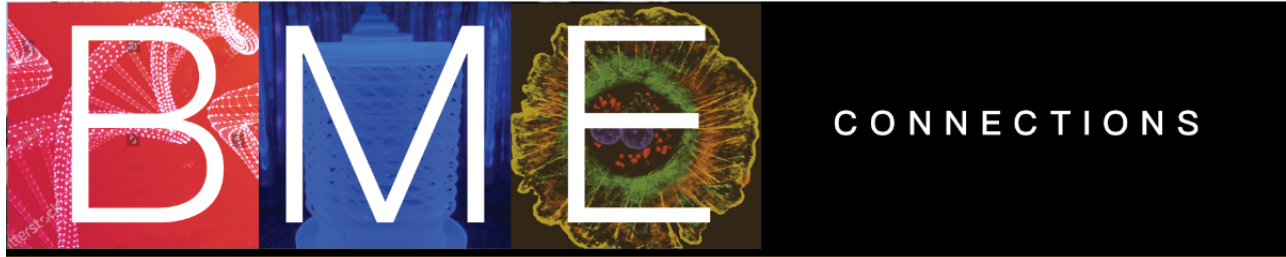


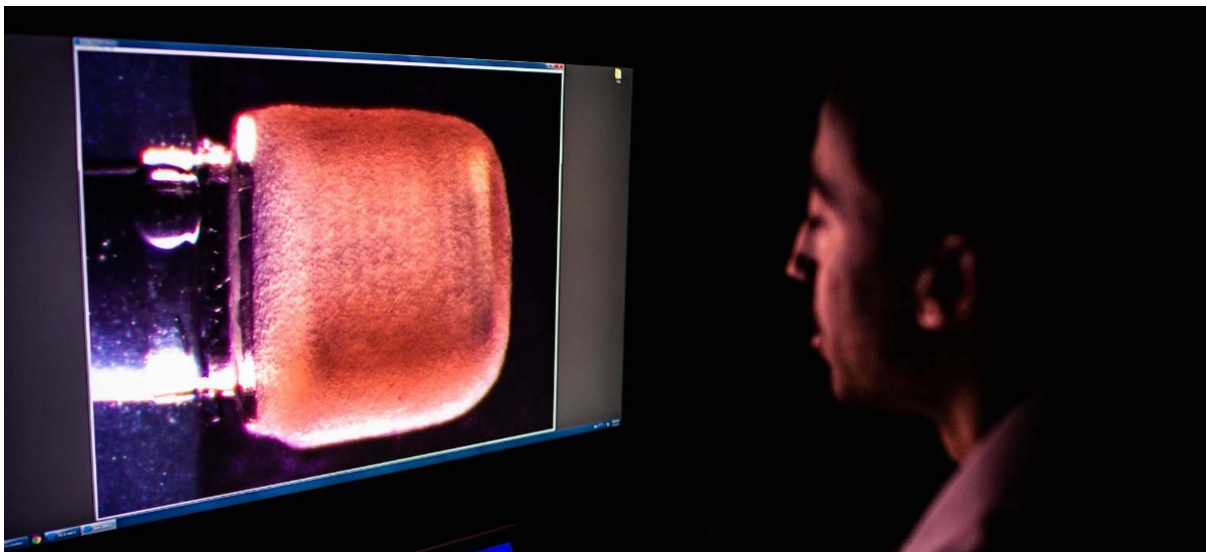


Department of Biomedical Engineering



SUMMER 2022 NEWSLETTER

## Department Highlights



### Miniature Heart Could Help Speed Heart Disease Cures

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An interdisciplinary BU team, including BME's [Chris Chen](#), have engineered a combination of nanoengineered parts and human heart tissue, which beats by itself.

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The miniPUMP can help analyze the impact of the disease and effectiveness of treatments. Built by BU scientists and collaborators at [CELL MET](#), the new miniature human heart, could lead the way for building lab-based versions of other organs.

[Read More](#)

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## Faculty Honors

Inventor **Mark Grinstaff** was named an **AAAS Fellow** for his contributions in polymer chemistry and biomacromolecular constructs.

**Selim Unlu** was named BU **Innovator of the Year**. He holds 18 patents, and uses a novel approach to ingenuity and invention in his teaching and his research.

**Andy Fan** was selected by members of the senior class as the recipient of the University's 2022 College of Engineering **Teaching Excellence Award**.

