Brittany E. Givens Rassoolkhani (Givens)

Contact Information

Department of Chemical and Materials Engineering
University of Kentucky
177 F. Paul Anderson Tower
512 Administration Drive
Lexington, KY 40506

Office: 157 FPAT
Phone: 859-562-2949
Email: brittany.givens@uky.edu
Laboratory: A215 ASTeCC

Appointments

2020-	Assistant Professor	Chemical and Materials Engineering	University of Kentucky, Lexington, KY
2019-2020	Postdoctoral Fellow	College of Medicine	University of Kentucky, Lexington, KY
2013-2014	Undergraduate Researcher	Dr. Götz Veser, Dr. Ipsita Banerjee	University of Pittsburgh, Pittsburgh PA
2013	Undergraduate Researcher	Mascaro Center for Sustainable Innovation Summer Research Program	University of Pittsburgh, Pittsburgh PA
2012	Undergraduate Researcher	University of Pittsburgh Swanson School of Engineering Summer Fellowship	University of Pittsburgh, Pittsburgh PA

Education

2019	Ph.D.	Chemical and Biochemical Engineering Thesis Supervisor: Aliasger K. Salem, PhD	University of Iowa Iowa City, IA
2017	M.S.	Chemical and Biochemical Engineering Thesis Supervisors: Vicki H. Grassian, PhD Jennifer Fiegel, PhD	University of Iowa Iowa City, IA
2014	B.S.	Chemical and Petroleum Engineering	University of Pittsburgh Pittsburgh, PA

Fellowships, Scholarships, and Awards

Fellowships

NIH T32 Postdoctoral Trainee in Cancer Biology Kathleen O'Connor, PhD	University of Kentucky	2019-2020
Dean's Graduate Research Fellow	University of Iowa	2014-2019

National GEM Consortium Associate Fellow	University of Iowa	2014-2019

Scholarships

Research Scholars Program	University of Kentucky	2022-2023
DREAM Scholars Program	University of Kentucky	2021-2023
Alfred P. Sloan Minority PhD Scholar	University of Iowa Sloan Center for Exemplary Mentoring	2014-2019
University of Pittsburgh Honors College Scholarship	University of Pittsburgh	2010-2014
Swanson School of Engineering Scholarship	University of Pittsburgh	2010-2012

Research Awards

Kammermeyer Research Award	University of Iowa Department of Chemical & Biochemical Engineering	2019
L. B. Sims Outstanding Master's Thesis Award	University of Iowa Graduate College	2018
Dare to Discover Campaign	University of Iowa Office of Research and Economic Development	2018
University of Pittsburgh Mascaro Center of Sustainable Innovation Summer Research Program, First Place Talk	University of Pittsburgh Mascaro Center of Sustainable Innovation	2013
Omega Chi Epsilon Undergraduate Research Poster Reception, Second Place Poster	University of Pittsburgh Omega Chi Epsilon	2014

Service Awards

Philip G. Hubbard Uncommon Leadership Award	University of Iowa Ethnic Inclusion Effort for Iowa Engineering	2019
Luther H. Smith Honorable Service Award	University of Iowa Ethnic Inclusion Effort for Iowa Engineering	2017
Osburn Teaching Award	University of Iowa Department of Chemical & Biochemical Engineering	2017
Lilia A. Abron Distinguished Mentoring Award	University of Iowa Ethnic Inclusion Effort for Iowa Engineering	2016
Vetter Service Award	University of Iowa Department of Chemical & Biochemical Engineering	2016

Denise E. Walden Service Award	University of Pittsburgh Pitt EXCEL	2014

Service and Outreach Initiatives

Journal Reviewer, Journal of Biomedical Materials Research: Part B - Applied Biomaterials	2021 - Present
Grants Reviewer, Graduate and Professional Student Government (GPSG), University of Iowa Graduate College	09/2018 – 05/2019
Tutor, Multi-Ethnic Engineering and Science Association (MESA)	09/2015 – 05/2019
Volunteer, Big Brothers Big Sisters of Johnson County, Lunch Buddies	08/2014 – 05/2019

Publications

Journal Articles

Morris, A.S.; Givens, B.E.; Silva, A.; Salem, A.K., "Copper oxide nanoparticle diameter mediates serum-sensitive toxicity in Beas-2B cells." 2021. Advanced NanoBiomed Research, 2000062.

