

Kyle A. Sullivan, Ph.D.

sullivanka@ornl.gov

ORCID: <http://bit.ly/KS-ORC>

ResearchGate: <http://bit.ly/KS-RG>

Google Scholar: <https://bit.ly/KS-GS>

LinkedIn: <http://bit.ly/KS-Linked>

Education

- 2015 – 2020 **The Ohio State University**, Columbus, OH
M.S., Ph.D., Neuroscience
- 2011 – 2015 **University of Virginia**, Charlottesville, VA
B.A. with High Distinction, Neuroscience and Computer Science

Research Interests

- Multi-omics and systems biology analyses of substance use disorders and comorbid psychiatric conditions
- Immunological and neuroimmunological responses to human disease
- Integration of multi-omic analysis for knowledge transfer among humans and model organisms

Research Experience

- 2023 – Present **Computational Systems Biologist**
Oak Ridge National Laboratory, Oak Ridge, TN
Computational and Predictive Biology Group, Biosciences Division
- 2020 – 2023 **Postdoctoral Research Associate**
Mentor: Dr. Daniel Jacobson, Oak Ridge National Laboratory, Oak Ridge, TN
Computational and Predictive Biology Group, Biosciences Division
- 2015 – 2020 **Pelotonia Graduate Fellow and Ph.D. Candidate**
Co-Mentors: Drs. Leah Pyter and Karl Obrietan, Ohio State University, Columbus, OH
Neuroscience Graduate Program
- 2012 – 2015 **Undergraduate Research Assistant**
Mentor: Dr. Edward Perez-Reyes, University of Virginia, Charlottesville, VA
Neuroscience Undergraduate Program

Honors and Awards

- 2023 **Distinguished Achievement Award in Recognition of Excellence in Postdoctoral Research**, Biosciences Division, Oak Ridge National Laboratory
- 2019 – 2020 **Pelotonia Graduate Fellowship**, Pelotonia Foundation (\$48,360 total award; award rate ~20% of applicants)
- 2019 **Outstanding Poster Presentation**, 2019 Ohio State Life Sciences Interdisciplinary Graduate Programs Symposium (\$50 award)
- Explorations in Neuroscience Travel Award**, OSU Dept. of Neuroscience (\$300)

- 2018 **Explorations in Neuroscience Travel Award**, OSU Dept. of Neuroscience (\$1000)
- 2014 **Undergraduate Student Travel Award**, Central Virginia Chapter of the Society for Neuroscience (\$400 award)
- First Place Undergraduate Poster Presentation**, Central Virginia Chapter of the Society for Neuroscience Meeting
- First Place Presentation**, UVA Fozdar Symposium for Undergraduate Neuroscience Research (\$100 award)

