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Collin Stabler, Ph.D., P.E., RAC

Senior Managing Engineer | Biomedical Engineering and Sciences
Philadelphia
+1-215-594-8931 | cstabler@exponent.com

Professional Profile

Dr. Stabler has extensive expertise in biotechnology evaluation, from product conceptualization through regulatory strategy. His experience centers around the intersection of mechanical performance and biocompatibility.

Being classically trained as a bioengineer, Dr. Stabler's research deals with the interaction of biomaterials and the body. He is certified to evaluate and perform risk assessments relating to the biocompatibility of medical devices in accordance with ISO 10993. As a licensed mechanical engineer, Dr. Stabler evaluates the performance of consumer products and medical devices through preclinical testing protocols and technology assessment, and has extensive experience interacting with and evaluating quality systems, design controls, risk management, post market surveillance, and failure analysis.

Dr. Stabler's expertise includes medical device and drug delivery platform development for implantable cardiovascular devices, pulmonary therapies, medical device biologic safety, biocompatibility, and tissue engineered medical products. His experience includes design evaluation and mechanical behavior of nitinol-based cardiovascular implants (e.g., occluders, prosthetic heart valves), functional evaluation of balloon catheters and expandable stents, 3D-printing for biomedical purposes (e.g., bioprinting), tissue engineering and regenerative medicine, bioreactor design, *in vivo* disease modeling, and *ex vivo* microphysiologic assay development (e.g., organoids, microfluidic devices). Dr. Stabler is proficient in mechanical testing of medical devices and biomaterials, histological analyses, cell and molecular biology techniques, and has extensive experience working with animal models for disease and regeneration studies, as well as a multitude of microscopy and dry lab techniques. As a data scientist, he has experience in handling large datasets, market and strategic analysis, and data visualization tools.

Dr. Stabler holds NAMSA ISO 10993 Series 1 certification for biocompatibility evaluation and risk assessment of medical devices. His research has included the development of methods for manufacturing bioengineered lungs, bioreactor design for stem cell culture, disease modeling of acute respiratory distress syndrome and pulmonary fibrosis, and tissue engineering of lung, tracheal, and bone tissues. Dr. Stabler has published a number of papers in the field of tissue engineering and regenerative medicine, and his research contributed to the founding of a medical device startup company.

Academic Credentials & Professional Honors

Ph.D., Bioengineering, Temple University, 2016

B.S., Engineering Science, Hofstra University, 2008

Michael Brown Penn-GSK Postdoctoral Research Fellowship

Hartwell Foundation Postdoctoral Research Fellowship

Lung Repair and Regeneration Consortium (LRRC) Travel Award

National Aeronautics and Space Administration (NASA) Graduate Student Research Program (GSRP) fellowship

Temple University College of Engineering Poster Competition 1st place award

Licenses and Certifications

Professional Engineer Mechanical, Delaware, #23247

ISO 10993-1:2018 - Biological evaluation of medical devices — Part 1: Evaluation and testing within a risk management process

Regulatory Affairs Certification (RAC: Devices)

Academic Appointments

Adjunct Professor, Temple University College of Engineering (2022)

Prior Experience

Visiting Scholar, Penn Center for Pulmonary Biology and Penn Institute for Regenerative Medicine, University of Pennsylvania School of Medicine (2018-2019)

Postdoctoral Fellow, University of Pennsylvania School of Medicine, 2016-2018

Research Assistant, Temple University, 2013-2016

Research Assistant, Drexel University, 2009-2013

Associate Scientist, SBH Sciences, 2008-2009

Research Intern, North Shore University Hospital, 2007-2008

Professional Affiliations

ASTM, Member

AAMI, Member

ASME, Member; Chair of Bioprinting Hardware Standard committee (2021-2022)

Biomedical Engineering Society, Member

Tissue Engineering and Regenerative Medicine International Society, Member

Theta Tau, Member

Publications

Niethamer TK, Stabler CT, Leach JP, et al. Defining the role of pulmonary endothelial cell heterogeneity in the response to acute lung injury [published online ahead of print, 2020 Feb 24]. Elife. 2020;9:e53072. doi:10.7554/eLife.53072

Tint D, Stabler CT, Hanifi A, Yousefi F, Linkov G, Hy K, Soliman AMS, Pleshko N. Spectroscopic Analysis of Human Tracheal Tissue during Decellularization. Otolaryngol Head Neck Surg. 2018 Oct 16:194599818806271. doi: 10.1177/0194599818806271. [Epub ahead of print] PubMed PMID: 30325714.