Terry, T.L.; Givens, B.E.; Adamcakova-Dodd, A.; Thorne, P.S.; Rodgers, V.G.J.; Salem, A.K., "Encapsulating polyethleneimine-DNA nanoplexes into PEGylated biodegradable microparticles increases transgene expression *in vitro* and reduces inflammatory responses *in vivo*." 2021. AAPS PharmSciTech. DOI: 10.1208/s12249-021-01932-z

Naguib, Y. W.; Givens, B.E.; Ho, G.; Yu, Y.; Wei, S.G.; Felder, R. B.; Salem, A. K., "An injectable microparticle formulation for the sustained release of the specific MEK inhibitor PD98059: *in vitro* evaluation and pharmacokinetics." 2021. Drug Delivery and Translational Research, DOI: 10.1007/s13346-020-00758-9

Naguib, Y. W.*; Yu, Y.*; Wei, S. G.*; Morris, A.; Givens, B. E.; Mekkawy, A. I.; Weiss, R. M.; Felder, R. B.; Salem, A. K., "A novel injectable microparticle formulation provides long-term inhibition of hypothalamic ERK1/2 activity and sympathetic excitation in rats with heart failure." 2020. Molecular Pharmaceutics, DOI: 10.1021/acs.molpharmaceut.0c00501

Areecheewakul, S.*; Adamcakova-Dodd, A.*; Givens, B. E.; Steines, B. R.; Wang, Y.; Meyerholz, D. K.; Parizek, N. J.; Altmaier, R.; Haque, E.; O'Shaughnessy, P. T.; Salem, A. K.; Thorne, P. S., "Toxicity assessment of metal oxide nanomaterials using *in vitro* screening and murine acute inhalation studies." 2020. NanoImpact, 100214

Givens, B. E.; Wilson, E.; Fiegel, J., "The effect of solution properties on protein corona formation." 2019. Colloids & Surfaces B: Biointerfaces, 179, 374-381

Terry, T. L.; Givens, B. E.; Rodgers, V. G. J.; Salem, A. K., "Tunable properties of poly-DL-lactide-poly(ethylene glycol) porous microparticles for sustained release of polyethylenimine-DNA polyplexes." 2019. AAPS PharmSciTech. 20(1), 23

Kruger, T. M.; Givens, B. E.; Lansakara, T. I.; Bell, K. J.; Mohapatra, H.; Salem, A. K.; Tivanski, A. V.; Stevens, L.L., "Mechanosensitive endocytosis of high-stiffness, sub-micron microgels in macrophage and hepatocarcinoma cell lines." 2018. ACS Applied Bio Materials. 1(5), 1254-1265

Givens, B.E.; Naguib, Y.W.; Geary, S.M.; Devor, E.J.; Salem, A.K., "Nanoparticle-based delivery of CRISPR/Cas9 genome editing therapeutics." 2018. AAPS J. 20(6), 108

Givens, B. E.; Geary, S. M.; Salem, A. K., "Nanoparticle-Based CpG-ODN Therapy for Treating Allergic Asthma" 2018. Immunotherapy. 10(7), 595-604

Givens, B. E.; Diklich, N. D.; Fiegel, J.; Grassian, V. H., "Adsorption of bovine serum albumin on silicon dioxide nanoparticles: Impact of pH on nanoparticle-protein interactions" 2017. Biointerphases. 12 (1), DOI: 10.1116/1.4982598.

Givens, B.E.*; Xu, Z*.; Fiegel, J.; Grassian, V. H., "Bovine serum albumin adsorption on SiO_2 and TiO_2 nanoparticle surfaces at circumneutral and acidic pH: A tale of two nano-bio surface interactions." 2016. Journal of Colloid and Interface Science. 493, 334-341.