Publications

1. **Sullivan, K.A.**, Kainer, D., Lane, M., Cashman, M., Miller, J.I., Garvin, M.G., Townsend, A., Quach, B.C., Willis, C., Kruse, P., Gaddis, N.C., Mathur, R., Corradin, O., Maher, B.S., Scacheri, P.C., Sanchez-Roige, S., Palmer, A.A., Troiani, V., Chesler, E.J., Kember, R.L., Kranzler, H.R., Justice, A.C., Xu, K., Aouizerat, B.E., VA Million Veteran Program, Hancock, D.B., Johnson, E.O., Jacobson, D.A. (2024). Multi-omic network analysis identifies dysregulated neurobiological pathways in opioid addiction. *Biological Psychiatry*, online ahead of print. <https://doi.org/10.1016/j.biopsych.2024.11.013>
2. **Sullivan, K.A.**, Lane, M., Cashman, M., Miller, J.I., Pavicic, M., Walker, A.M., Cliff, A., Romero, J., Qin, X., Lindquist, J., Mullins, N., Docherty, A., Coon, H., Ruderfer, D.M., International Suicide Genetics Consortium, VA Million Veteran Program, MVP Suicide Exemplar Workgroup, Garvin, M.R., Pestian, J.P., Ashley-Koch, A.E., Beckham, J.C., McMahon, B., Oslin, D.W., Kimbrel, N.A., Jacobson, D., Kainer, D. (2024). Analyses of GWAS signal using GRIN identify additional genes contributing to suicidal behavior. *Communications Biology*, 7(1360). <https://doi.org/10.1038/s42003-024-06943-7>
3. Johnson, E.O., Fisher, H., **Sullivan, K.A.**, Corradin, O., Sanchez-Roige, S., Gaddis, N.C., Townsend, A., Prates, E., Pavicic, M., Kruse, P., Chesler, E.J., Palmer, A.A., Troiani, V., Bubier, J.A., Jacobson, D.A., Maher B.S. (2024). An Emerging Multi-omic Understanding of the Genetics of Opioid Addiction. *The Journal of Clinical Investigation*, 134(20). <https://doi.org/10.1172/JCI172886>
4. **Sullivan, K.A.**⁺, Miller, J.I.⁺, Townsend, A.⁺, Morgan, M.⁺, Lane, M., Pavicic, M., Shah, M., Cashman, M., Jacobson, D.A. (2024). MENTOR: Multiplex Embedding of Networks for Team-Based Omics Research. *bioRxiv*. <https://doi.org/10.1101/2024.07.17.603821>
⁺ These authors contributed equally
5. Toikumo, S., Vickers-Smith, R., Jinwala, Z., Xu, H., Saini, D., Hartwell, E., Venegas, M.P., **Sullivan, K.A.**, Xu, K., Jacobson, D.A., Gelernter, J., Rentsch, C.T., Million Veteran Program, Stahl, E., Cheatle, M., Zhou, H., Waxman, S.G., Justice, A.C., Kember, R.L., Kranzler, H.R. (2024). A multi-ancestry genetic study of pain intensity in 598,339 veterans. *Nature Medicine*, 30(4), 1075–1084. <https://doi.org/10.1038/s41591-024-02839-5>
6. Dhaubhadel, S., Ganguly, K., Ribeiro, R.M., Cohn, J.D., Hyman, J.M., Hengartner, N.W., Kolade, B., Singley, A., Bhattacharya, T., Finley, P., Levin, D., Thelen, H., Cho, K., Costa, L., Ho, Y., Justice, A.C., Pestian, J., Santel, D., Zamora-Resendiz, R., Crivelli, S., Tamang, S., Martins, S., Trafton, J., Oslin, D.W., Beckham, J.C., Kimbrel, N.A., **Million Veteran Program Suicide Exemplar Workgroup***, McMahon B.H. (2024). High dimensional predictions of suicide risk in 4.2 million US Veterans using ensemble transfer learning. *Scientific Reports*, 14, 1793. <https://doi.org/10.1038/s41598-024-51762-9>

