatry

- *Advisor:* Alain A. Gratton, Ph.D.
- *Project:* Subregional differences in the rat prefrontal cortical response to stress using enzyme-coated biosensors.
- *Translational Implication:* Therapeutic strategies for drugs of abuse.
- *Technical Competence:* Goal directed behavioral paradigms in rodents.

KAROLINSKA INSTITUTE, STOCKHOLM, SE

**2008-2009** Postdoctoral Fellow, Department of Physiology & Pharmacology

- *Advisors:* Jan Kehr, Ph.D.; Per Svenningsson, Ph.D.; & Aleksander Mathé, M.D., Ph.D.
- *Project:* Glutamate dysregulation in the Flinders Sensitive Line rat, a rodent model of depression.
- *Translational Implication:* Therapeutic strategies for major depressive disorder.
- *Technical Competence:* Microdialysis, HPLC-EC

PFIZER INC. & QUANTEON, LLC

**2008 – 2009** Contract Employee

- *Advisors:* Eva Hajos-Korcsok, Ph.D. & Greg A. Gerhardt, Ph.D.
- *Project:* Anxiolytic efficacy of mGluR agonists and allosteric modulators on glutamatergic neurotransmission in freely behaving rodents.
- *Translational Implication:* Therapeutic strategies for mood disorders
- *Technical Competence:* Pharmacology, Pharmacodynamics, stress and anxiety behavioral paradigms.

UNIVERSITY OF KENTUCKY, COLLEGE OF MEDICINE, LEXINGTON, KY, USA

**2004 - 2007** Ph.D. Candidate, Department of Anatomy & Neurobiology

- *Advisor:* Greg A. Gerhardt, Ph.D.
- *Projects:* 1) Development and characterization of an enzyme-coated biosensor for real time neurotransmitter measurements in anesthetized and freely behaving mouse CNS. 2) Neurochemical characterization of a novel mouse model of amyotrophic lateral sclerosis.
- *Translational Implications:* Therapeutic strategies for neurodegenerative disorders including Parkinson's disease, Alzheimer's disease and amyotrophic lateral sclerosis.
- *Technical Competence:* Biological engineering, systems neurobiology, *in vivo* electrochemistry, rodent neurosurgery, intracranial drug delivery

**2003 – 2004** Ph.D. Laboratory Rotations, Departments of Anatomy & Neurobiology & Pharmacology

- *Advisors:* Greg A. Gerhardt, Ph.D., Kurt Hauser, Ph.D., John Littleton, M.D., Ph.D.

DADE BEHRING, INC., (ACQUIRED BY SIEMENS CORP.), NEWARK, DE, USA

**2001 - 2003** Research Scientist, R&D Division

- *Advisor:* Gerald Siefring, Ph.D.
- *Project:* Monoclonal and polyclonal assay development and optimization for clinical diagnostic analyzers.
- *Translational Implications:* Detection of biomarkers for various diseases (cardiac, toxicology, diabetes) integrated onto a single workstation rapid throughput.
- *Technical Competence:* ELISA, assay development

## **TEACHING**

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### **Courses**

Southern Illinois University School of Medicine, Springfield, IL, USA

- 2020 - Neuromuscular Behavior, medical student – level (Lecturer)  
2019 - Neuroscience, resident – level (Course Director)  
2014 - Neuroscience, resident – level (Lecturer)

University of Kentucky, Lexington KY, USA

- 2004 - 2007 Center for Microelectrode Technology Training Course, graduate- and postgraduate- level (annual). Demonstrated and taught electrochemical theory and recording techniques to worldwide course participants. Electrochemical measures in several neurobiological systems of anesthetized and freely moving rodents were taught.
- 2005 Anatomy 209: Principle of Human Anatomy, undergraduate-level (teaching assistant and lecturer)

Multiple Sites, International

- 2004 - 2011 Fast Analytical Sensing Technology (FAST) Training and Installation, graduate- and postgraduate- level (as needed). A technique designed for subsecond *in vivo*, *in vitro*, and *ex vivo* electrochemical monitoring of central nervous system neurotransmitters utilizing enzyme-coated biosensors. Representatives from Eicom Corporation, Kyoto, Japan; Karolinska Institutet and Umeå University, Sweden; University of Groningen, Netherlands; McGill University; University of Montréal, Montréal, Québec, Canada, Ohio State University and Southern Illinois University School of Medicine, USA were instructed how to successfully design, implement, and analyze experiments for real time neurotransmitter recordings.

## ***Dissertation Committees***

- 2018- PhD Dissertation Committee Member for Caleigh Findlay  
Committee Co-Chairs: Erin R. Hascup, PhD & Shelley Tischkau, PhD  
Department of Pharmacology
- 2017-2020 PhD Dissertation Committee Member for Jesse Britz.  
Committee Chair: Shelley Tischkau, PhD  
Department of Pharmacology

## ***Trainees***

- 2019 Ernesto Solis, PhD, Postdoctoral Fellow in the Hascup Laboratory, Dept. of Neurology, SIU School of Medicine.
- 2019-2020 MaKayla Cox, Undergraduate Student at University of Illinois, Springfield  
Internship at SIU School of Medicine. Current: Working in IDPH Laboratory
- 2018-2019 Hannah Roberts, Undergraduate Student at University of Illinois, Springfield.  
Internship at SIU School of Medicine. Current: Internship at Disney World.
- 2018 Tommy Johnston, Undergraduate Student at St. Louis University  
Internship at SIU School of Medicine. Current: Accepted for Medical School at SIU School of Medicine.
- 2018 Caleigh Findley, Graduate Student, Dept. of Pharmacology, SIU School of Medicine
- 2018 Abigail Levy, Medical Student at SIU School of Medicine. Current: Accepted for Neurology Residency at NYU Crossman School of Medicine.
- 2018 Collin Pauly, Undergraduate Student at University of Illinois, Springfield.  
Internship at SIU School of Medicine.
- 2017-2020 Nahayo Esperant-Hilaire, Medical Student at SIU School of Medicine (2017-2019),  
NIH Funded Postdoctoral Fellow in the Hascup Lab (2019-2020). Current:  
Accepted for Neurology Residency at UCLA.
- 2017 Brad Vost, Medical Student at SIU School of Medicine. Current: Accepted for Anesthesiology Residency at Johns Hopkins Hospital.
- 2017 Nadeem Khan, MD, Neurology Resident at SIU School of Medicine.  
Current: Stroke Fellowship at Southwestern Texas University.
- 2016- Jesse Britz, Graduate Student, Department of Pharmacology, SIU School of Medicine.
- 2016-2017 Aaron Sul, Medical Student at SIU School of Medicine. Current: Accepted for Neurology Residency at Mayo Clinic School of Graduate Medicinal Education (Arizona).