**James Galagan, Xue Han, and Dimitrije Stamenovic** have been named to the 2022 **AIMBE College of Fellows**.

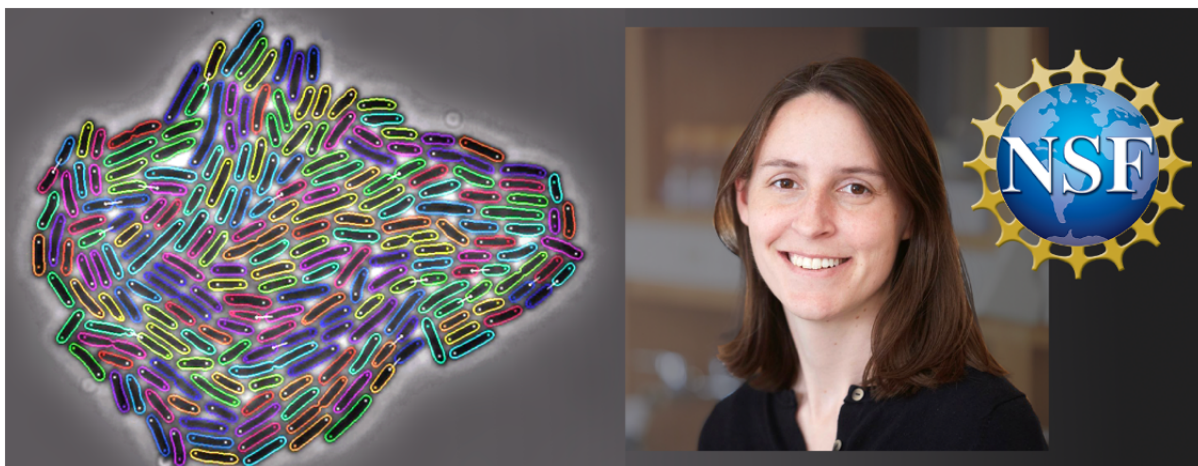
**Mark Grinstaff** was named a 2022 **Warren Distinguished Professor**, exemplifying the best BU has to offer in scholarship, teaching, and service.

**Dan Cole** and **Muhammad Zaman** were named co-recipients of the College of Engineering **Faculty Service Award** by the College Executive Committee.

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## Research Awards

[View all Research Awards](#) | [View all Faculty Profiles](#)



### NSF Award: Dunlop to Study Deep Learning Models

Associate Prof. [Mary Dunlop](#)'s **Transition Award** supports research into *Deep Learning Models for Microbial Image Analysis and Time-Series Predictions*, taking advantage of a powerful computational strategy for analyzing biological data and novel modeling.

[Read More](#)

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RESEARCH CORPORATION  
*for* SCIENCE ADVANCEMENT

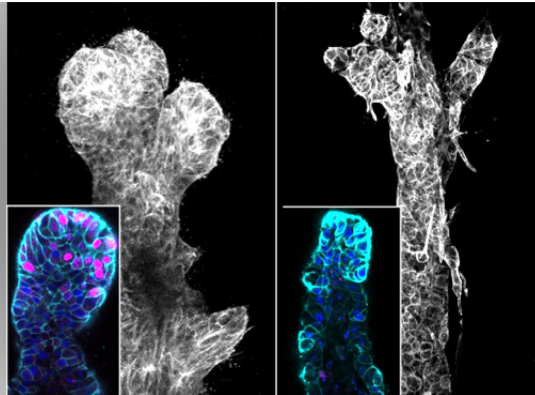


## Green Wins Scialog Award to Develop Cell-Signal Sensor

Assistant Prof. [Alexander Green](#) and a colleague have earned a **Scialog Collaborative Innovation Award** to develop a new type of sensor capable of detecting heretofore hidden signals within a cell, with potential applications both diagnostic and therapeutic.

[Read More](#)

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## Allen Distinguished Investigators Aim to Recreate Lungs

A trio of BU faculty, including BME professors [Chris Chen](#) and [Wilson Wong](#), have been awarded funding by the **Paul G. Allen Family Foundation** for a bold, early-stage project aimed at lab-grown lungs that mimic the real organ in all its fractal complexity.

[Read More](#)



## Young Investigator Award to Assistant Prof. [Hadi Nia](#)

The **Beckman Foundation's** mission is to support the most promising young faculty members in the early stages of their academic careers in the chemical and life sciences, particularly to foster the invention of new research methods, instruments, and materials.

[Read More](#)

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## Schmidt Award Empowers Cross-Disciplinary Research

Associate Professor ["Mo" Khalil](#) has earned the **Schmidt Science Polymaths Award**, recognizing him as a bold researcher and fueling advances toward the engineering of new multicellular systems, to address devastating diseases and grapple with climate change.