***Included in list of members of Million Veteran Program Suicide Exemplar Workgroup**

7. Kainer, D., Lane, M., **Sullivan, K.A.**, Miller, J. I., Cashman, M., Morgan, M., Cliff, A., Romero, J., Walker, A., Blair, D.D., Chhetri, H., Wang, Y., Pavicic, M., Furches, A., Noshay, J., Drake, M., Landry, N., Ireland, A.J., Missaoui, A., Kang, Y., Sedbrook, J., Dehal, P., Canon, S., Jacobson, D. A. (2024). RWRtoolkit: multi-omic network analysis using random walks on multiplex networks in any species. *bioRxiv*. <https://doi.org/10.1101/2024.07.17.603975>
8. Venu, V., Small, E. M., Roth, C., Adikari, S. H., Vlot, A. H. C., **Sullivan, K.A.**, Abeyratne, C.R., Jacobson, D., Starkenburg, S.R., Sanbonmatsu, K.Y., Steadman, C. R. (2024). Epigenomic manipulation reveals the relationship between locus specific chromatin dynamics and gene expression. *bioRxiv*. <https://doi.org/10.1101/2024.07.17.603961>
9. Burke, C.T., Vitko, I. Straub, J., Nylund, E.O., Gawda, A., Blair, K., **Sullivan, K.A.**, Ergun, L., Ottolini, M., Patel, M.K., Perez-Reyes, E. (2023). EpiPro, a Novel, Synthetic, Activity-Regulated Promoter That Targets Hyperactive Neurons in Epilepsy for Gene Therapy Applications. *International Journal of Molecular Sciences*, 24(19), 14467. <https://doi.org/10.3390/ijms241914467>
10. **Sullivan, K.A.**, Vitko, I., Blair, K., Gaykema, R.P., Failor, M.J., San Pietro, J.M., Dey, D., Williamson, J.M., Stornetta, R.L., Kapur, J., Perez-Reyes, E. (2023). Drug-Inducible Gene Therapy Effectively Reduces Spontaneous Seizures in Kindled Rats but Creates Off-Target Side Effects in Inhibitory Neurons. *International Journal of Molecular Sciences*, 24(14), 11347. <https://doi.org/10.3390/ijms241411347>
11. Kunkel, T.J., Townsend, A., **Sullivan, K.A.**, Merlet, J., Schuchman, E.H., Jacobson, D.A., Lieberman, A.P. (2023). The cholesterol transporter NPC1 is essential for epigenetic regulation and maturation of oligodendrocyte lineage cells. *Nature Communications*, 14(1), 3964. <https://doi.org/10.1038/s41467-023-39733-6>
12. Pavicic, M., Walker, A.M., **Sullivan, K.A.**, Lagergren, J., Cliff, A., Romero, J., Streich, J., Garvin, M.R., MVP Suicide Exemplar Workgroup, VA Million Veteran Program, Pestian, J., McMahon, B., Oslin, D.W., Beckham, J.C., Kimbrel, N.A., Jacobson, D.A. (2023). Using Explainable-AI to Find Geospatial Environmental and Sociodemographic Predictors of Suicide Attempts. *Frontiers in Psychiatry*, 14, 1178633. <https://doi.org/10.3389/fpsy.2023.1178633>
13. Levin, M.G., Huffman, J.E., Verma, A., **Sullivan, K.A.**, Rodriguez, A.A., Kainer, D., Garvin, M.R., Lane, M., Miller, J.I., Cashman, M., Won, H., Li, B., Luo, Y., Jarvik, G.P., Hakonarson, H., Jasper, E.A., Bick, A.G., Ritchie, M.D., Tsao, P., Jacobson, D.A., Madduri, R.K., Damrauer, S.M. (2023). Genetics of varicose veins reveals polygenic architecture and genetic overlap with arterial and venous disease. *Nature Cardiovascular Research*, 2, 44–57. <https://doi.org/10.1038/s44161-022-00196-5>
14. Grant, C.V. ⁺, **Sullivan, K.A.** ⁺, Wentworth, K., Otto, L.D., Strehle, L.D., Otero, J.J., Pyter, L.M. (2023). Microglia are implicated in the development of paclitaxel chemotherapy-associated cognitive impairment in female mice. *Brain, Behavior, and Immunity*, 108, 221-232. <https://doi.org/10.1016/j.bbi.2022.12.004>
⁺These authors contributed equally
15. Cope, K.R., Prates, E.T., Miller, J.I., Demerdash, O.N.A., Shah, M., Kainer, D., Cliff, A., **Sullivan, K.A.**, Cashman, M., Lane, M., Matthiadis, A., Labbé, J., Tschaplinski, T.J., Jacobson, D.A., Kalluri, U.C. (2023). Exploring the role of plant lysin motif receptor-like kinases in regulating plant-microbe interactions in the bioenergy crop *Populus*. *Computational and Structural Biotechnology Journal*, 21, 1122-1139.

<https://doi.org/10.1016/j.csbj.2022.12.052>

16. Kimbrel, N.A., Ashley-Koch, A.E., Qin, X.J., Lindquist, J.H., Garrett, M.E., Dennis, M.F., Hair, L.P., Huffman, J.E., Jacobson, D.A., Madduri, R.K., Trafton, J.A., Coon, H., Docherty, A.R., Mullins, N., Ruderfer, D.M., Harvey, P.D., McMahon, B.H., Oslin, D.W., Beckham, J.C., Hauser, E.R., Hauser, M.A., **Million Veteran Program Suicide Exemplar Workgroup***, International Suicide Genetics Consortium, Veterans Affairs Mid-Atlantic Mental Illness Research, Education, and Clinical Center Workgroup, Veterans Affairs Million Veteran Program. (2022). Identification of novel, replicable genetic risk loci for suicidal thoughts and behaviors among US Military Veterans. *JAMA psychiatry*, 80(2), 135-145.

<https://doi.org/10.1001/jamapsychiatry.2022.3896>

***Included in list of members of Million Veteran Program Suicide Exemplar Workgroup**

17. Sullivan, K. A., Grant, C. V., Jordan, K. R., Obrietan, K., & Pyter, L. M. (2022). Paclitaxel chemotherapy disrupts behavioral and molecular circadian clocks in mice. *Brain, behavior, and immunity*, 99, 106-118.