*Co-first authors

Conference Participation and Research Dissemination

Poster Presentations

Givens, B.E.; Devor, E. J.; Salem, A. K., "CRISPR-Cas9 plasmid DNA delivery to endometrial cancer cells for knockout of PLAC1" *AAPS PharmSci 360, Washington D.C., USA* November 2018.

Givens, B.E.; Naguib, Y. W.; Tambunlertchai, S.; Chitphet, K.; Salem, A.K., "Sustained release polymeric delivery systems to inhibit ERK1/2 activity" *AAPS PharmSci 360, Washington D.C., USA* November 2018.

Givens, B.E.; Devor, E. J.; Salem, A. K., "CRISPR-Cas9 plasmid DNA delivery to endometrial cancer cells for knockout of PLAC1" *AIChE Annual Meeting, Pittsburgh, PA, USA* October 29, 2018.

Givens, B.E.; Naguib, Y. W.; Tambunlertchai, S.; Chitphet, K.; Salem, A.K., "Sustained release polymeric delivery systems to inhibit ERK1/2 activity" *AIChE Annual Meeting, Pittsburgh, PA, USA* October 29, 2018.

Givens, B.E., "Toxicity of Synthetic Nanoparticles" *AIChE Annual Meeting, Pittsburgh, PA, USA* October 28, 2018.

Givens, B. E.; Areecheewakul, S.; Wang, Y.; Steines, B. R.; Dodd, A. A.; Altmaier, R.; O'Shaughnessy, P.T.; Salem, A. K., Thorne, P. S., "Characterizing toxicity for industrial engineered nanomaterials" *University of Iowa Jakobsen Conference, University of Iowa, Iowa City, IA, USA*. March 24, 2018

Givens, B. E.; Areecheewakul, S.; Wang, Y.; Steines, B. R.; Dodd, A. A.; Altmaier, R.; O'Shaughnessy, P.T.; Salem, A. K., Thorne, P. S., "Characterizing toxicity for industrial engineered nanomaterials" *Nanoscience Winter Symposium, University of Iowa, Iowa City, IA, USA*. March 2, 2018

Givens, B. E.; Wilson, E.; Grassian, V. H.; Fiegel, J., "Effects of solution properties on protein corona formation" *College of Engineering Research Open House, University of Iowa. Iowa City, IA, USA.* April 8, 2017.

Givens, B. E.; Diklich, N. D.; Fiegel, J.; Grassian, V. H., "Adsorption of bovine serum albumin onto silicon dioxide: effects of pH on nanoparticle aggregation and protein-surface interactions" *College of Engineering Research Open House, University of Iowa, Iowa City, IA, USA*. April 2016.

Givens, B. E.; Diklich, N. D.; Fiegel, J.; Grassian, V. H., "Adsorption of bovine serum albumin onto silicon dioxide: effects of pH on nanoparticle aggregation and protein-surface interactions" *NNI Symposium, University of Iowa*. February 2016.

Givens, B. E.; Diklich, N. D.; Fiegel, J.; Grassian, V. H., "Adsorption of bovine serum albumin onto silicon dioxide: effects of pH on nanoparticle aggregation and protein-surface interactions" *College of Engineering Research Open House, University of Iowa*. *Iowa City, IA, USA.* April 2015.

Givens, B.; Mahoney, S.; Richardson, T.; Banerjee, I.; Veser, G., "Toxicity of Complex Engineered Nanomaterials using 3t3 fibroblasts and human embryonic stem cells" *Omega Chi Epsilon Undergraduate Research Poster Reception*. *Pittsburgh, PA, USA.* April 2014.

Givens, B.; Mahoney, S.; Richardson, T.; Banerjee, I.; Veser, G., "Nanotoxicity, the Other Side of Nanotechnology" *Duquesne Undergraduate Research Symposium, Pittsburgh, PA, USA.* July 2013.

