

## **William's Lab Publications:**

### **In Vivo Imaging and Neuro Electrophysiology**

1. Esquibel CR, Wendt KD, Lee HC, Gaire J, Shoffstall A, Brodnick SK, Otto KJ, Capadona JR, Williams JC, Eliceiri EW. Second harmonic generation imaging of collagen in chronically implantable electrodes in brain tissue. *Frontiers in Neuroscience*. 2020;14:95.
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4. Brodnick SK, Ness JP, Richner TJ, Thongpang S, Novello J, Hayat M, Cheng KP, Krugner-Higby L, Suminski AJ, Ludwig KA, Williams JC.  $\mu$ ECoG Recordings Through a Thinned Skull. *Frontiers in Neuroscience*. 2019;13:1017.
5. Richner TJ, Brodnick SK, Thongpang S, Sandberg AA, Krugner-Higby LA, Williams JC. Phase relationship between micro-electrocorticography and cortical neurons. *Journal of neural engineering*. 2019 Oct 30;16(6):066028.
6. Bong J, Ness JP, Zeng W, Kim H, Novello J, Pisaniello J, Lake WB, Ludwig KA, Williams JC, Ma Z, Suminski AJ. Flexible, multichannel cuff electrode for selective electrical stimulation of the mouse trigeminal nerve. *Biosensors and Bioelectronics*. 2019 Oct 1;142:111493.
7. Cheng KP\*, Brodnick SK\*, Blanz SL, Zeng W, Kegel J, Pisaniello JA, Ness JP, Ross E, Nicolai EN, Settell ML, Trevathan JK. Is Vagus Stimulation Brain Washing?. *bioRxiv*. 2019 Jan 1:733410.
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9. Suminski AJ, Ness JP, Zeng W, Novello J, Brodnick SK, Pisaniello J, Dingle AM, Poore SO, Lake WB, Williams JC. Characterizing cortical responses evoked by electrical stimulation of the mouse infraorbital nerve. 2018 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC) 2018 Jul 18 (pp. 4756-4759). IEEE.
10. Park DW, Ness JP, Brodnick SK, Esquibel C, Novello J, Atry F, Baek DH, Kim H, Bong J, Swanson KI, Suminski AJ. Electrical neural stimulation and simultaneous in vivo monitoring with transparent graphene electrode arrays implanted in GCaMP6f mice. *ACS nano*. 2018 Jan 23;12(1):148-57.

11. Atry F, Chen RC, Pisaniello J, Brodnick S, Suminski AJ, Novello J, Ness J, Williams JC, Pashaie R. Optogenetic interrogation of neurovascular coupling in the cerebral cortex of transgenic mice. *Journal of neural engineering*. 2018 Sep 5;15(5):056033.
12. Pizzaro, R, Richner TJ, Brodnick SK, Thongpang S, Williams JC, VanVeen B. Estimating cortical column sensory networks in rodents from micro-electrocorticograph ( $\mu$ ECoG) recordings. *Neuroimage*. 2017 Dec 1;163:342-57.
13. Derafshi Z, Kunzer BE, Mugler EM, Rokhmanova N, Park DW, Tajalli H, Shetty K, Ma Z, Williams JC, Hetling JR. Corneal potential maps measured with multi-electrode electroretinography in rat eyes with experimental lesions. *Investigative ophthalmology & visual science*. 2017 Jun 1;58(7):2863-73.
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15. Chen RC, Atry F, Brodnick SK, Novello J, Suminski A, Pisaniello J, Williams J, Pashaie R. Multi-site stimulation (Conference Presentation). *Neural Imaging and Sensing 2017 Apr 19* (Vol. 10051, p. 100510A). International Society for Optics and Photonics.
16. Park DW\*, Brodnick SK\*, Ness JP, Atry F, Krugner-Higby L, Sandberg A, Mikael S, Richner TJ, Novello J, Kim H, Baek DH. Fabrication and utility of a transparent graphene neural electrode array for electrophysiology, in vivo imaging, and optogenetics. *Nature Protocols*. 2016 Nov 1;11(11):2201-22.
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28. Schendel AA, Thongpang S, Brodnick SK, Richner TJ, Lindevig BD, Krugner-Higby L, et al. A cranial window imaging method for monitoring vascular growth around chronically implanted micro-ECoG devices. *Journal of neuroscience methods*. 2013;218(1):121–30.
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## Clinical Device Assessment, Electrocortigraphy and Neurostimulation

1. Sillay KA, Ondoma S, Wingeier B, Schomberg D, Sharma P, Kumar R, Miranpuri GS, Williams J. Long-Term Surface Electrode Impedance Recordings Associated with Gliosis for a Closed-Loop Neurostimulation Device. *Annals of neurosciences*. 2018;25(4):289-98.
2. Mohanty R, Sinha A, Remsik A, Allen J, Nair V, Caldera K, Sattin J, Edwards D, Williams JC, Prabhakaran V. Machine learning-based prediction of changes in behavioral outcomes using functional connectivity and clinical measures in brain-computer interface stroke rehabilitation. In *International Conference on Augmented Cognition 2017 Jul 9* (pp. 543-557). Springer, Cham.
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7. Wilson JA, Walton LM, Tyler M, Williams J. Lingual electrotactile stimulation as an alternative sensory feedback pathway for brain-computer interface applications. *Journal of neural engineering*. 2012 Jul 25;9(4):045007.
8. Felton EA, Radwin RG, Wilson JA, Williams JC. Evaluation of a modified Fitts law brain-computer interface target acquisition task in able and motor disabled individuals. *Journal of neural engineering*. 2009 Aug 21;6(5):056002.
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for monitoring tissue responses to inserted neural implants. *Journal of neural engineering*. 2007 Nov 27;4(4):410.

### **Neuro In Vitro and Microfluidic Work**

1. Sagar MA, Cheng KP, Ouellette J, Williams JC, Watters JJ, Eliceiri K. Fluorescence lifetime-based intrinsic metabolic signatures of microglia cell (Conference Presentation). *InLight in Nature VII 2019 Sep 10* (Vol. 11099, p. 110990C). International Society for Optics and Photonics.
2. Kim H, Lee IK, Taylor K, Richters K, Baek DH, Ryu JH, Cho SJ, Jung YH, Park DW, Novello J, Bong J. Single-neuronal cell culture and monitoring platform using a fully transparent microfluidic DEP device. *Scientific reports*. 2018 Sep 4;8(1):1-9.
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