<https://doi.org/10.1016/j.bbi.2021.09.011>

18. Kimbrel, N.A., Ashley-Koch, A.E., Qin, X.J., Lindquist, J.H., Garrett, M.E., Dennis, M.F., Hair, L.P., Huffman, J.E., Jacobson, D.A., Madduri, R.K., Trafton, J.A., Coon, H., Docherty, A.R., Kang, J., Mullins, N., Ruderfer, D.B., VA Million Veteran Program, **MVP Suicide Exemplar Workgroup***, International Suicide Genetics Consortium, Harvey, P.D., McMahon, B.H., Oslin, D.W., Hauser, E.R., Hauser, M.A., Beckham, J.C. (2022). A genome-wide association study of suicide attempts in the Million Veterans Program identifies evidence of pan-ancestry and ancestry-specific risk loci. *Molecular psychiatry*, 27(4), 2264-2272.

<https://doi.org/10.1038/s41380-022-01472-3>

***Included in list of members of MVP Suicide Exemplar Workgroup**

19. Prates, E.T., Garvin, M.R., Jones, P., Miller, J.I., Sullivan, K.A., Cliff, A., Gazolla, J.G.F.M., Shah, M., Walker, A.M., Lane, M., Rentsch, C.T., Justice, A., Pavicic, M., Romero, J., Jacobson, D. (2022). Antiviral Strategies Against SARS-CoV-2: A Systems Biology Approach. *Methods in Molecular Biology (Clifton, NJ)*, 2452, 317-351. https://doi.org/10.1007/978-1-0716-2111-0_19

20. Sullivan, K. A., Grant, C. V., Jordan, K. R., Vickery, S. S., & Pyter, L. M. (2021). Voluntary wheel running ameliorates select paclitaxel chemotherapy-induced sickness behaviors and associated melanocortin signaling. *Behavioural Brain Research*, 399, 113041. <https://doi.org/10.1016/j.bbr.2020.113041>

21. Sullivan, K.A., Bever, S. R., McKim, D. B., Godbout, J. P., Sheridan, J. F., Obrietan, K., Pyter, L. M. (2019). Mammary tumors compromise time-of-day differences in hypothalamic gene expression and circadian behavior and physiology in mice. *Brain, Behavior, and Immunity*, 80, 805-817.

<https://doi.org/10.1016/j.bbi.2019.05.028>

22. Santos, J.C., Bever, S.R., Sullivan, K.A., Pyter, L.M. (2019). Cancer and cancer survival modulates brain and behavior in a time-of-day-dependent manner in mice. *Scientific Reports*, 9(1), 6497.

<https://doi.org/10.1038/s41598-019-42880-w>

23. Wheaton, K. L., Hansen, K. F., Aten, S., Sullivan, K. A., Yoon, H., Hoyt, K. R., Obrietan, K. (2018). The Phosphorylation of CREB at Serine 133 Is a Key Event for Circadian Clock Timing and Entrainment in the Suprachiasmatic Nucleus. *Journal of Biological Rhythms*, 33(5), 497-514.

<https://doi.org/10.1177/0748730418791713>

24. Snider, K. H., Sullivan, K. A., Obrietan, K. (2018). Circadian Regulation of Hippocampal-Dependent Memory: Circuits, Synapses, and Molecular Mechanisms. *Neural Plasticity*, vol. 2018, Article ID 7292540,

13 pages. <https://doi.org/10.1155/2018/7292540>

25. Wheaton, K., Aten, S., Queiroz, L. S., **Sullivan, K.**, Oberdick, J., Hoyt, K. R., Obrietan, K. (2018). Circadian expression and functional characterization of PEA-15 within the mouse suprachiasmatic nucleus. *European Journal of Neuroscience*, 47(7), 845-857. <https://doi.org/10.1111/ejn.13850>
26. Dey, D., Eckle, V. S., Vitko, I., **Sullivan, K. A.**, Lasiecka, Z. M., Winckler, B., Stornetta, R.L., Williamson, J.M., Kapur, J., Perez-Reyes, E. (2014). A potassium leak channel silences hyperactive neurons and ameliorates status epilepticus. *Epilepsia*, 55(2), 203-213. <https://doi.org/10.1111/epi.12472>

