

BRENNAN SULLIVAN

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Education

Baylor College of Medicine 2021 - Present

Ph.D. – Neuroscience

Advisor: Jeff Magee

Rhodes College 2013 - 2017

B.S. – Neuroscience

Advisor: Kelly Dougherty

Research Positions

Graduate Student | Jeff Magee Lab 2022 - Present

Howard Hughes Medical Institute

Duncan Neurological Research Institute, Texas Children's Hospital

Department of Neuroscience, Baylor College of Medicine

Research Assistant | Shilpa Kadam Lab 2017 - 2021

Hugo W. Moser Research Institute, Kennedy Krieger Children's Hospital

Department of Neurology, Johns Hopkins University School of Medicine

Undergraduate Research Fellow | Kelly Dougherty Lab 2016 - 2017

Program in Neuroscience

Department of Biology, Rhodes College

Publications

Articles [* denotes equal contribution]

1. Thomas A.*, Yang W.*, Wang C., Tipparaju S.L., Chen G., **Sullivan B.J.**, Swiekatowski K., Tatam M., Gerfen C., Li N. (2023) Superior colliculus cell types bidirectionally modulate choice activity in frontal cortex. *Nature Communications* PMID: 37963894
2. **Sullivan B.J.**, Kipnis P.K., Carter B.M., and Kadam S.D. (2021) Targeting ischemia-induced KCC2 hypofunction rescues refractory neonatal seizures and mitigates epileptogenesis in a mouse model. *Science Signaling*. PMID: 34752143
3. **Sullivan B.J.**, Ammanuel S., Kipnis P.K., Araki Y., Hugarir R.L., and Kadam S.D. (2020) Low-dose Perampanel rescues cortical gamma dysregulation associated with parvalbumin interneuron GluA2 upregulation in epileptic Syngap1^{+/-} mice. *Biological Psychiatry*. PMID: 32107006
4. Kipnis P.K.*, **Sullivan B.J.***, Carter B.M., and Kadam S.D. (2020) TrkB agonists prevent post-ischemic BDNF-TrkB mediated emergence of refractory neonatal seizures in CD-1 pups. *JCI Insight*. PMID: 32427585.

5. Kang J., Kadam S.D., Elmore J.S., **Sullivan B.J.***, Valentine H.*, Malla A.P., Grace A.A., Rahmim A., Loew L.M., Baumann M., Gjedde A., Boctor E.M., and Wong D.F. (2020) Transcranial photoacoustic imaging of NMDA-evoked focal circuit dynamics in rat forebrain. *Journal of Neural Engineering*. PMID: 32084654.
6. Carter B.M., **Sullivan B.J.**, Landers J.R., Kadam S.D. (2018) Dose-dependent reversal of KCC2 hypofunction and phenobarbital-resistant neonatal seizures by ANA12. *Scientific Reports*. PMID: 30097625

Reviews

1. **Sullivan B.J.** and Kadam S.D. (2021) Brain Derived Neurotrophic Factor in Neonatal Seizures. *Pediatric Neurology*. PMID: 33773288
2. Kadam S.D., **Sullivan B.J.**, Goayal A., Blue M.E., and Smith-Hicks C. (2020) Rett Syndrome and CDKL5 Deficiency Disorder: From Bench to Clinic. *International Journal of Molecular Sciences*. PMID: 31618813
3. Kipnis P.K., **Sullivan B.J.**, and Kadam S.D. (2019) Sex Dependent Signaling Pathways Underlying Seizure Susceptibility and the Role of Chloride Cotransporters. *Cells*. PMID: 31085988

Chapters

1. **Sullivan B.J.** and Kadam S.D. (2021) Protocol for Drug Screening with Quantitative Video Electroencephalography in a Translational Model of Refractory Neonatal Seizures. In *Experimental and Translational Models to Screen Drugs Effective Against Seizures and Epilepsy*. D. Vohora, Ed. Springer, New York
2. **Sullivan B.J.** and Kadam S.D. (2020) The involvement of neuronal chloride transporter deficiencies in epilepsy. In *Neuronal Chloride Transporters in Health and Disease*. X. Tang, Ed. Elsevier, Amsterdam, Netherlands.

Invited Talks

Johns Hopkins University and Kennedy Krieger Institute, Baltimore, MD Pediatric Neuroscience Collaboration Seminar, Virtual Live Content Event <i>Hitting a moving target: KCC2 and pharmacoresistant seizures in the developing brain.</i>	2022
3rd International SYNGAP1 Conference Young Investigator Workshop, Virtual Live Content Event <i>An early forecast for the SYNGAP1 storm.</i>	2021
14th European Congress on Epileptology, Geneva, Switzerland Platform session, Cancelled due to COVID-19 <i>The KCC2 functional enhancer CLP290 rescues phenobarbital-resistant neonatal seizures.</i>	2020
The Scripps Research Institute, Jupiter, Florida 2nd International SYNGAP1 Conference <i>Perampanel rescues behavioral state-dependent transitions on qEEG in Syngap1^{+/-} mice.</i>	2018

Rhodes College, Memphis, TN	2016
Summer Undergraduate Research Symposium	
<i>A hitchhikers guide to voltage-gated K⁺ channels and dendritic integration.</i>	

Awards

NINDS Curing the Epilepsies Conference Travel Award	2021
<i>CURE Epilepsy</i>	
14th European Congress on Epileptology Travel Award	2020
<i>International League Against Epilepsy</i>	
American Epilepsy Society Annual Meeting Travel Award	2019
<i>International League Against Epilepsy</i>	
Young Investigator Travel Award	2019
<i>Syngap1 Foundation</i>	
Undergraduate Research Fellowship	2016
<i>Rhodes College</i>	

Service & Outreach

Ad-Hoc reviewer for <i>eLife</i> , <i>BRAIN</i> , <i>Molecular Psychiatry</i> , <i>Journal of Neural Engineering</i> , <i>Epilepsy Research</i> , and <i>Neuropharmacology</i>	
Skype a Scientist	2018 - Present
<i>Volunteer Scientist</i>	
Baylor College of Medicine Neuroscience Program Bootcamp	2022 - Present
<i>Lecturer and Peer Mentor</i>	
NINDS-AES Young Investigators Virtual Seminar	2021
<i>Seminar Co-Organizer, Emerging neurotechnology to disrupt epilepsy</i>	
Johns Hopkins Internship in Brain Sciences	2018 - 2020
<i>Mentor</i>	
International League Against Epilepsy	2018 - 2020
<i>Young Epilepsy Section Member, Research Task Force</i>	
Kids Enjoy Exercise Now	2017 - 2020
<i>Volunteer Coach</i>	
Rhodes College Board of Trustees	2016 - 2017
<i>Student Representative</i>	
Rhodes College Student Government	2016 - 2017
<i>Chair, Student Government Secondhand Smoke Committee</i>	
Rhodes College Athletic Department	2014 - 2017
<i>Board Member, Student-Athlete Advisory Committee</i>	
<i>Student Associate to the Athletic Director</i>	

Additional Experience

Rhodes College Varsity Men's Basketball

2013 - 2017

Team Captain 2015, 2016, 2017

SAA Conference Champion 2015, 2017

All-Conference Selection 2015, 2016, 2017

Rhodes College Fall Sports Top Men's Athlete 2016