- 2016 Matthew Cleveland, Medical Student at SIU School of Medicine. Current: Radiology Resident at SIU School of Medicine.
- 2015 Emmanuel Akano, MD, Neurology Resident at SIU School of Medicine. Current: Movement Disorder Fellowship at the National Institutes of Health (NIH), National Institute of Neurological Disorders and Stroke (NINDS).
- 2014 Patrick Fitzgerald, Medical Student at SIU School of Medicine. Current: Internal Medicine Resident at the Mayo School of Graduate Medical Education, Jacksonville, FL.
- 2014 Farah Tamizuddin, Undergraduate student at Columbia University. Summer internship. Current: Medical Student at New York University. Current: Internal Medicine Resident at Ichan School of Medicine at Mount Sinai.

## SCHOLARSHIP

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### Grants and Contracts

#### Active

1. Alleviating Alzheimer's Disease Pathology with Thermoneutral Housing  
 Illinois Department of Public Health  
 03282005H  
 The goal of this application is to determine if chronic thermoneutral housing alleviates adiposopathy, plaque pathology, and cytokine signaling thereby preventing AD-related cognitive deficits in mouse models of AD.

<b>K. Hascup (PI)</b>	2019-2020
0.10 FTE	\$30,000
2. Glutamate neurotransmission in Alzheimer's disease progression  
 NIH National Institute on Aging  
 R01 AG057767-01  
 The goal of this application is to determine how glutamate neurotransmission changes over the continuum of Alzheimer's disease progression and the associated mechanistic changes. This will be accomplished through local application of compounds and cognitive testing during awake recordings, followed by protein and gene expression analysis of brain tissue.

E. Hascup (PI)	2018 - 2023
0.54 FTE	\$2,947,000

**Role: Co-Investigator** **Score: 8<sup>th</sup> Percentile**
3. Cellular senescence, inflammation, and neurotransmission in Alzheimer's disease  
 NIH National Institute on Aging  
 R01 AG061937A  
 The goal of this application is to determine the relationship between cellular senescence, inflammation, glutamatergic neurotransmission, and cognition in A $\beta$ <sub>42</sub>-related mouse models of Alzheimer's disease and the associated mechanistic changes.

E. Hascup (PI)	2018-2023
0.10 FTE	\$3,383,950

**Role: Co-Investigator** **Impact Score: 29**
4. Research Supplement to Promote Diversity for R01AG061937  
 NIH National Institute on Aging  
 R01 AG061937-02S1  
 The goal of this administrative supplement application is to secure salary support for Dr. Nahayo Esperant-Hilaire as a post-doctoral fellow to expand his capabilities in health-related

E. Hascup (PI)	2019-2021
	\$214,722



research through PA-18-906 (Research Supplements to Promote Diversity in Health-Related Research).

**Role: Co-Investigator**

5. Equipment Request to Increase Scientific Rigor and Reproducibility

NIH National Institute on Aging	E. Hascup (PI)	2020-2021
R01 AG057767-03S2		\$248,113

The goal of this administrative supplement application is to secure funding to take advantage of new technology that has become available since the funded application (AG057767) was submitted and that will facilitate the completion of the specific aims of the proposals. We will use this funding to purchase an additional Morris water maze system and an All-in-One fluorescent imaging system.

**Role: Co-Investigator**

Pending

1. Sequelae of SARS-CoV-2 Infection in Alzheimer's Disease

NIH National Institute on Aging	E. Hascup (PI)	2020-2021
R01 AG061937-03S1		\$368,749

The goal of this application is to determine if SARS-CoV-2 neuroinfection causes CNS cellular senescence that can be prevented or ameliorated using senolytic compounds. Additionally, determine if infection negatively effects healthspan in amyloidogenic mouse models of Alzheimer's disease.

**Role: Co-Investigator**

2. Geroscience Approaches to Improve Healthspan in Alzheimer's Disease

NIH National Institute on Aging	<b>K. Hascup (PI)</b>	2020-2025
R01 AG070022	0.25 FTE	\$2,705,244

The goal of this application is to determine if the progression and severity of cognitive deficits in mouse models of AD can be ameliorated by altering a network of metabolic characteristics in a manner known to delay aging, preserve cognitive function, and improve overall healthspan.

Completed Research Support

1. Thermoneutral Housing to Alleviate Alzheimer's Disease Pathology

Illinois Health Improvement Association	<b>K. Hascup (PI)</b>	2019-2020
N/A	0.1 FTE	\$15,000

The goal of this application is to determine if chronic thermoneutral housing alleviates adiposopathy, plaque pathology, and cytokine signaling thereby preventing AD-related cognitive deficits in mouse models of AD.

2. Does amyloid- $\beta_{42}$  stimulate hippocampal lactate release?

Illinois Department of Public Health	<b>K. Hascup (PI)</b>	2017-2018
83282002F	0.50 FTE	\$30,000

The goal of this application is to determine the relationship between the toxic form of amyloid- $\beta$  and lactate to further elucidate the metabolic component of Alzheimer's disease.

3. Effects of circadian clock disruption on cognitive decline in a mouse model of Alzheimer's disease

SIU Foundation Award	Tischkau (PI)	2017-2018
N/A		\$25,000

The goal of this application is to expand the understanding of Alzheimer's disease neuropathology by exploring how rest/activity patterns contribute to cognitive deficits and neuropathology.

**Role: Key Personnel**

4. Mechanisms underlying early glutamate dysregulation in Alzheimer's disease

SIU School of Medicine Near-Miss Grant E. Hascup (PI) 2016 - 2017  
N/A \$15,000

The goal of this study is to purchase and establish a breeding colony of a novel knock-in mouse model of Alzheimer's disease, *APP<sup>NL-F/NL-F</sup>* mice, and to generate preliminary data for external grant applications. This research focuses on A $\beta$ <sub>42</sub>-specific changes in neurotransmission, neurochemistry, and brain protein content in prodromal to mild Alzheimer's disease.

**Role: Key Personnel**

5. Can riluzole restore glutamate function and cognition in a mouse model of Alzheimer's disease?

Illinois Health Improvement Association E. Hascup (PI) 2016 - 2017  
N/A \$25,000

The goal of this study is to gather preliminary data regarding the effectiveness of riluzole as an early treatment for Alzheimer's disease.