Oral Presentations

1. Identifying biological pathways underlying Switchgrass bioenergy traits using *Arabidopsis thaliana* exascale/petascale complexity networks deployed in KBase. **Sullivan, K.A.** Plant and Animal Genome Conference 31, San Diego, CA, January 2024.
2. Network biology algorithms identify biological pathways underlying cigarette smoking behaviors. **Sullivan, K.A.** 2023 World Congress of Psychiatric Genetics, Montréal, CA, October 2023.
3. Systems Biology Integration of Multi-Omic Data Reveals Biological Pathways Underlying Substance Use Disorders. **Sullivan, K.A.** College on Problems of Drug Dependence Annual Scientific Meeting, Denver, CO, June 2023.
4. Multi-omic Network Analysis Identifies Key Neurobiological Pathways in Opioid Addiction. **Sullivan, K.A.** Million Veteran Program (MVP) Science Symposium, St. Petersburg, FL, December 2022.
5. Multi-omic network analysis identifies key neurobiological pathways in opioid addiction. **Sullivan, K.A.** 10th Annual Oak Ridge Postdoctoral Association Research Symposium, Oak Ridge, TN, July 2022.
6. Multi-omic network analysis identifies key neurobiological pathways in opioid addiction. **Sullivan, K.A.** 2022 National Institute on Drug Abuse Genetics and Epigenetics Cross Cutting Research Team (GEC CRT) Virtual Meeting, Online, April 2022.
7. Systems biology approaches uncover novel genetic variants conferring productivity traits in Switchgrass. **Sullivan, K.A.** Center for Bioenergy Innovation Annual Science Meeting, Online, June 2021.
8. Mammary tumors and chemotherapy independently disrupt circadian rhythms in mice. **Sullivan, K.A.** Institute for Behavioral Medicine Research Day, The Ohio State University, Columbus, OH, April 2020. **Due to COVID-19-related meeting cancellation, this peer-reviewed presentation was accepted but not presented.*
9. Mammary tumors and chemotherapy independently disrupt circadian rhythms in mice. **Sullivan, K.A.** Edward F. Hayes Graduate Research Forum, The Ohio State University, Columbus, OH, February 2020.

Poster Presentations

1. Multi-omic integration uncovers biological pathways underlying HIV viral load. **Sullivan, K.A.**, Minto, M., Miller, J.I., Quach, B.C., Willis, C., Garvin, M.R., Townsend, A., Kruse, P., Lane, M., Kainer, D., Cashman, M., Xu, K., Aouizerat, B.E., Hancock, D.B., Jacobson, D.A., Johnson, E.O. 2024 National Institute on Drug Abuse Genetics and Epigenetics Cross-Cutting Research Team (GEC CRT) Meeting, Bethesda, MD, May 2024.

