



## Jenna Rickus

Ph.D. University of California, Los Angeles - 2003

### Professor

Outstanding Advisor, Agricultural & Biological Engineering, Purdue University – 2014

Purdue University Bravo Award (service to university research) – 2014

Purdue University Bravo Award (mentoring iGEM team) - 2013

### Research Areas:

Biosensors - Fiber optics sensors for predicting meat quality, new biomolecule-based biosensor materials. Biotechnology – membrane proteins as “molecular machines” in engineered materials. Mathematical modeling – modeling protein dynamics for material/device design & optimization.

### Classes Taught:

ABE 304 – Bioprocess Engineering Lab  
ABE 440 – Cell & Molecular Design Principles  
IT 226 – Biotechnology Lab I  
IT 227 - Bioinformatics  
ABE 560 - Biosensors  
ABE 591W – Biosensors – Fundamentals and applications  
BIOL 295F – Quantitative Cell Biology

### Selected Publications (last 5 years):

- A. Pierce, S. Sommakia, J. Rickus, K. Otto. **2009**. “Thin-film sol-gel coatings for neural microelectrodes” **J. Neuroscience Methods**. 180:106-110. 2011
- S.S. Jedlicka, M.Dadarlat, Y. Lin, A. Young, M. Zhang, T.J. Hassell, P.P. Irazoqui, J.L. Rickus, **2009**. “Calibration of Neurotransmitter Release from Neural Cells for Therapeutic Implants.” **International Journal of Neural Systems**. 19:197-112. 2011
- D. Jaroch, M. Ward, E. Chow, J. Rickus, P. Irazoqui. **2009**. “Magnetic insertion system for flexible electrode implantation.” **Journal of Neuroscience Methods**. 180:106-110. 2011
- Stratton, J. Rickus, J. Youngblood. **2009**. “In vitro biocompatibility studies of the antibacterial copolymer poly(4-vinylpyridine-co-poly(ethylene glycol) methacrylate)-hexylbromide” **Biomacromolecules**. 10(9):2550-2555. 2011
- Editors:* Schachter SC, Guttg J, Schiff SJ, Schomer DL *Contributing Authors:* Akhtari M, Bailey EM, Baptiste SL, Barkley GL, Beggs JM, Béland R, Besio W, Binder DK, Bonato P, Bromfield E, Brunner P, Carlson C, Cash SS, Cole AJ, Commowick O, Devinsky O, Doyle WK, Dunseath R, Engel J Jr, Eskandar E, Frei MG, French J, Gale K, Gallagher A, Graves N, Gross RE, Guttg J, Halgren E, Hochberg L, Hsu D, Hsu M, Iasemidis LD, Irazoqui P, Koka K, Kuzniecky R, Lassonde M, Lepore F, Ludvig N, Madsen J, Mancinelli C, McGlone F, Medveczky G, Medvedev AV, Morrell M, Nguyen K, Osorio I, Pang T, Patel S, Patrilli B, Potter SM, Rickus J, Ritaccio AL, Rogawski MA, Rolston JD, Rotenberg A, Rothman SM, Sackellares JC, Schachter SC, Schalk G, Schiff SJ, Shoeb AH, Schomer DL, Strangman GE, Tang HM, Terry RS Jr, Thesen T, Truccolo W, Ulbert I, Warfield S, Zhang Q. **2009** “Advances in the application of technology to epilepsy: the CIMIT/NIO Epilepsy Innovation Summit.” **Epilepsy & Behavior**. Sep;16(1):3-46. 2011
- S.S. Jedlicka, J.L. Rickus, D. Zemlyanov. **2010**. “Controllable Surface Expression of Bioactive Peptides Incorporated into a Silica Thin Film Matrix” **Journal of Physical Chemistry**. 114(1). p 342 – 344. 2011
- E.S. McLamore, S. Mohanty, J. Shin, J. Claussen, S.S. Jedlicka, J.L. Rickus, D.M. Porterfield, **2010**. “A self-referencing glutamate biosensor for measuring real time neuronal glutamate flux.” **Journal of Neuroscience Methods**. 189:14–22 2011.
- Rajdev, P., M.P. Ward, J. Rickus, R. Worth, and P.P. Irazoqui. *Real-time seizure prediction from local field potentials using an adaptive Wiener algorithm*. **Comput Biol Med**, **2010**. 40(1): p. 97-108.