**Role: Key Personnel**

6. Restoring glutamate function as an early intervention for Alzheimer's disease

Illinois Department of Public Health E. Hascup (PI) 2015 - 2016  
63282003D \$30,000

The goal of this study was to evaluate the mGluR Group II agonist, LY379268, as an early intervention for the treatment of Alzheimer's disease.

**Role: Key Personnel**

7. Therapeutic Strategies for Neurodegeneration Training Grant

NIH National Institute for Health Edward D. Hall (PI) 2007 - 2008

The overall goal was to prepare promising predoctoral (graduate students), postdoctoral, and clinical scholars for successful careers in translational neuroscience aimed at the discovery and development of disease-modifying pharmacological and genetic therapies for neurodegenerative and neuropsychiatric disorders, traumatic brain injury, and stroke.

**Role: Fellow**

## ***Publications***

### Peer-reviewed

1. E. Solis Jr., **K.N. Hascup**, E.R. Hascup (2020). Alzheimer's Disease: The Link Between Amyloid Beta and Neurovascular Dysfunction. *Journal of Alzheimer's Disease* [Epub Ahead of Print].
2. E.R. Hascup and **K.N. Hascup** (2020). Does SARS-CoV-2 Infection Cause Chronic Neurological Complications? *GeroScience* [Epub Ahead of Print]. PMID: 32451846

3. Y. Fang, S. McFadden, J. Darcy, E.R. Hascup, **K.N. Hascup**, A. Bartke (2020). Lifespan of long-lived growth hormone receptor knockout mice was not normalized by housing at 30°C since weaning. *Aging Cell* May; 19(5):1-10. PMID: 32110850
4. C.A. Findley, A. Bartke, **K.N. Hascup**, E.R. Hascup (2019). Amyloid-beta Related Alterations to Glutamate Signaling Dynamics during Alzheimer's Disease Progression. *American Society for Neurochemistry Special Collection on Cell Signaling Pathways and Neurodegenerative Diseases* Jan-Dec; 11:1-20. PMID: 31213067.
5. **K.N. Hascup**, J. Britz, C.A. Findley, S. Tischkau, E.R. Hascup (2019). LY379268 does not have long-term procognitive effects nor attenuate glutamatergic signaling in A $\beta$ PP/PS1 mice. *J. Alzheimers Dis.* 2019;68(3):1193-1209. PMID: 30909243.
6. E.R. Hascup, S.O. Broderick, M.K. Russell, Y. Fang, A. Bartke, H.A. Boger, **K.N. Hascup**. (2019) Diet-induced insulin resistance elevates hippocampal glutamate as well as VGLUT1 and GFAP expression in A $\beta$ PP/PS1 Mice. *J. Neurochem.* 148(2): 219-237. PMID: 30472734. **(Manuscript Image Featured on Journal Cover)**
7. **K.N. Hascup**, M.K. Lynn, P. Fitzgerald, S. Randall, J.J. Kopchick, H.A. Boger, A. Bartke, E.R. Hascup. (2017) Hippocampal Glutamatergic Signaling Predicts Cognitive Performance in Aged Growth Hormone Receptor Knockout Mice. *J. Gerontol. A. Biol. Sci. Med. Sci.* 72(3): 329-337. PMID: 27208894. RCR: N/A
8. **K.N. Hascup** and E.R. Hascup. (2016) Soluble Amyloid- $\beta$ 42-Evoked Glutamate Release by Activation of the  $\alpha$ 7 Nicotinic Acetylcholine Receptor. *Journal of Alzheimer's Disease* 53: 337-347. PMID: 27163813. RCR: N/A
9. **K.N. Hascup** and E.R. Hascup (2015) Altered Neurotransmission Prior to Cognitive Decline in A $\beta$ PP/PS1 Mice, a Model of Alzheimer's Disease. *Journal of Alzheimer's Disease* 44(3): 771-776. PMID: 25374106. RCR: 1.72.
10. **K.N. Hascup** and E.R. Hascup. (2014) Electrochemical Techniques for Sub-second Neurotransmitter Detection in Live Animals. *Comparative Medicine.* 64(4): 249-255. PMID: 25296011. RCR: 0.39.
11. T.M. Eriksson, A. Alvarsson, T.L. Stan, X. Zhang, **K.N. Hascup**, E.R. Hascup, J. Kehr, G.A. Gerhardt, J. Warner-Schmidt, M. Arango-Lievano, M.G. Kaplitt, S.O. Ogren, P. Greengard, P. Svenningsson. (2013) Bidirectional regulation of emotional memory by 5-HT(1B) receptors involves hippocampal p11. *Molecular Psychiatry.* 18(10): 1096-1105. PMID: 23032875. NIHMS: 460628. RCR: 1.77.
12. E.R. Hascup, **K.N. Hascup**, F. Pomerleau, P. Huettl, E. Hajos-Korcsok, J. Kehr, G.A. Gerhardt. (2012) An Allosteric Modulator of Metabotropic Glutamate Receptors (mGluR<sub>2</sub>),