2. Multi-omic integration uncovers biological pathways underlying HIV viral load. **Sullivan, K.A.**, Miller, J.I., Quach, B.C., Willis, C., Garvin, M.R., Townsend, A., Kruse, P., Lane, M., Kainer, D., Cashman, M., Xu, K., Aouizerat, B.E., Hancock, D.B., Jacobson, D.A., Johnson, E.O. American Society of Human Genetics Annual Meeting, Washington, DC, November 2023.
3. Systems biology of unique and shared mechanistic architectures of opioid use disorder and pain. **Sullivan, K.A.**, Pavicic, M., Toikumo, S., Vickers-Smith, R., Xu, K., Rentsch, C.T., Zhou, H., Justice, A.C., Kember, R.L., Kranzler, H.R., Johnson, E.O., Hancock, D., Jacobson, D. 2023 Million Veteran Program (MVP) Science Symposium, Washington, DC, October 2023.
4. Heroin overdose-associated transcriptional and epigenetic alterations in the orbitofrontal cortex concentrate in GABA interneurons and provide insight into cell type-specific regulatory response. **Sullivan, K.A.**, Noshay, J.M., Kozlenkov, A., Rompala, G., Townsend, A., Merlet, J., Vadukapuram, R., Dwork, A.J., Hurd, Y.L., Jacobson, D.A., Dracheva, S. 2023 National Institute on Drug Abuse Genetics and Epigenetics Cross-Cutting Research Team (GECRT) Meeting, Bethesda, MD, May 2023.
5. GRIN identifies additional genes contributing to suicidal behavior below traditional genome-wide significance thresholds. **Sullivan, K.A.**, Lane, M., Cashman, M., Miller, J.I., Pavicic, M., Walker, A.M., Cliff, A., Romero, J., Qin, X., Lindquist, J., Mullins, N., Docherty, A., Coon, H., Ruderfer, D.M., Garvin, M.R., Pestian, J.P., Ashley-Koch, A.E., Beckham, J.C., McMahon, B., Oslin, D.W., Kimbrel, N.A., Jacobson, D.A., Kainer, D. Million Veteran Program (MVP) Science Symposium, St. Petersburg, FL, December 2022.
6. Neurobiological pathways underlying opioid addiction identified by systems biology multi-omic gene integration. **Sullivan, K.A.**, Kainer, D., Lane, M., Garvin, M.R., Townsend, A., Quach, B.C., Willis, C., Gaddis, N.C., Mathur, R., Corradin, O., Maher, B.S., Scacheri, P.C., Sanchez-Roige, S., Palmer, A.A., Troiani, V., Chesler, E., Hancock, D.B., Johnson, E.O., Jacobson, D.A. American Society of Human Genetics Annual Meeting, Los Angeles, CA, October 2022.
7. Multi-omic Network Analysis Identifies Key Neurobiological Pathways in Opioid Addiction. **Sullivan, K.A.**, Kainer, D., Lane, M., Garvin, M.R., Townsend, A., Quach, B.C., Willis, C., Gaddis, N.C., Mathur, R., Corradin, O., Maher, B.S., Scacheri, P.C., Sanchez-Roige, S., Palmer, A.A., Troiani, V., Chesler, E., Hancock, D.B., Johnson, E.O., Jacobson, D.A. World Congress of Psychiatric Genetics, Florence, Italy, September 2022.
8. Systems biology and genomic approaches uncover distinct genes controlling switchgrass biomass and height. **Sullivan, K.A.**, Chhetri, H., Kainer, D., Pavicic, M., Wang, Y., Pendergast, T.H., Kang, Y., Devos, K., Jacobson, D.A., Tuskan, G.A. 2022 Genomic Science Program Annual PI Meeting, Online, February 2022.
9. Paclitaxel chemotherapy disrupts behavioral and molecular circadian clocks in mice. **Sullivan, K.A.**, Grant, C.V., Jordan, K.R., Obrietan, K., *Pyter, L.M. American College of Neuropsychopharmacology, December 2021. *Presenting author
10. *A random walk with restart approach elucidates pathophysiological insight into opioid use disorder. **Sullivan, K.A.**, Kainer, D., Kranzler, H.R., Justice, A.C., Jacobson, D. 2021 MVP Science Virtual Meeting, Online, September 2021.
**Selected for Poster Highlights session as a candidate for Best Genomics Poster or Best Phenomics Poster*
11. Graph-based filtering of genome-wide association study results reveals pathophysiological insights into increased risk of alcohol use disorder. **Sullivan, K.A.**, Kainer, D., Kranzler, H.R., Justice, A.C., Jacobson, D. 2021 MVP Science Virtual Meeting, Online, September 2021.
12. Uncovering suicide attempt pathophysiology using a genome-wide association study of United States veterans and systems biology approaches. **Sullivan, K.A.**, Kainer, D., Qin, X., Kimbrel, N.A., Jacobson, D. 2021 MVP

Science Virtual Meeting, Online, September 2021.

13. Filtering significant genome-wide significant loci to improve polygenic risk scores in Million Veteran Program exemplars. **Sullivan, K.A.**, Kainer, D., Madduri, R., Justice, A.C., Jacobson, D. 2021 MVP Science Virtual Meeting, Online, September 2021.
14. Graph-based filtering of a genome-wide association meta-analysis provides mechanistic insight into peripheral cardiovascular disease. **Sullivan, K.A.**, Kainer D., Bick, A.G., Damrauer, S.M., Jacobson, D. 2021 MVP Science Virtual Meeting, Online, September 2021.
15. Circadian dysregulation of behavior and physiology by tumor biology and chemotherapy in mice. **Sullivan, K.A.**, Bever, S.R., Strehle, L.D., Russart, K.L.G., Jordan, K., Patel, A., Wentworth, K.M., Lahoud, A., Kaur, J., Obrietan, K., Pyter, L.M. Society for Neuroscience, Chicago, IL, October 2019.
16. Circadian dysregulation of behavior and physiology by mouse models of breast cancer and chemotherapy. **Sullivan, K.A.**, Jordan K., Lahoud, A., Kaur, J., Russart, K.L.G., Patel A., Wentworth, K.L., Bever, S.R., Strehle, L.D., Obrietan, K., and Pyter, L.M. 2019 Life Sciences Interdisciplinary Graduate Programs Symposium, The Ohio State University, Columbus, OH, May 2019.
17. Effects of chemotherapy on circadian-regulated behavior and physiology in mice. **Sullivan, K.A.**, Patel A., Jordan K., Lahoud, A., Kaur, J., Russart, K.L.G., Strehle, L, Obrietan, K., and Pyter, L.M. Institute for Behavioral Medicine Research Day, The Ohio State University, Columbus, OH, March 2019.
18. Circadian physiological parameters in breast cancer patient and survivor mouse models. **Sullivan, K.A.**, Bever, S.R., Strehle, L.D., Haynes, B., Hilvert, A.M., McKim, D., Godbout, J.P., Sheridan, J.F., Obrietan, K., & Pyter, L.M. The Ohio State University Interdisciplinary Graduate Program Symposium, Columbus, OH, May 2018.
19. **Sullivan, K.A.**, Vitko, I., Williamson, J.M., Stornetta, R., Dey, D., Kapur, J., Perez-Reyes, E. Development and validation of doxycycline-regulated (Dox-On) adeno-associated viral vectors. Society for Neuroscience, Washington, DC, November 2014.
20. **Sullivan, K.A.**, Vitko, I., Stornetta, R., Williamson, J.M., Kapur, J., Perez-Reyes, E. Understanding Epilepsy through Induction of Spontaneous Seizures. Central Virginia Chapter of the Society for Neuroscience Meeting, Richmond, VA, March 2014.

