Extracellular matrix – a mechanical regulator of cancer



Claudia Fischbach, PhD
Professor of Biomedical Engineering
Associate Director of Cornell Nanoscale Science and Engineering Facility (CNF)
Cornell University

Corrine Bahr Memorial Lecture

Microenvironmental conditions contribute to the pathogenesis of cancer and include altered extracellular matrix (ECM) composition and mechanical cues. However, our understanding of the specific mechanisms by which the ECM impacts the development, progression, and therapy response of cancer is relatively limited. More intricate analysis methods and model systems are needed to better understand the complex biochemical and biophysical interactions that drive tumor initiation, growth, metastasis, metabolic adaptation, and immune evasion. The physical sciences provide increasingly sophisticated tools and strategies to characterize, recapitulate, and monitor relevant properties of tumor-ECM interactions. These approaches not only bear tremendous potential to advance our current understanding of cancer, but are also increasingly explored for more clinically relevant drug testing. This talk will highlight specific examples of how the ECM regulates the highly dynamic nature of cancer and will outline opportunities and challenges of the field of tumor engineering.

Monday, April 15 at 1 p.m.
1306 Health Sciences Learning Center (HSLC)

ABOUT the SPEAKER

Claudia Fischbach-Teschl is the Stanley Bryer 1946 Professor of Biomedical Engineering at Cornell University and Associate Director of Cornell Nanoscale Science and Engineering Facility (CNF). She received her Ph.D. in Pharmaceutical Technology from the University of Regensburg, Germany and conducted her postdoctoral work at Harvard University in the Division of Engineering and Applied Sciences. Her lab utilizes engineering tools and strategies to gain a better understanding of how tumor-microenvironment interactions regulate cancer development, progression, and therapy resistance with a focus on cell-ECM interactions. She is a fellow of the American Institute for Medical and Biological Engineering (AIMBE), the Biomedical Engineering Society, and the Alexander von Humboldt Foundation in Germany. She is the recipient of the Momentum Mid-Career Award by the Cellular and Molecular Bioengineering Special Interest Group of the Biomedical Engineering Society (BMES) and the inaugural awardee of a Rosalind Franklin Award by the Max Planck Centre for Physics in Medicine in Germany. She is a Senior Editor of Cancer Research and serves on the Editorial Board of the ACS journal Biomaterials Science and Engineering, Tissue Engineering, and APL Bioengineering. She is an advocate for interdisciplinary cancer research and has written Op-Ed articles on this topic including in Scientific American.

Corrine Bahr Memorial Lecture Series: Every year, the biomedical engineering department at the UW–Madison hosts an honorary speaker selected by the student community in memoir of one departments pioneers, Corrine Bahr. Corrine was the department's administrator who was always characterized by her commitment to support both students and faculty who came from diverse places and cultures and making them feel like home here at Madison.

WISCONSIN
UNIVERSITY OF WISCONSIN–MADISON

Sponsored by:
Biomedical Engineering
Carbone Cancer Center