- (+)-TFMPIP, Inhibits Restraint Stress-Induced Phasic Glutamate Release in Rat Prefrontal Cortex. *J. Neurochem.* 122: 619-627. PMID: 22578190. NIHMS: 560766. RCR: 0.59.
13. **K.N. Hascup**, E.R. Hascup, M. Stephens, P.E.A. Glaser, T. Yoshitake, A. Mathé, G.A. Gerhardt, J. Kehr. (2011) Resting Glutamate Levels and Rapid Bursts of Glutamate Release in the Prefrontal Cortex of the Flinders Sensitive Line Rat—A Genetic Rodent Model of Depression. *Neuropsychopharm.* 36: 1769-1777. PMID: 21525860. PMCID: 3138656. RCR: 1.59.
  14. **K.N. Hascup**, X. Bao, E.R. Hascup, D. Hui, W. Xu, F. Pomerleau, P. Huettl, F. Pomerleau, M.L. Michaelis, E.K. Michaelis, G.A. Gerhardt. (2011) Differential Levels of Glutamate Dehydrogenase 1 (GLUD1) in BALB/c and C57BL/6 and the Effects of Over-expression of *Glud1* Gene on Glutamate Release in Striatum. *American Society for Neurochemistry Neuro.* 3(2): 99-108. PMID: 21446915. PMCID: 3086280. RCR: 0.38.
  15. E.K. Michaelis, X. Wang, R. Pal., X. Bao, **K.N. Hascup**, Y. Wang, W-T. Wang, D. Hui, A. Agbas, I-Y. Choi, A. Belousov, G. A. Gerhardt. (2011) Neuronal *Glud1* (Glutamate Dehydrogenase 1) Over-Expressing mice: Increased Glutamate Formation and Synaptic Release, Loss of Synaptic Activity, and Adaptive Changes in Genomic Expression. *Neurochem Int.* 59 (4): 473-81. PMID: 21397652. NIHMS: 287010. RCR: 0.62.
  16. E.R. Hascup, **K.N. Hascup**, F. Pomerleau, P. Huettl, A. Gratton, and G.A. Gerhardt. (2010) Rapid microelectrode measurements and the origin and regulation of extracellular glutamate in rat prefrontal cortex. *J. Neurochem.* 115: 1608-1620. PMCID: 2996468. NIHMS: 247588. RCR: 2.75.
  17. E.R. Hascup, S. Bjerkén, **K.N. Hascup**, F. Pomerleau, P. Huettl, I. Strömberg, and G.A. Gerhardt. (2009) Histological Studies of the Effects of Chronic Implantation of Ceramic-Based Microelectrode Arrays and Microdialysis Probes in Rat Prefrontal Cortex. *Brain Research* 1291: 12-20. PMCID: 2980830. NIHMS: 139988. RCR: 1.53.
  18. X. Bao, R. Pal, **K.N. Hascup**, T. McKerchar, D. Hui, A. Agbas, P. Huettl, F. Pomerleau, S.C. Fowler, M.L. Michaelis, E.K. Michaelis, G.A. Gerhardt. (2009) Mice Transgenic for Glutamate Dehydrogenase 1 (*Glud1*) Under the Control of the Neuron-Specific Enolase Promoter: A Model of Hyperglutamatergic Nervous System. *J Neurosci.* Nov 4; 29(44):13929-44. PMID: 19890003. NIHMS 167788. RCR: 1.56.
  19. **K.N. Hascup**, E.R. Hascup, F. Pomerleau, P. Huettl., G.A. Gerhardt. (2008) Chronic Second-By-Second Measures of L-glutamate in the CNS of Conscious, Freely Moving Mice. *J. Pharm. and Exp. Therap.* 324(2): 725-731. PMID: 18024788. PMCID: 3404456. NIHMS 390173. RCR: 1.74

Submitted

1. E.R. Hascup and **K.N. Hascup**. Towards Refining Alzheimer's Disease into Overlapping Neuropathological Subgroups. Submitted: Alzheimer's and Dementia: Translational Research & Clinical Interventions.
2. **K.N. Hascup**, C.A. Findley, L.N. Sime, E.R. Hascup. Hippocampal Alterations in Glutamatergic Signaling During Amyloid Progression in A $\beta$ PP/PS1 Mice. Submitted: *Scientific Reports*
3. **K.N. Hascup**, C.A. Findley, J. Britz, S.O. Broderick, S. Tischkau, E.R. Hascup. Prodromal intervention with Riluzole prevents cognitive decline and attenuates glutamatergic tone in A $\beta$ PP/PS1 mice. Submitted: *Journal of Neurochemistry*

#### In Preparation

1. A. Bartke, S. Brannan, E. Hascup, **K.N. Hascup**, J. Darcy. Energy Metabolism and Aging.

#### Chapters

1. J.J. Burmeister, E.R. Hascup, **K.N. Hascup**, S. Batton, F. Pomerleau, J.E. Quintero, P. Huettl, I. Stromberg, G.A. Gerhardt. Real Time In Vivo Neurotransmitter Measurements Using Enzyme-Based Ceramic Microelectrode Arrays: What We Have Learned About Glutamate Signaling. Chapter 5 of Compendium of In Vivo Monitoring in Real-Time Molecular Neuroscience: Vol 1. Fundamentals and Applications. Eds. George S. Wilson and Adrian C. Michael. World Scientific Publishing Company. 2015. ISBN: 978-981-4619-76-9
2. E.R. Hascup, **K.N. Hascup**, P.M. Talauliker, D.A. Price, F. Pomerleau, J.E. Quintero, P. Huettl, A. Gratton, I. Strömberg, G.A. Gerhardt. Sub-Second Measurements of Neurotransmitter signaling using Enzyme-Based Microelectrode Arrays. Chapter 15 of Microelectrode Biosensors. Eds. Stephan Marinesco and Nicholas Dale. Humana Press. 2013. ISBN-10: 1627033696.
3. **K.N. Hascup**, E.R. Hascup, O.M. Littrell, J.M. Hinzman, C.E. Werner, V.A. Davis, J.J. Burmeister, F. Pomerleau, J.E. Quintero, P. Huettl, G.A. Gerhardt. Microelectrode Array Fabrication and Optimization for Selective Neurochemical Detection. Chapter 2 of Microelectrode Biosensors. Eds. Stephan Marinesco and Nicholas Dale. Humana Press. 2013. ISBN-10: 1627033696.
4. M.L. Stephens, D.D. Spencer, I. Cavus, M. Hsiao, D. Song, S.H. Courellis, S.A. Deadwyler, R.E. Hampson, D. Putz, J.E. Quintero, M.K. Bensalem-Owen, **K.N. Hascup**, E.C. Rutherford, B.K. Day, J.R. Nickell, F. Pomerleau, P. Huettl, J.J. Burmeister, P.M. Talauliker, V.Z. Marmarelis, J.J. Granacki, T. Berger and G.A. Gerhardt. Microelectrode Based Epilepsy Therapy: A Hybrid Neural Prosthesis Incorporating Seizure Prediction and Intervention with Biomimetic Maintenance of Normal Hippocampal Function. Chapter 33 of Computational

Neuroscience in Epilepsy. Eds. Ivan Soltesz and Kevin Staley. Academic Press pp 559-586, 2008. ISBN-10: 0123736498.