Software Development

- Lead developer of GRIN (Gene set Refinement using Interacting Networks), an open-source, command line script to filter gene sets using biological networks: <https://github.com/sullivanka/GRIN>
- Co-developer of RWRtoolkit (<https://github.com/dkainer/RWRtoolkit>), an open-source R package and command-line set of tools to enable easy use of Random Walk with Restart on multiplex networks
- Co-developer of RWRtoolkit-data (<https://github.com/dkainer/RWRtoolkit-data>) containing biological networks for *Arabidopsis thaliana*

Technical and Professional Skills

- Extensive experience coding in Python, R, MATLAB, Java, C++, Shell scripting, and UNIX environments
- Strong data and statistical analysis experience, including use of R, GraphPad Prism, SPSS Statistics, Python, and Microsoft Excel
- Moderate experience coding in MySQL, Apache, PHP, and Android

- Extensive fluorescent microscopy experience, including *in vivo* two-photon brain imaging in mouse, confocal microscopy (spinning disk and laser scanning), and widefield microscopy (brightfield and fluorescent microscopy)
- Strong background in a variety of wet laboratory techniques, including: immunohistochemistry and histology, ELISAs (including multiplex immunoassays), Western blotting, transgenic mouse genotyping, molecular cloning, PCR, qRT-PCR, mouse survival surgery (cranial window implantation, tumor induction, tumor resection, telemetry implantation, EEG implantation, and AAV injection), mouse blood collection (retroorbital eye bleeds, trunk blood), transcardial perfusion, brain tissue slicing (using either a vibratome, freezing microtome, and cryostat), tissue homogenization and sonication, electroencephalogram (EEG) recording and analysis, hippocampal slice electrophysiology, and cell and tissue culture
- Experienced in running and analyzing behavioral neuroscience assays, including open field test, contextual fear conditioning, rodent wheel running, and novel object location

Teaching and Mentoring Experience

2023-2024	Undergraduate Research Mentor to Alana Wells (Undergraduate, Major: Math and Computer Science)
2022	Mentor to Darian Dilling (Undergraduate, Major: Psychology)
2018 – 2020	Mentor to Ashnee Patel (Undergraduate, Major: Neuroscience) Mentor to Kylie Wentworth (Undergraduate, Major: Neuroscience)
2016	Teaching Assistant for NeuroSc 4100 – Basic and Clinical Foundations of Neurological Disease (Ohio State)

Press Coverage and Speaking Engagements

2023	Press Release of Genetics of Varicose Veins manuscript (link: https://www.ornl.gov/news/computational-study-finds-genetic-links-therapy-targets-varicose-veins)
2019	Press Release of 2019 Society for Neuroscience poster presentation (link: https://wexnermedical.osu.edu/mediaroom/pressreleaselisting/tumors-alone-may-be-linked-to-cancer-patients-cognitive-problems) Graduate Pelotonia Fellow YouTube interview (link: https://www.youtube.com/watch?v=0x6HkoT68bs) Formal remarks given at Sync Cancer, an annual cancer research event held at Ohio State (over \$37,000 raised)

Editorial Boards

- *Frontiers in Neuroscience* – Review Editor, Neuroscience Methods and Techniques Section

