Exponent®
Engineering & Scientific Consulting

Eric Parigoris, Ph.D.

Senior Associate | Biomechanics
Atlanta
+1-678-412-4849 | eparigoris@exponent.com

Professional Profile

Dr. Parigoris' area of expertise lies in biomechanics, with an emphasis on tissue and cell mechanics. His training and education include mechanical and biomedical engineering.

Dr. Parigoris' research efforts have applied similar mechanical concepts to biological cells as engineers do to planes, trains, and automobiles. He has worked to apply his skills and knowledge of tissue and cell mechanics to larger scale biomechanical problems, including slip, trip, and fall accidents, biomechanical accident reconstruction, and injury investigation and claims.

Prior to joining Exponent, Dr. Parigoris completed his doctoral studies in Biomedical Engineering at Georgia Institute of Technology and Emory University, where he was the recipient of the NSF Graduate Research Fellowship. His skills include advanced microscopy techniques, microfabrication and soft lithography, three-dimensional cell cultures, and in vitro model development for both healthy and diseased states. His thesis was focused on the development of organoids, or 3D balls of cells that mimic an organ of interest, to study breast cancer invasion and chronic kidney disease. He also worked on the determination of the mechanical properties of the organoids, utilizing the application of continuous fluid shear stress.

Dr. Parigoris also completed a Whitaker International Fellowship at ETH Zurich, where he studied the stiffness and deformability of cancer cells, and how these mechanical considerations may aid in the early detection of cancer. Dr. Parigoris' background in cellular biomechanics also includes analyzing the role of mechanics in drug delivery systems and in biologically-based malnutrition.

Academic Credentials & Professional Honors

Ph.D., Biomedical Engineering, Georgia Institute of Technology, 2022

M.S., Biomedical Engineering, Georgia Institute of Technology, 2021

B.S., Mechanical Engineering, Carnegie Mellon University, 2016

National Science Foundation (NSF) Graduate Research Fellowship, 2019-2022

Whitaker International Fellowship, 2016-2017

Prior Experience

Graduate research assistant, Georgia Institute of Technology, 2018-2022

Research assistant, ETH Zurich, 2016-2017

Undergraduate research assistant, Carnegie Mellon University, 2012-2016

Biotransport teaching assistant, Georgia Institute of Technology, 2020-2021

Mechanics of materials teaching assistant, Carnegie Mellon University, 2016

Heat transfer teaching assistant, Carnegie Mellon University, 2015

Publications

Parigoris E, Lee JH, Liu AY, Zhao X, Takayama S. Extended longevity geometrically-inverted proximal tubule organoids. Biomaterials. 2022; 290:121828. doi: 10.1016/j.biomaterials.2022.121828.

Ginga NJ, Slyman R, Kim GA, Parigoris E, Huang S, Yadagiri VK, Young VB, Spence JR, Takayama S. Perfusion System for Modification of Luminal Contents of Human Intestinal Organoids and Realtime Imaging Analysis of Microbial Populations. Micromachines (Basel). 2022; 13(1):131. doi: 10.3390/mi13010131.

Lee S, Chang J, Kang SM, Parigoris E, Lee JH, Huh YS, Takayama S. High-throughput formation and image-based analysis of basal-in mammary organoids in 384-well plates. Sci Rep. 2022; 12(1):317. doi: 10.1038/s41598-021-03739-1.

Robinson S, Parigoris E, Chang J, Hecker L, Takayama S. Contracting scars from fibrin drops. Integr Biol (Camb). 2022; 14(1):1-12. doi: 10.1093/intbio/zyac001.

Parigoris E, Lee S, Mertz D, Turner M, Liu AY, Sentosa J, Djomehri S, Chang HC, Luker K, Luker G, Kleer CG, Takayama S. Cancer Cell Invasion of Mammary Organoids with Basal-In Phenotype. Adv Healthc Mater. 2021; 10(4):e2000810. doi: 10.1002/adhm.202000810.

Robinson S, Chang J, Parigoris E, Hecker L, Takayama S. Aqueous two-phase deposition and fibrinolysis of fibroblast-laden fibrin micro-scaffolds. Biofabrication. 2021; 13(3):10.1088/1758-5090/abdb85. doi: 10.1088/1758-5090/abdb85.

Parigoris E, Dunkelmann DL, Murphy A, Wili N, Kaech A, Dumrese C, Jimenez-Rojo N, Silvan U. Facile Generation of Giant Unilamellar Vesicles Using Polyacrylamide Gels. Sci Rep. 2020;10(1):4824. doi: 10.1038/s41598-020-61655-2.

Yamanishi C, Parigoris E, Takayama S. Kinetic Analysis of Label-Free Microscale Collagen Gel Contraction Using Machine Learning-Aided Image Analysis. Front Bioeng Biotechnol. 2020; 8:582602. doi: 10.3389/fbioe.2020.582602.

Parigoris E, Dunkelmann DL, Silvan U. Generation of Giant Unilamellar Vesicles (GUVs) Using Polyacrylamide Gels. Bio Protoc. 2020; 10(21):e3807. doi: 10.21769/BioProtoc.3807.

Peer Reviews

Integrative Biology