5. **K.N. Hascup**, E.C. Rutherford, J.E. Quintero, B.K. Day, J.R. Nickell, F. Pomerleau, P. Huettl, J.J. Burmeister, G.A. Gerhardt. Second-by-Second Measures of L-Glutamate and Other Neurotransmitters Using Enzyme-Based Microelectrode Arrays. Chapter 19 of Electrochemical Methods for Neuroscience. Eds. Adrian C. Michael and Laura M. Borland. CRC Press. Boca Raton, FL. pp 407-450, 2006. PMID: 21204381. ISBN-10: 0849340756

### Abstracts

1. L.N. Sime, S. McFadden, C.A. Findley, E. Solis Jr., N. Esperant-Hilaire, T.R. Evans, Y. Fang, A. Bartke, E.R. Hascup, **K.N. Hascup**. Altering Environmental Temperature as a Therapeutic Strategy in Alzheimer's Disease Mouse Models. Alzheimer's Association International Conference. Amsterdam, Netherlands, July 2020.
2. N. Esperant-Hilaire, Y. Fang, C.A. Findley, A. Bartke, **K.N. Hascup**, E.R. Hascup. The Effects of Senolytic Compounds on Neuronal Cell Survival and Cognition. Alzheimer's Association International Conference. Amsterdam, Netherlands, July 2020.
3. C.A. Findley, L.N. Sime, S. McFadden, **K.N. Hascup**, E.R. Hascup. Alzheimer's Disease-Related Sex Differences in Insulin Sensitivity, Glucose Metabolism, and Spatial Memory. Alzheimer's Association International Conference. Amsterdam, Netherlands, July 2020.
4. **K.N. Hascup**, H.A. Boger, E.R. Hascup. Hyperglutamatergic Signaling throughout Disease Progression in Alzheimer's Mouse Models. Society for Neuroscience Annual Meeting, Chicago, IL, October 2019.
5. E.R. Hascup, C.A. Findley, N. Esperant-Hilaire, J. Britz, L. Sime, S. McFadden, E. Lokaitis, Y. Fang, S. Tischkau, H.A. Boger, A. Bartke, **K.N. Hascup**. Glutamatergic Neurotransmission and Cognition in Health, Disease, Aging, and Intervention: Evidence from Mouse Models. Society for Neuroscience Annual Meeting, Chicago, IL, October 2019.
6. C.A. Findley, N. Esperant-Hilaire, **K.N. Hascup**, E.R. Hascup. The Effects of Riluzole Treatment on Glucose Metabolism, Insulin Sensitivity, and Cognition in Male and Female Mouse Models of Normal Aging and Alzheimer's Disease. Society for Neuroscience Annual Meeting, Chicago, IL, October 2019.
7. **K.N. Hascup**, E.R. Hascup. Elevated Hippocampal Glutamatergic Signaling in Mouse Models of Alzheimer's Disease. Alzheimer's and Parkinson's Diseases Congress. Lisbon, Portugal, March 2019.
8. E.R. Hascup, C.A. Findley, J. Britz, N. Esperant-Hilaire, S. Tischkau, **K.N. Hascup**. Riluzole, but not LY379268, has Long Term Glutamatergic Tone and Cognitive Benefits in Male

A $\beta$ PP/PS1 mice. Alzheimer's and Parkinson's Diseases Congress. Lisbon, Portugal, March 2019.

9. **K.N. Hascup**, N. Esperant-Hilaire, E.R. Hascup. Soluble  $\beta$ -amyloid<sub>42</sub> stimulates gender specific hippocampal lactate release in C57BL/6 mice. Society for Neuroscience Annual Meeting, San Diego, CA, November 2018
10. E.R. Hascup, J. Britz, M.K. Russell, S. Tischkau, H.A. Boger, **K.N. Hascup**. Glutamate Neurotransmission, Cognition, and Risk Factors in Alzheimer's Disease. Society for Neuroscience Annual Meeting, San Diego, CA, November 2018.
11. **K.N. Hascup**, S.O. Broderick, M.K. Russell, Heather A. Boger, E.R. Hascup. Dietary Insulin Resistance Impairs Cognition and Elevates Hippocampal Glutamate Dynamics in A $\beta$ PP/PS1 Mice. Alzheimer's Association International Conference. Chicago, IL, July 2018.
12. **K.N. Hascup**, S.O. Broderick, J. Britz, E.R. Hascup. Riluzole as an early therapeutic agent for Alzheimer's disease. Alzheimer's Association International Conference. Chicago, IL, July 2018.
13. **K.N. Hascup**, S.O. Broderick, E.R. Hascup. Riluzole, but not LY379268, is an effective prodromal treatment in the A $\beta$ PP/PS1 model of Alzheimer's disease. Society for Neuroscience, Washington, D.C., November 2017.
14. **K.N. Hascup**, S.O. Broderick, E.R. Hascup. Neurotransmission spanning the Alzheimer's disease continuum: Glutamatergic tone, cognition, and early intervention. Society for Neuroscience, Washington, D.C., November 2017.
15. **K.N. Hascup**, S.O. Broderick, E.R. Hascup. Riluzole is an effective prodromal treatment in the A $\beta$ PP/PS1 model of Alzheimer's disease. Dementia. Rome, Italy, September 2017.
16. **K.N. Hascup**, S.O. Broderick, E.R. Hascup. Neurotransmission spanning the Alzheimer's disease continuum: Disease-stage specific changes in glutamatergic tone and what it means for therapeutic interventions. Dementia. Rome, Italy, September 2017.
17. J. Britz, M.C. Cleveland, **K.N. Hascup**, E.R. Hascup, S. Tischkau. Activity Monitoring and Metabolic Measures in Pre-Symptomatic APP/PS1 Alzheimer's Disease Model. Midwest Chronobiology Seminar. Champaign, IL, September, 2016.
18. **K.N. Hascup**, S.O. Broderick, E.R. Hascup. Diet-Induced Obesity Causes Glutamatergic Dysregulation and Exacerbates Memory Impairment in A $\beta$ PP/PS1 Mice. Alzheimer's Association International Conference. Toronto, Canada, July 2016.