Ad Hoc Reviewer

- *Behavioural Brain Research*
- *Biological Psychiatry*
- *Brain, Behavior, and Immunity*
- *Brain, Behavior, and Immunity – Health*

- *Brain, Behavior, and Immunity – Integrative*
- *iScience*
- *Neurobiology of Stress*
- *PLOS One*
- *Psychiatry Research*
- *Science Progress*
- *Scientific Reports*

Service and Volunteer Opportunities

2019-2020 Neuroscience Graduate Program Student Representative

- Responsible for coordinating annual Neuroscience Graduate Program (NGP) recruitment activities and annual program retreat
- Serves on NGP Graduate Studies committee with responsibilities including, but not limited to, voicing student concerns to faculty and voting on NGP faculty membership
- Coordinates with other Life Sciences Interdisciplinary Graduate Programs (IGPs) to organize biannual Life Sciences IGP Career Day, where representatives from academic and non-academic careers explain post-graduate career opportunities

2018 Council of Graduate Students (CGS) Delegate, Neuroscience Graduate Program

- Reports concerns and represents students in the Neuroscience Graduate Program students to the Ohio State Graduate School
- Serves on the Ray Travel Award for Service and Scholarship committee, awarding travel grants to Ohio State graduate students who have exhibited exemplary service to their department, the university, and surrounding Columbus, OH community

Neuroscience Graduate Student Organization, Treasurer

- Creates budget for the Neuroscience Graduate Student Organization, an organization dedicated to improving Neuroscience Graduate Program students by providing career development, community outreach, and social activities
- Hosts fundraisers to raise capital for career development, community outreach, social, and department-sponsored activities

Science, Technology, Engineering, and Mathematics (STEM) Expo, Neuroscience Graduate Student Organization

- Educated local Columbus elementary school students and families about neuroscience through trivia activities and interactive neuroscience demonstrations

Brain Injury Awareness 5K, Neuroscience Graduate Student Organization

- Assisted with setup and timing of 1 mile walk and 5K charity race used to raise funds for traumatic brain injury and spinal cord injury research at The Ohio State Wexner Medical Center (\$2,912 raised in 2018)

2017 Neuroscience Graduate Student Organization, Professional Development Chair

- Organized and conducted professional development activities for students in the Neuroscience Graduate Program
- Hosted workshop for NGP students on ways to improve networking by designing clear and effective business cards

Explorations in Neuroscience Camp, Graduate Student Volunteer

- Engaged with students by directly answering questions about graduate school application process and life as a PhD graduate student from 2017 to 2019
- Escorted high school students to various neuroscience laboratory activities, including confocal microscopy, electrophysiology, and behavioral neuroscience

Frontiers of Neuroscience Seminar Selection Committee Member, *Neuroscience Graduate Program*

- Participated as a member on a student-led Neuroscience Graduate Program committee to select and invite leading neuroscientists with HHMI, National Academy of Sciences, or Nobel laureate honors

2016 Midwest/Great Lakes Undergraduate Research Symposium in Neuroscience (mGluRs) Guest Judge, *Neuroscience Graduate Program*

- Judged undergraduate neuroscience poster presentations for annual mGluRs conference, consisting of students from various Midwest colleges and universities, held at Ohio State in 2016

Brain Awareness Week at COSI, *Neuroscience Education: Urban and Rural Outreach (NEURO)*

- Presented various mammalian and human brain/spinal cord samples and other educational neuroscience materials for patrons at Center of Science and Industry (COSI) museum in Columbus, OH from 2016-2019

Professional Memberships

- American Society of Human Genetics
- College on Problems of Drug Dependence (Member-In-Training)
- International Society of Psychiatric Genetics
- Society for Neuroscience

Professional References

Dr. Daniel Jacobson

Distinguished Research Scientist
Computational Systems Biology
Biosciences Division
Oak Ridge National Laboratory
1 Bethel Valley Road
Oak Ridge, TN 37830
jacobsonda@ornl.gov

Dr. Leah Pyter

Associate Professor
Dept. of Psychiatry & Behavioral Health
223 Institute for Behavioral Medicine Research
460 Medical Center Dr
Columbus, OH 43210
The Ohio State University
leah.pyter@osumc.edu

Dr. Karl Obrietan

Professor

Kyle Sullivan
sullivanka@ornl.gov

Dept. of Neuroscience
4036 Graves Hall
333 W 10th Ave
Columbus, OH 43210
The Ohio State University
obrietan.1@osu.edu