

BRADLEY JOSEPH BERRON

William T. Bryan Professor

Associate Professor, Dept. of Chemical & Mat. Engineering, Univ. of Kentucky

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EDUCATION

Ph.D.	Chemical Engineering, Vanderbilt University Research Advisor: G. Kane Jennings	May 2008
B.S.	Chemical Engineering, Rose-Hulman Institute of Technology Minor in Mathematics, Minor in Semiconductor Materials and Devices	May 2002
Postdoc	University of Colorado, Chemical and Biological Engineering Research Advisor: Christopher N. Bowman	2008-11

APPOINTMENTS

Associate Professor, Dept. of Chemical and Materials Engineering, University of Kentucky, 2017-present.
Member, Markey Cancer Center Developmental Therapeutics Program, University of Kentucky, 2011-present.
Director, ASTECC Biotechnology Cell Culture Facility, University of Kentucky, 2016-present.
Advisory Board Member, Department of Chem. Eng., Rose-Hulman Institute of Technology, 2013-present.
Assistant Professor, Dept. of Chemical and Materials Engineering, University of Kentucky, 2011-2017.
Pharmaceutical Validation Engineer, QVM Services, Kansas City, MO, 2002-2003

AWARDS AND DISTINCTIONS

SEC Travel Award 2015
Outstanding Chemical Engineering Teacher Award 2014-2015, University of Kentucky
NSF CAREER Award 2014
NIH T32 Institutional Training Fellow
Vanderbilt Institute for Nanoscale Science and Engineering Fellow (NSF IGERT)
Harold Sterling Vanderbilt Fellow

PUBLICATIONS

¹ = undergraduate student, ² = graduate student, ³ = postdoctoral in the Berron Lab. * = corresponding author.

1. K.A. Davis,²⁺ P. Wu,²⁺ C.F. Cahall,² C. Li,² A. Gottipati³ and B.J. Berron*; "Coatings on Mammalian Cells: Interfacing Cells with Their Environment." *Journal of Biological Engineering*, accepted 2018.
2. J.L. Lilly,² A. Gottipati,³ C.F. Cahall,² M. Agoub¹ and B.J. Berron*; "Comparison of Eosin and Fluorescein Conjugates for the Photoinitiation of Cell-Compatible Polymer Coatings." *PLOS ONE*, 13(1): e0190880, 2018.
3. A. Gottipati, I. Kalashnikova, A. Abdel-Latif, and B.J. Berron, "Increased Cell Retention in Diseased Site When Cells Encapsulated in Gelatin Methacrylate and Polyethylene Glycol Hydrogels," USPTO Patent Application Number 62/686,392, Filing Date 6/18/2018.
4. I.A. Fursule,² A. Abtahi, C.B. Watkins Jr.,¹ K.R. Graham and B.J. Berron*; "In situ Crosslinking of Surface-Initiated Ring Opening Metathesis Polymerization of Polynorbornene for Improved Stability." *Journal of Colloid and Interface Science*, 510, 86-94, 2018.
5. P. Wu,² J.L. Lilly,² R. Arreaza¹ and B.J. Berron*; "Hydrogel patches on live cells through surface mediated polymerization." 33, 6778-6784, *Langmuir*, 2017.
6. Y. Yue, I. Fursule,² L.C. Mills, D. Englert, B.J. Berron and C.M. Payne*; "CHARMM force field parameters for 2'-hydroxybiphenyl-2-sulfinate, 2-hydroxybiphenyl, and related analogs." *Journal of Molecular Graphics and Modelling*, 72, 32-42, 2017.
7. Q. Zhou, I. Fursule,² B.J. Berron* and M.J. Beck*; "Towards Spatiotemporally Controlled Synthesis of Photoresponsive Polymers: Computational Design of Azobenzene-Containing Monomers for Light-Mediated ROMP." *Journal of Physical Chemistry A*, 120, 7101-7111, 2016.
8. L. Safazadeh,² V.E. Zehuri,¹ S.P. Pautler,¹ J.T. Hastings* and B.J. Berron*; "Relative Contribution of Lateral Packing Density to Albumin Adsorption on Monolayers." *Langmuir*, 32, 8034-8041, 2016.
9. J.L. Lilly² and B.J. Berron*; "The Role of Surface Receptor Density in Surface-Initiated Polymerizations for Cancer Cell Isolation." *Langmuir*, 32, 5681-5689, 2016.
10. G. Romero,³ J.L. Lilly,² N.S. Abraham,¹ H.Y. Shin, V. Balasubramaniam, T. Izumi and B.J. Berron*; "Protective Polymer Coatings for High-Throughput, High-Purity Cellular Isolation." *ACS Applied Materials & Interfaces*, 7, 17598-17602, 2015.