19. **K.N. Hascup**, S.O. Broderick, E.R. Hascup. Can Alzheimer's-Related Cognitive Decline Be Delayed Through Prodromal Treatment? Evidence from a Mouse Model of Alzheimer's Disease. Alzheimer's Association International Conference. Toronto, Canada, July 2016.
20. **K.N. Hascup**, S.O. Broderick, E.R. Hascup. Soluble Amyloid- $\beta_{42}$  Activates  $\alpha 7nAChR$  *In Vivo* and Alters Glutamatergic Neurotransmission in A $\beta$ PP/PS1 Mice. Society for Neuroscience Annual Meeting. Chicago, IL, October 2015.
21. **K.N. Hascup**, P.J. Fitzgerald, S.O. Broderick, S. Randall, J.J. Kopchick, A. Bartke, E.R. Hascup. Conserved Memory and Hippocampal Glutamate in a Growth Hormone Receptor Knockout Model of Extended Life Span. Society for Neuroscience Annual Meeting. Chicago, IL, October 2015.
22. S.O. Broderick, **K.N. Hascup**, E.R. Hascup. Hippocampal Glutamate and Cognition is Altered in Normal Aging C57BL/6J Mice. Society for Neuroscience Annual Meeting. Chicago, IL, October 2015.
23. **K.N. Hascup**, S.O. Broderick, E.R. Hascup. Soluble Amyloid- $\beta_{42}$  Activates  $\alpha 7nAChR$  *In Vivo* and Alters Glutamatergic Neurotransmission Prior to Cognitive Decline in A $\beta$ PP/PS1 Mice. Alzheimer's Association International Conference. Washington D.C., July 2015.
24. **K.N. Hascup**, S. Pehlman-Reeter, E.R. Hascup. Glutamate neurotransmission is altered prior to cognitive decline in APP/PS1 mice, a mouse model of Alzheimer's disease. Society for Neuroscience Annual Meeting. Washington D.C., November, 2014.
25. **K.N. Hascup** and E.R. Hascup. Local application of  $\beta$ -amyloid $_{1-42}$  elicits hippocampal sub-region specific glutamate release in C57Bl/6 mice. Society for Neuroscience Annual Meeting. Washington D.C., November, 2014.
26. A. Alvarsson, T.M. Eriksson, T. Stan, **K.N. Hascup**, E.R. Hascup, G.A. Gerhardt, P. Svenningsson. The effects of 5-HT $_{1B}$  receptor modulation on glutamatergic neurotransmission in vivo. 24<sup>th</sup> ENCP Congress. Paris, France, September 2011.
27. P.F. Huettl, M. Stephens, V. Davis, J. Quintero, F. Pomerleau, J. Burmeister, **K.N. Hascup**, E.R. Hascup, G.A. Gerhardt. Ceramic-Based Microelectrode Array vs. Microdialysis Probe Measurements in the CNS of awake animals: It's about time. 44<sup>th</sup> Winter Conference on Brain Research. Keystone, Colorado, January 2011.
28. E.R. Hascup, **K.N. Hascup**, J. Jackson, G.A. Gerhardt, A. Gratton. Glutamate and Neuronal Activity are Preferentially Elevated in Nucleus Accumbens Shell Over Core During Conditioned Stimulus Reward: A Study in Freely Behaving Long Evans Rats. 44<sup>th</sup> Winter Conference on Brain Research. Keystone, Colorado, January 2011.



29. **K.N. Hascup**, E.R. Hascup, P.E.A Glaser, A.A. Mathé, G.A. Gerhardt, J. Kehr. Resting Glutamate Levels and Rapid Bursts of Glutamate Release in the Prefrontal Cortex of the Flinders Sensitive Line Rat - A Genetic Rodent Model of Depression. 49<sup>th</sup> Annual Meeting of the American College of Neuropsychopharmacology, Miami Beach, FL. December 5-9, 2010.
30. **K.N. Hascup**, E.R. Hascup, G.A. Gerhardt, A.A. Mathé, J. Kehr. Neuropeptide Y Modulation of the Glutamatergic System in the Flinders Sensitive Line Rats: A Rat Model of Depression. European College of Neuropsychopharmacology Workshop on Neuropsychopharmacology for Young Scientist in Europe. Nice, France. March 6, 2009.
31. E.R. Hascup, **K.N. Hascup**, F. Pomerleau, P. Huettl, G.A. Gerhardt, J. Kehr. The Source of Resting and Physiologically Evoked L-Glutamate Levels in Prefrontal Cortex in Awake Rats. European College of Neuropsychopharmacology Workshop on Neuropsychopharmacology for Young Scientist in Europe. Nice, France, March 2009.
32. P. Huettl, E.R. Hascup, **K.N. Hascup**, M. Lundblad, M. Stephens, G. Quintero, F. Pomerleau, and G.A. Gerhardt. Understanding Resting Neurotransmitter Levels in the CNS: Second-by-Second Measurements using Microelectrode Arrays. 42nd Winter Conference on Brain Research. Copper Mountain, Colorado, January 2009.
33. E.K. Michaelis, X. Bao, R. Pal, **K.N. Hascup**, T. McKerchar, W. Xu, D. Hui, A. Agbas, X. Wang, J. Pinkston, F. Pomerleau, P. Huettl, S. Fowler, M. Michaelis, G.A. Gerhardt. Transgenic expression of glutamate dehydrogenase 1 in neurons: An in vivo model of hyperglutamatergic nervous system and chronic neurodegeneration. Alzheimer's Association International Conference on Alzheimer's Disease. Chicago, Illinois, July 2008.
34. **K.N. Hascup**, E.R. Hascup, F. Pomerleau, P. Huettl, G.A. Gerhardt, and J. Kehr. L-glutamate Regulation and the Prefrontal Cortex and Striatum of Awake, Freely Moving C57BL/6 Mice. Monitoring Molecules in Neuroscience: 12<sup>th</sup> International Conference on *In Vivo* Methods. Vancouver, Canada, May 2008.
35. E.R. Hascup, **K.N. Hascup**, J.M. Hinzman, F. Pomerleau, P. Huettl, K.W. Johnson, I. Strömberg, G.A. Gerhardt, and J. Kehr. Determining the source of resting and physiologically-evoked L-glutamate levels using enzyme-based microelectrode arrays in awake rats. Monitoring Molecules in Neuroscience: 12<sup>th</sup> International Conference on *In Vivo* Methods. Vancouver, Canada, May 2008.
36. F. Pomerleau, P. Huettl, E.R. Hascup, **K.N. Hascup**, J.J. Burmeister, and G.A. Gerhardt. Second-by-second measurements of glutamate and other neurotransmitters in awake, animals using microelectrode arrays. Monitoring Molecules in Neuroscience: 12<sup>th</sup> International Conference on *In Vivo* Methods. Vancouver, Canada, May 2008.
37. G.A. Gerhardt, F. Pomerleau, P. Huettl, E.R. Hascup, **K.N. Hascup**, J.E. Quintero, M.L. Stephens, P.M. Talauliker, and J.J. Burmeister. Real-time (2 Hz) measurements of

neurotransmission *in vivo* using enzyme-based microelectrode arrays. Monitoring Molecules in Neuroscience: 12<sup>th</sup> International Conference on *In Vivo* Methods. Vancouver, Canada, May 2008.