Stabler CT, Morrisey EE. Developmental pathways in lung regeneration. Cell Tissue Res. 2017 Mar;367(3):677-685. doi: 10.1007/s00441-016-2537-0. Epub 2016 Dec 13. Review. PubMed PMID: 27957616; PubMed Central PMCID: PMC5321816.

Stabler CT, Caires LC Jr, Mondrinos MJ, Marcinkiewicz C, Lazarovici P, Wolfson MR, Lelkes PI. Enhanced Re-Endothelialization of Decellularized Rat Lungs. Tissue Eng Part C Methods. 2016 May;22(5):439-50. doi: 10.1089/ten.TEC.2016.0012. Epub 2016 Apr 1. PubMed PMID: 26935764; PubMed Central PMCID: PMC4870653.

Stabler CT, Lecht S, Mondrinos MJ, Goulart E, Lazarovici P, Lelkes PI. Revascularization of decellularized lung scaffolds: principles and progress. Am J Physiol Lung Cell Mol Physiol. 2015 Dec 1;309(11):L1273-85. doi: 10.1152/ajplung.00237.2015. Epub 2015 Sep 25. Review. PubMed PMID: 26408553; PubMed Central PMCID: PMC4669341.

Stabler CT, Lecht S, Lazarovici P, Lelkes PI. Mesenchymal stem cells for therapeutic applications in pulmonary medicine. Br Med Bull. 2015 Sep;115(1):45-56. doi: 10.1093/bmb/ldv026. Epub 2015 Jun 10. Review. PubMed PMID: 26063231.

Frohbergh ME, Katsman A, Mondrinos MJ, Stabler CT, Hankenson KD, Oristaglio JT, Lelkes PI. Osseointegrative properties of electrospun hydroxyapatite-containing nanofibrous chitosan scaffolds. Tissue Eng Part A. 2015 Mar;21(5-6):970-81. doi: 10.1089/ten.TEA.2013.0789. Epub 2014 Dec 16. PubMed PMID: 25336062; PubMed Central PMCID: PMC4356216.

Pimton P, Lecht S, Stabler CT, Johannes G, Schulman ES, Lelkes PI. Hypoxia enhances differentiation of mouse embryonic stem cells into definitive endoderm and distal lung cells. Stem Cells Dev. 2015 Mar 1;24(5):663-76. doi: 10.1089/scd.2014.0343. Epub 2014 Oct 27. PubMed PMID: 25226206; PubMed Central PMCID: PMC4333609.

Lecht S, Gerstenhaber JA, Stabler CT, Pimton P, Karamil S, Marcinkiewicz C, Schulman ES, Lelkes PI. Heterogeneous mixed-lineage differentiation of mouse embryonic stem cells induced by conditioned media from a549 cells. Stem Cells Dev. 2014 Aug 15;23(16):1923-36. doi: 10.1089/scd.2014.0042. Epub 2014 Jun 3. PubMed PMID: 24720740.

Júnior LC, Guimarães Eda S, Musso CM, Stabler CT, Garcia RM, Mourão-Júnior CA, Andreazzi AE. Behavior and memory evaluation of Wistar rats exposed to 1·8 GHz radiofrequency electromagnetic radiation. Neurol Res. 2014 Sep;36(9):800-3. doi: 10.1179/1743132813Y.0000000276. Epub 2014 Jan 27. PubMed PMID: 24620965.

Lecht S, Stabler CT, Rylander AL, Chiaverelli R, Schulman ES, Marcinkiewicz C, Lelkes PI. Enhanced reseeding of decellularized rodent lungs with mouse embryonic stem cells. Biomaterials. 2014 Mar;35(10):3252-62. doi: 10.1016/j.biomaterials.2013.12.093. Epub 2014 Jan 15. PubMed PMID: 24439414; PubMed Central PMCID: PMC5030820.

Presentations

Stabler, CT. Integrin specific re-endothelialization of decellularized rodent lungs. Tissue Engineering and Regenerative Medicine International Society World Congress. Boston MA, 2016.

Stabler, CT. Positional and Integrin-Specific Re-endothelializtion of Decellularized Rodent Lungs. Stem Cells and Cell Therapies in Lung Biology and Lung Diseases Conference, Burlington VT, 2015.

Stabler, CT. Enhanced reseeding of decellularized rodent lung airway and vasculature. Biomedical Engineering Society International Conference, San Antonio TX, 2014.

Peer Reviews

ACS Biomaterials Science & Engineering