

# Team 17

# Anti-inflammatory Polarization of Macrophages for Pulmonary Fibrotic Tissue Regeneration

Members: Ariella Melincoff, Ilayda Erkan, James Gravlin, Weisong Zhang

Advisor: Kara Spiller

**NEED:**  
Kara Spiller is the user, who is a Professor at Drexel. She needs a drug release profile of dexamethasone in macrophage that induces anti-inflammatory phenotype.

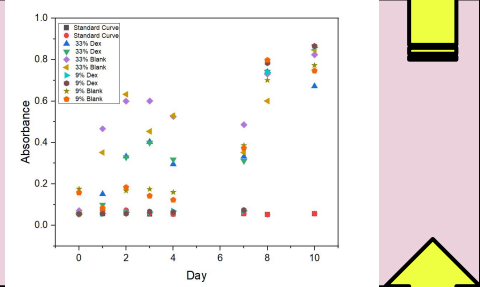
**FUTURE**  
More accurate standard curve of Dexamethasone in PBS needs to be created.  
In vitro studies need to be done in the future.

**DESIGN INPUTS:**

- 40 ng/mL of dexamethasone released in solution everyday
- 7 days of continuous drug release

**TESTING RESULTS**

Concentration was not achieved due to Standard Curve



**SOLUTION - DESIGN**

2 Loading Ratios:  
33% PLGA to Drug  
9% PLGA to Drug

Combine the 2 to achieve desired profile

**SOLUTION - BUILD**

- PLGA Microparticles were fabricated
- Loaded with Dexamethasone
- Ready to be released in PBS solution