38. P. Huettl, E.R. Hascup, **K.N. Hascup**, F. Pomerleau, K.W. Johnson, G.A. Gerhardt. What Affects Resting Glutamate Levels in the Striatum and Prefrontal Cortex of Awake Rats and Mice? 41st Winter Conference on Brain Research. Snowbird, Utah January 2008.
39. **K.N. Hascup**, E.C. Rutherford, F. Pomerleau, P. Huettl, G.A. Gerhardt. Second-by-Second Measures of L-glutamate Resting Levels Using Enzyme-Based Microelectrode Arrays in the CNS of Conscious Freely Moving Mice. 12<sup>th</sup> Institute of Biological Engineering Meeting. St. Louis, Missouri, March 2007.
40. G.A. Gerhardt, E. Rutherford, **K.N. Hascup**, J.E. Quintero, P. Talauliker, T. Currier Thomas, M.L. Stephens, J. Fuqua. T. Coates. J.J. Burmeister, F. Pomerleau, P. Huettl. Second-by-Second Measurements of L-glutamate and Other Neurochemicals in the CNS of Animal Models and Humans. 12<sup>th</sup> Institute of Biological Engineering Meeting. St. Louis, Missouri, March 2007.
41. **K.N. Hascup**, E.C. Rutherford, F. Pomerleau, P. Huettl, G.A. Gerhardt. Second-By-Second Measures of L-Glutamate Using Enzyme-Based Microelectrodes in the CNS of Conscious, Freely Moving Mice. Monitoring Molecules in Neuroscience: 11<sup>th</sup> International Conference on *In Vivo* Methods. Villasimius-Cagliari, Italy, May 2006.
42. G.A. Gerhardt, F. Pomerleau, P. Huettl, J. Nickell, E. Rutherford, **K.N. Hascup**, J.E. Quintero, B.K. Day, T. Currier Thomas, M.L. Stephens, J.J. Burmeister, Ceramic Enzyme-Based Microelectrode Arrays for Second-by-Second Measurements of L-glutamate and Other Neurochemicals in the CNS. Monitoring Molecules in Neuroscience: 11<sup>th</sup> International Conference on *In Vivo* Methods. Villasimius Cagliari, Italy, May 2006.
43. **K.N. Hascup**, E.C. Rutherford, F. Pomerleau, G.A. Gerhardt. Real Time (Second-By-Second) Measures of L-Glutamate in the CNS of Conscious, Freely Moving Mice. Society for Neuroscience Meeting. Washington, D.C. November 2005.
44. X. Bao, **K.N. Hascup**, R. Pal, X. Wang, G.A. Gerhardt, S.C. Fowler, M.L. Michaelis, E.K. Michaelis. Glutamate Dehydrogenase (GLUD1) Transgenic Mice: A Model of Age-Dependent Endogenous Glutamate Excitotoxicity. Society for Neuroscience Meeting. Washington, D.C. November 2005.
45. **K.N. Hascup**, C.R. Gash, F.P. Pomerleau, X. Bao, D. Hui, E. K. Michaelis, G.A. Gerhardt. Second-By-Second *in Vivo* Electrochemical Analysis of L-Glutamate in the Striatum of GPT and GDH Over-expressing Mice. Society for Neuroscience Meeting. San Diego, CA. October 2004.

46. X. Bao, G. Wang, **K.N. Hascup**, C.R. Gash, F.P. Pomerleau, G.A. Gerhardt, S.C. Fowler, M.L. Michaelis, E.K. Michaelis. Behavioral and Neurochemical Characterization of c57BL/6, BALB/c, and CD1 Mice and generation of Glutamate Dehydrogenase (GDH) Transgenic BALB/c. Society for Neuroscience Meeting. San Diego, CA. October 2004.
47. S. Buch, V.K. Khurdayan, J. Wang, **K.N. Hascup**, N. El-Hage, I.N. Singh, P.E. Knapp, A. Nath, and K.F. Hauser. Vulnerability of glial-restricted precursors (GRPs) to combined opioid and HIV-1 Tat and gp120 *in vitro*. Soc. Neuroimmune Pharmacol. Abstrs. 10:49. Santa Fe, N.M., March 2004.
48. **K.N. Hascup**, Y. Yue, M. Staples. Demonstration of a 150 ng/mL Cutoff for the Urine Cocaine Metabolite Assay on the Dimension® Clinical Chemistry System. Clinical Chemistry Meeting. Philadelphia, PA, July 2003.

## ***Presentations***

### Invited

1. Targeting Glutamate and Insulin Sensitivity for Alzheimer's Disease Therapies. Southern Illinois University Edwardsville Campus. Edwardsville, IL; November 22<sup>nd</sup>, 2019.
2. Targeting Glutamate and Insulin Signaling for Alzheimer's Disease Treatments. Kansas University Medical Center. Kansas City, KS; June 24<sup>th</sup>, 2019.
3. Glutamatergic Signaling, Risk Factors, and Therapeutic Strategies for Alzheimer's Disease. University of Illinois at Urbana-Champaign. Champaign, IL; November 29<sup>th</sup>, 2018.
4. Biosensor Development for In Vivo CNS Studies of Glutamate. SRC Inc. Syracuse, NY. March 11<sup>th</sup> 2011.
5. Dysregulation of Glutamate Dehydrogenase: A Model of Age-Related Neurodegeneration. Uppsala Universitet, Uppsala, Sweden. January 16, 2009.

### International

1. Elevated Hippocampal Glutamatergic Signaling in Mouse Models of Alzheimer's Disease. Alzheimer's and Parkinson's Diseases Congress. Lisbon, Portugal, March 2019.
2. Riluzole is an effective prodromal treatment in the A $\beta$ PP/PS1 model of Alzheimer's disease. Dementia. Rome, Italy, September 2017.
3. Diet-Induced Obesity Causes Glutamatergic Dysregulation and Exacerbates Memory Impairment in A $\beta$ PP/PS1 Mice. Alzheimer's Association International Conference. Toronto, Canada, July 2016.
4. Stress-Evoked Glutamate Release in the Prefrontal Cortex of Sprague Dawley Rats. Douglas Mental Health University Institute, Montreal, Quebec, Canada, September 2009.

5. Neuropeptide Y Modulation of the Glutamatergic System in the Flinders Sensitive Line Rats: A Rat Model of Depression. European College of Neuropsychopharmacology Young Scientist Conference in Nice, France. March 6, 2009.

