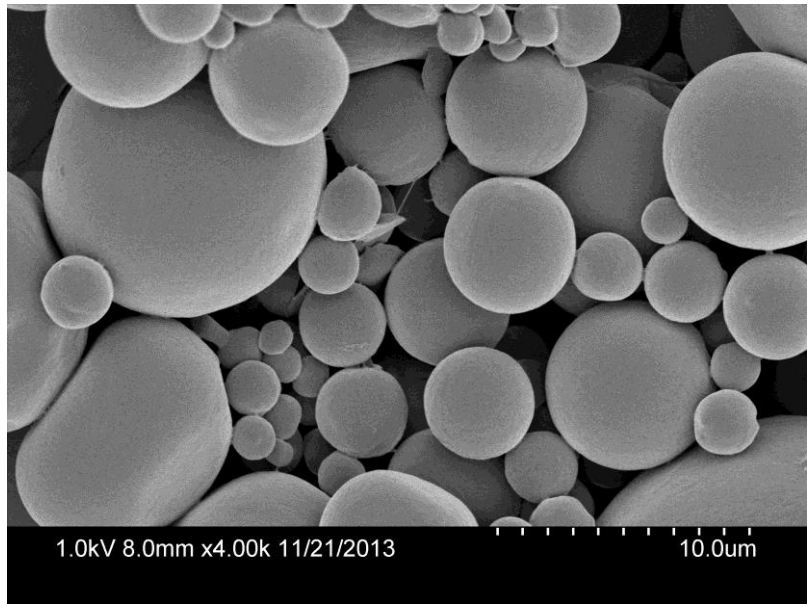
Challenge #1: Developing a novel sieving method for the size sorting of drug releasing microspheres

- Small spherical particles fabricated from biocompatible polymers
- Can provide tunable drug release of small molecules and growth factors
- Fabrication method yields a wide range of particule sizes



Scanning electron microscopy image of drug releasing microspheres

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Develop a novel method for separating these microspheres by size

- Our desired microsphere size is <40μm.
- Currently use a reversible strainer with a 37μm pore size and a diameter of ~1cm to filter ~320mg of microspheres in one batch.
- The filter is rapidly blocked by large particles and constantly needs to be cleared, making the whole process takes upwards of an hour or two depending on the overall quality of the produced microspheres.
- The strainer must also be loaded and cleared manually meaning no other work can be completed during that period.
- The blocked filter also captures smaller particles that get cleared with the larger ones leading to loss in yield.

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Find a more efficient and effective method of size separating drug releasing microspheres

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- Will provide up to $300 in supplies for this project

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