- Shi, J., E. McLamore, D. Jaroch, J. Claussen, J. Rickus, and D.M. Porterfield, *Oscillatory glucose flux in INS1 pancreatic beta cells: A self-referencing microbiosensor study*. **Analytical Biochemistry**, **2010**. 2011
- McLamore, E.S., J. Shi, D. Jaroch, J.C. Claussen, A. Uchida, Y. Jiang, W. Zhang, S.S. Donkin, M.K. Banks, K.K. Buhman, D. Teegarden, J.L. Rickus, and D.M. Porterfield, *A self-referencing platinum nanoparticle decorated enzyme-based microbiosensor for real time measurement of physiological glucose transport*. **Biosensors Bioelectronics**, **2011**. 26(5): p. 2237-45. 2011
- T.G. Cha, B.A. Baker, M.D. Sauffer, Janette Salgado, D. Jaroch, J.L. Rickus, D. Marshall Porterfield, and Jong Hyun Choi. **2011**. *Optical Nanosensor Architecture for Cell-Signaling Molecules Using DNA Aptamer-Coated Carbon Nanotubes*. **ACS Nano**. 5 (5), pp 4236–4244. 2011
- D. Jaroch, E. McLamore, W. Zhang, J. Shi, J. Garland, M. K. Banks, D. M. Porterfield, J.L. Rickus. **2011**. *Cell-Mediated Deposition of Porous Silica on Bacterial Biofilms*. **Biotechnology and Bioengineering**. Vol. 108. Issue 10. 2249-2260. *Editor's Choice Selection*. 2011
- Shi, J.; Claussen, J.C.; McLamore, E.S.; ul Haque, A.; Jaroch, D.; Diggs, A.R.; Calvo-Marzal, P.; Rickus, J.L.; Porterfield, D.M. **2011**. *A comparative study of enzyme immobilization strategies for multi-walled carbon nanotube glucose biosensors*. **Nanotechnology**. Vol. 22, Issue 35. 2011
- S.A. Tersey, Y. Nishiki; A. T. Templin; S. M. Cabrera; N.D. Stull, S.C. Colvin, C. Evans-Molina, J.L. Rickus, B. Maier, R.G. Mirmira. **2012**. *Islet  $\beta$  Cell Endoplasmic Reticulum Stress Precedes the Onset of Type 1 Diabetes in the Non-Obese Diabetic Mouse Model*. **Diabetes**. April 2012 61:818-827. 2011
- Rajtarun Madangopal, Matthew Stensberg, Marshall D. Porterfield, Jenna L. Rickus. **2012**. “Directed enzyme deposition via electroactive polymer-based nanomaterials for multi-analyte amperometric biosensors”. **Proceedings of the IEEE Sensors 2012**. Taipei, Taiwan
- David B. Jaroch, Jing Lu, Rajtarun Madangopal, Natalie D. Stull, Matthew Stensberg, Jin Shi, Jennifer L. Kahn, Ruth Herrera-Perez, Michael Zeitchek, Jennifer Sturgis, J. Paul Robinson, Mervin C. Yoder, D. Marshall Porterfield, Raghavendra G. Mirmira, Jenna L. Rickus. **2013**. “Mouse and Human Islets Survive and Function After Coating by Biosilicification.” **American Journal of Physiology. Endocrinology and Metabolism**. vol 305, issue 10, pgs E1230-E1240 (PMID:24002572) 2012
- Stensberg MC, Madangopal R, Yale G, Wei Q, Ochoa-Acuna H, Wei A, McLamore ES, Rickus JL, Porterfield DM, Sepulveda M. **2014**. “Silver nanoparticle-specific mitotoxicity in *Daphnia magna*.” **Nanotoxicology**. Vol. 8, No. 8, Pages 833-842. PMID: 23927462. 2012
- S. Sommakia, J. Gaire, J.L. Rickus, K.J. Otto. **2014**. “Resistive and reactive changes to the impedance of intracortical microelectrodes can be mitigated with polyethylene glycol under acute in vitro and in vivo settings” **Frontiers in Neuroengineering**. Vol. 7, Article 41, Pages 1-11. (PMCID: PMC4120760)
- S. Sommakia, J.L. Rickus, K.J. Otto. **2014**. “Glial cells, but not neurons, exhibit a controllable response to a localized inflammatory microenvironment in vitro.” **Frontiers in Neuroengineering**. Vol. 7, Article 33, Pages 1-8. PMID:25452724