#### National

1. Hyperglutamatergic Signaling in Alzheimer's Disease. Winter Conference on Brain Research. Snowmass, Colorado, January 2019
2. Obesity-induced insulin resistance causes hippocampal glutamatergic dysregulation and impairs cognition in A $\beta$ PP/PS1 mice. Nutrition, Metabolism and Dementia Professional Interest Area Scientific Session at the Alzheimer's Association International Conference, Chicago, IL, USA, July 2018.
3. Riluzole, but not LY379268, is an effective prodromal treatment in the A $\beta$ PP/PS1 model of Alzheimer's disease. Society for Neuroscience, Washington, D.C., November 2017.
4. Neurotransmission spanning the Alzheimer's disease continuum: Glutamatergic tone, cognition, and early intervention. Society for Neuroscience, Washington, D.C., November 2017.
5. Soluble Amyloid- $\beta_{42}$  Activates  $\alpha 7nAChR$  *In Vivo* and Alters Glutamatergic Neurotransmission Prior to Cognitive Decline in A $\beta$ PP/PS1 Mice. Alzheimer's Association International Conference. Washington D.C., July 2015.
6. Glutamate neurotransmission is altered prior to cognitive decline in APP/PS1 mice, a mouse model of Alzheimer's disease. Society for Neuroscience Annual Meeting. Washington D.C., November 2014.
7. Local application of  $\beta$ -amyloid<sub>1-42</sub> elicits hippocampal sub-region specific glutamate release in C57Bl/6 mice. Society for Neuroscience Annual Meeting. Washington D.C., November 2014.
8. Measures of L-glutamate Resting Levels Using Enzyme-Based Microelectrode Arrays in the CNS of Conscious Freely Moving Mice. Institute of Biological Engineering. St. Louis, Missouri, April 2007.

#### State, Regional, and Local

1. Therapeutic Strategies and Risk Factors in Alzheimer's Disease. Department of Medical Microbiology, Immunology, & Cell Biology. Springfield, IL February 2019.
2. Risk Factors and Therapeutic Strategies in Alzheimer's Disease Mouse Models. Department of Neurology Grand Rounds. Springfield, IL. February 2019.
3. Hyperglutamatergic Signaling, Risk Factors, and Therapeutic Strategies for Alzheimer's Disease. Department of Pharmacology at SIU School of Medicine. Springfield, IL. November 2018.

4. Understanding the Relationship Between Amyloid- $\beta$ , Glutamatergic Signaling, and Cognition in Alzheimer's Disease. Department of Pharmacology at SIU School of Medicine. Springfield, IL. March 2015.
5. Dysregulation of Glutamate Dehydrogenase: A Model of Age-Related Neurodegeneration. Department of Anatomy and Neurobiology Defense Seminar. Lexington, Kentucky. October 2007.
6. Glutamate Dehydrogenase Transgenic Mice: A New Model of Neurodegeneration? Department of Anatomy and Neurobiology Seminar Series. Lexington, Kentucky. February 2006.
7. ALT and GDH Over-expressing Mice: A New Model of Age-Induced Neurodegeneration? Department of Anatomy and Neurobiology Seminar Series. Lexington, KY, February 2005.

## **SERVICE**

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### ***Peer-Reviewed Journals***

*Journal of Alzheimer's Disease*  
2021- Associate Editor

### ***Membership and Activities in Professional Societies – International***

International Society to Advance Alzheimer's Research and Treatment (ISTAART)  
2014- Member

Society for Neuroscience (SFN)  
2004- Member

International Behavioral Neuroscience Society (IBNS)  
2009-2012 Member

European College of Neuropsychopharmacology (ENCP)  
2009-2012 Member

### ***Membership and Activities in Professional Societies – National and Local***

American Chemical Society (ACS)  
2001-2003 Member

American Association for Clinical Chemistry (AACC)  
2003 Member

American Society for Neurochemistry  
2011- Member

## **Conference Planning Committees – National and Local**

2019                      Healthy Brain Aging: Risk and Prevention                      (Springfield, IL)

## **University Committees and Review Work**

### Southern Illinois University School of Medicine

2019 – Present	cHOP Faculty Development Committee	(Committee Member)
2018 – Present	Infection Control & Safety Committee	(Committee Member)
2018 – Present	Grant Review Committee	(Committee Member)
2018 (FY2019)	Dissertation Research Assistantship Committee	(Grant Reviewer)
2017 (FY2018)	Grant Review Committee	(Grant Reviewer)
2016 (FY2017)	Grant Review Committee	(Grant Reviewer)

## **University Relations**

### Southern Illinois University School of Medicine

2020    Laboratory tour/demonstration for UIS Medical Laboratory Science Students  
2019    Laboratory tour/demonstration for Illinois Lt. Governor Juliana Stratton  
          Laboratory tour/demonstration for Linda Lorenz and Tracy Satterhwaite  
          Laboratory tour/demonstration for Congressman Darin LaHood.  
          Laboratory tour/demonstration for Montessori Children’s House.  
          Laboratory tour/demonstration for Upward Bound High School Students  
2018    Laboratory tour/demonstration for Southern Illinois University School of Medicine’s  
          Division of Laboratory Animal Management  
2017    Laboratory tour/demonstration for Sara Yant and family  
2016    Laboratory tour/demonstration for Illinois Neurological Institute (OSF)  
2015    Laboratory tour/demonstration for SIUSOM alumni David Riesenberger, MD and family  
          Laboratory tour/demonstration for Illinois House Representative Tim Butler  
2014    Illinois Math and Science Academy (Blessed Sacrament) Presentation

## **Media Relations**

2017    WTAX News Radio: Local Research: Hope to Fight  
          Alzheimer’s <http://wtax.com/news/101101-local-research-hope-to-fight-alzheimers/>

## **Granting Agency Review Work**

2020 (FY2021)	NIH NOMD Study Section Early Career Reviewer
2018 (FY2019)	Illinois Dept. of Public Health Alzheimer’s Disease Research Fund Peer Review Panel Member
2014 (FY2015)	Illinois Dept. of Public Health Alzheimer’s Disease Research Fund

Peer Review Panel Member

### ***Ad Hoc Manuscript Review***

Movement Disorders  
Scientific Reports  
Journal of Pharmacology & Experimental Therapeutics  
Biomedicine & Pharmacotherapy  
Cell Transplantation  
Metabolic Brain Disease  
BioMed Research International  
International Journal of Molecular Sciences  
Brain Research Bulletin

### **PROFESSIONAL DEVELOPMENT**

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2020 InsideOut Coaching – SIU SoM cHOP Professional Development Workshop  
*The Truth About Leadership* – SIU SoM Monthly Meeting Group  
2019 *The Truth About Leadership* – SIU SoM Monthly Meeting Group  
Leadership & Excellence Career Development – SIU SoM cHOP  
Everyday Leadership for Everyone – SIU SoM cHOP  
Winter Conference on Brain Research – Career Development Workshop: Skills for the  
New Investigator.  
2018 ISTAART Workshop: Federal Dementia Research. Priorities and Opportunities for  
Funding from NIH  
ISTAART AWARE Panel Workshop: Women Professionals in Science  
2017 Responsible Conduct of Research  
2014 Writing Winning Grants Seminar