

# Biomaterials and Therapeutics

## Drug Delivery

- Design targeted drug nanoparticles to deliver the right amount of drugs to the right site
- Mimic the shape geometry in nature employing simple chemical engineering principles

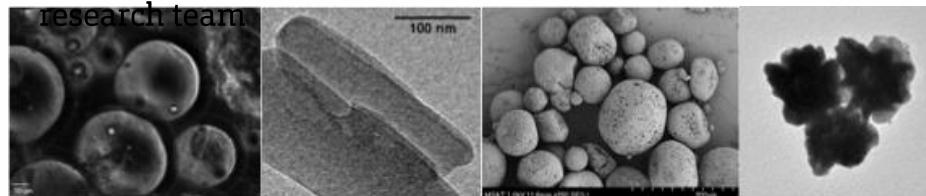
## Bioseparation

- Study the interactions of toxin molecules with and microparticles in particulate and membrane nano-forms
- Synthesize an efficient and inexpensive filter to remove endotoxins from pharmaceutical drug formulations

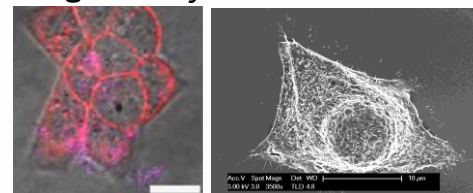
## Cell Therapy

- Develop synthetic microparticles to grow cells on the surface
- Treatment of skin wounds using cell laden microparticles

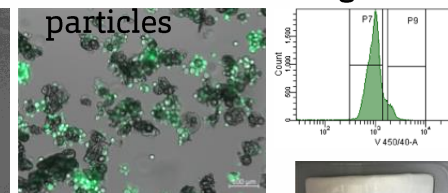
Biomaterials as synthesized and imaged by the S. Barua research team



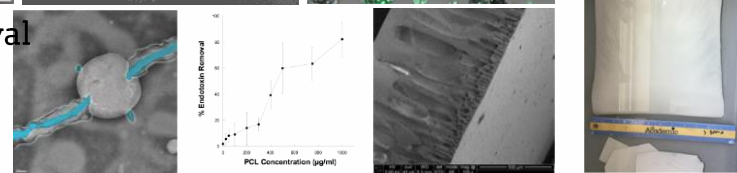
Drug delivery to cancer cells



Cellular hitchhiking on particles



Toxin removal



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## Funding

- Technology Acceleration Grant, 2018
- Ozark Biomedical Initiative, 2018
- NASA-EPSCoR, 2017
- UMRB, 2016



## Keywords

- Biomaterials, Breast Cancer, Cell Therapy, Endotoxin, Drug Delivery, Nanotechnology, and Polymer

## Recognition

- Missouri S&T CEC Award ([Link](#)), 2018
- Translational Precision Medicine Complex (TPMC), S&T Representative ([Link](#)), 2018

## Collaborative Interests

- Cancer immunotherapy, tissue regeneration, bioprocessing

CBR Research