11. C.F. Cahall,²⁺ J.L. Lilly,²⁺ E.A. Hirschowitz and B.J. Berron*; “A Quantitative Perspective on Surface Marker Selection for the Isolation of Functional Tumor Cells.” *Breast Cancer: Basic and Clinical Research*, 25461, 1-11, 2015.
12. L. Safazadeh² and B.J. Berron*; “Photopatterning of Stable, Low-Density, Self-Assembled Monolayers on Gold.” *Langmuir*, 31, 2689-2696, 2015.
13. J.L. Lilly,² G. Romero,³ W. Xu,³ H.Y. Shin and B.J. Berron*; “Characterization of Molecular Transport in Ultrathin Hydrogel Coatings for Cellular Immunoprotection.” *Biomacromolecules*, 16, 541-549, 2015.
14. J.L. Lilly,² P.R. Sheldon,¹ L. J. Hoversten, G. Romero,³ V. Balasubramaniam and B.J. Berron*; “Interfacial Polymerization for Colorimetric Labeling of Protein Expression in Cells.” *PLOS ONE*, 9, e115630, 2014.
15. C.A. Stevens,¹⁺ L. Safazadeh²⁺ and B.J. Berron*; “Thiol-yne Adsorbates for Stable, Low-Density, Self-Assembled Monolayers on Gold,” *Langmuir*, 30, 1949-1956, 2014.
16. B. J. Berron, A.M. May, Z. Zheng, V. Balasubramaniam and C. N. Bowman*; “Antigen-Responsive, Microfluidic Valves for Single Use Diagnostics.” *Lab Chip*, 12, 708-710, 2012.
17. B. J. Berron, L. M. Johnson, X. Ba, J. D. McCall, N. J. Alvey, K. S. Anseth and C. N. Bowman*; “Glucose Oxidase Mediated Radical Chain Polymerization for Detection of Biorecognition Events in Microtiter Assays.” *Biotechnol. Bioeng.*, 108, 1521-1528, 2011.
18. H. J. Avens, E. Chang, A. M. May, B. J. Berron, G. J. Seedorf, V. Balasubramaniam and C. N. Bowman*; “Fluorescent Polymeric Nanocomposite Films Generated by Surface-Mediated Photoinitiation of Polymerization” *J. Nanoparticle Res.*, 13, 331-346, 2011.
19. H. J. Avens, B. J. Berron, A. M. May, K. R. Voigt, G. J. Seedorf, V. Balasubramaniam and C. N. Bowman*; “Sensitive Immunofluorescent Staining of Cells via Generation of Fluorescent Nanoscale Polymer Films in Response to Biorecognition,” *J. Histochem. Cytochem.*, 59, 76-87, 2011.
20. B. J. Berron, C. J. Faulkner, R. E. Fischer, P. A. Payne and G. K. Jennings*; “Surface-Initiated Growth of Ionomer Films from Pt-Modified Gold Electrodes,” *Langmuir*, 25, 12721-12728, 2009.
21. P. N. Ciesielski, A. M. Scott, C. J. Faulkner, B. J. Berron, D. Cliffel and G. K. Jennings*; “Functionalized Nanoporous Gold Leaf Electrode Films for the Immobilization of Photosystem I,” *ACSNano*, 12, 2465-2472, 2008.
22. B. J. Berron, P. A. Payne and G. K. Jennings*; “Sulfonation and Characterization of Surface-Tethered Polynorbornene,” *Ind. Eng. Chem. Res.*, 47, 7707-7714, 2008.
23. B. J. Berron, E. P. Graybill and G. K. Jennings*; “Growth and Structure of Surface-Initiated Poly(n-alkylnorbornene) Films,” *Langmuir*, 23, 11651-11655, 2007.
24. D. Bai, C. L. Hardwick, B. J. Berron and G. K. Jennings*; “Kinetics of pH Response for Copolymer Films with Dilute Carboxylate Functionality,” *J. Phys. Chem. B.*, 111, 11400-11406, 2007.
25. B. Berron and G. K. Jennings*; “Loosely Packed Hydroxyl-Terminated SAMs on Gold,” *Langmuir*, 22, 7235-7240, 2006.

CURRENT SUPPORT

- **National Heart Lung Blood Institute R01HL127682**
Specific Lysis for Large-Volume, High-Purity Endothelial Progenitor Cell Isolates
- **National Science Foundation CBET-1351531**
CAREER: Artificial Cell Membranes for Ultra-Pure, High Throughput Cellular Isolation
- **American Heart Association 18IPA34170059**
Project Title: Intentional Positioning of Cells in a Decellularized Heart
- **National Science Foundation CBET-1758210**
NSF/FDA SIR: Assurance of Cellular Function in High-Shear Three-Dimensional Bioprinting

GRADUATE STUDENT ADVISEES

Dr. Leila Safazadeh (Ph.D. February 2016)
 Dr. Jacob Lilly (Ph.D. April 2016)
 Dr. Ishan Fursule (Ph.D. December 2017)
 Dr. Calvin Cahall (Ph.D. December 2018)
 Pei-Jung Wu
 Cong Li
 Kara Davis
 Lauren Mehanna
 Hsuan Peng (Co-advised with Ahmed Abdel-Latif)