Givens, B.; Jaramillo, M.; Banerjee, I., "DAPT Mediates Maturation of Human Embryonic Stem Cells into Functional Beta Cells." *Science 2012 Undergraduate Poster Reception, Pittsburgh, PA, USA.* October 2012.

Oral Presentations

Givens, B.E., "Addressing the racial disparities of endometrial cancer mortality rates through engineering approaches." *University of California Riverside, Department of Chemical and Environmental Engineering Seminar. Virtual.* April 6, 2022

Givens, B.E. "Addressing the racial disparities of endometrial cancer mortality rates through engineering approaches." *University of Kentucky Center for Clinical and Translational Sciences Spring Conference 2022. Lexington, KY.* April 5, 2022

Givens, B. E., "Targeted Therapies for Endometrial Cancer." *University of Toledo, Department of Chemical Engineering Seminar. Virtual.* February 4, 2021

Givens, B. E.; Areecheewakul, S.; Wang, Y.; Steines, B. R.; Dodd, A. A.; Altmaier, R.; O'Shaughnessy, P.T.; Salem, A. K., Thorne, P. S., "Characterizing toxicity for industrial engineered nanomaterials" *University of Iowa Jakobsen Conference, University of Iowa, Iowa City, IA, USA*. March 24, 2018

Givens. B. E.; Grassian, V. H.; Fiegel, J., "Amorphous Silicon Dioxide Nanoparticle Interactions with Pulmonary Epithelial Cells with and without a Pre-Existing Protein Corona." *AIChE National Meeting. San Francisco, CA, USA.* Nov 13-18, 2016

Givens, B.; Mahoney, S.; Richardson, T.; Banerjee, I.; Veser, G., "Nanotoxicity, the Other Side of Nanotechnology" *Mascaro Center of Sustainable Innovation Undergraduate Researchers Oral Presentation Session, Pittsburgh, PA, USA.* July 2013

Video Summary of Research Experience, No title. *Pittsburgh, PA, USA.* August 2012

Teaching Experience

Engineering Thermodynamics	University of Kentucky Department of Chemical and Materials Engineering	Spring 2021 – Spring 2022
Separation Processes	University of Kentucky Department of Chemical and Materials Engineering	Fall 2020 – Fall 2021
GRE Preparation Instruction	University of Iowa Graduate College	Summer 2016, 2017, 2018
Graduate Teaching Assistant Process Dynamics and Control in Design	University of Iowa Chemical & Biochemical Engineering	Fall 2015, 2016
Undergraduate Teaching Assistant Introduction to Biology	University of Pittsburgh Biology	Spring 2014
Undergraduate Teaching Assistant Introduction to Shakespeare	University of Pittsburgh English Literature	Spring 2013

Professional Memberships

Member, American Institute of Chemical Engineers (AIChE)	08/2013 – Present
Member, Society of Women Engineers (SWE)	08/2013 – Present
Member, American Association for Cancer Research (AACR)	10/2019 – Present

Professional Collaborators and Affiliations

Undergraduate research advisors:

Dr. Ipsita Banerjee, Departments of Chemical and Petroleum Engineering and Bioengineering, University of Pittsburgh

Dr. Götz Veser, Department of Chemical and Petroleum Engineering, University of Pittsburgh

Masters research advisors:

Dr. Jennifer Fiegel, Department of Chemical and Biochemical Engineering, University of Iowa

Dr. Vicki H. Grassian, Departments of Chemistry and Biochemistry, Nanoengineering, and Scripps Institution of Oceanography, University of California San Diego

Doctoral research advisor:

Dr. Aliasger K. Salem, Departments of Pharmaceutics, Chemical and Biochemical Engineering, Biomedical Engineering, and Dentistry, University of Iowa

Postdoctoral research advisor:

Dr. Kathleen L. O'Connor, Department of Molecular and Cellular Biochemistry and Markey Cancer Center, University of Kentucky