[Read More](#)

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## Selected Publications

**Tim O'Shea et al. - NATURE**

*Divergent transcriptional regulation of astrocyte reactivity across disorders*

[ARTICLE](#)

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**Ahmad (Mo) Khalil et al. - SCIENCE**

*One cell, many fates*

[ARTICLE](#)

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**Mary Dunlop et al. - SCIENCE**

*Anticipating antibiotic resistance*

[ARTICLE](#)

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**Alex Green et al. - NATURE BIOMEDICAL ENGINEERING**

*Multi-arm RNA junctions encoding molecular logic unconstrained by input sequence for versatile cell-free diagnostics*

[ARTICLE](#)

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**Mark Grinstaff et al. - NATURE - ONCOGENE**

*H3K9me3 represses G6PD expression to suppress the pentose phosphate pathway and ROS production to promote human mesothelioma growth*

[ARTICLE](#)

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**Ahmad (Mo) Khalil et al. - CELL**

*Modular design of synthetic receptors for programmed gene regulation in cell therapies*

[ARTICLE](#)

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**Chris Chen et al. - SCIENCE ADVANCES**

*Engineering a living cardiac pump on a chip using high-precision fabrication*

[ARTICLE](#)

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**Joe Tien et al. - CELLULAR AND MOLECULAR BIOENGINEERING**

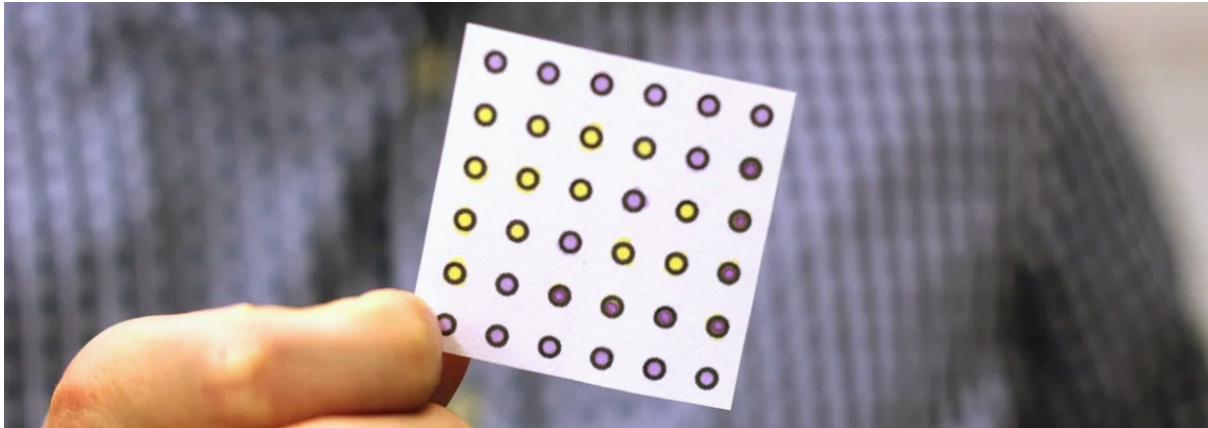
*Adipose stroma accelerates the invasion and escape of human breast cancer cells from an engineered microtumor.*

[ARTICLE](#)

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## Noted Research



### A Simple Test for Viral Detection

*Nature Biomedical Engineering* has published Assistant Professor [Alex Green](#)'s development of a new test -- embedded in a piece of paper -- that uses strands of RNA that operate like a computer to detect multiple sequences from a virus as a test result.

[Read More](#)

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### Chen Leads Startup for Breakthrough Tissue Therapeutics

After developing a method of regenerating liver tissue, Prof. [Chris Chen](#) and colleagues have launched a startup, **Satellite Bio**, and secured venture funding to scale up the technology to develop “tissue therapeutics” that can help treat or replace diseased organs.

[Read More](#)

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## BME Students



### Student Speaker Jodee Frias on Societal Engineering

“Being a Societal Engineer is not just advancing your knowledge in these subjects, but learning how your use of this knowledge affects the landscape of our future ... creating quantitative and effective solutions to global issues ... to inspire real change in this world.”

[Read More](#)

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The **Biomedical Engineering Department at Boston University** is among the largest of its kind in the US and is home to award-winning faculty, exceptional students, and numerous research centers and laboratories engaged in an array of interdisciplinary biomedical activities. Founded in 1966, today we offer a full suite of undergraduate and graduate degrees, and are consistently ranked among the top BME departments in the nation by *U.S. News & World Report*.

[bu.edu/bme](https://bu.edu/bme)

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