1131-92-123   **Jared O Barber*** (`jarobarb@iupui.edu`), Department of Mathematical Sciences, 402 N Blackford St, LD 270E, Indianapolis, IN 46202. *A mathematical model of breast cancer cell translocation through a microfluidic device using viscoelastic elements submersed in a surrounding Stokes flow.* Preliminary report.

Deaths associated with breast cancer are not usually caused by the primary infection but by metastases at other locations (e.g. bone). Much research has targeted understanding how to lower the metastatic potential of individual breast cancer cells with the end goal being the mitigation of the effects of breast cancer on the 3.5 million people in the US affected by the disease.

Experiments have shown that metastatic potential correlates well with the physical properties of a cell and its surrounding environment. Biology also suggests that mechanotransduction of cellular pathways (e.g. apoptosis, division) can affect metastatic potential.

Because of these insights, we are developing a mechanical model of breast cancer cell translocation in microvessels. Our first model is a two-dimensional model with interconnected viscoelastic elements submersed in a surrounding Stokes flow. This model has been used to consider breast cancer cell translocation through a microfluidic device that was designed as a diagnostic tool for assessing the metastatic potential of breast cells. We will present this current model and share results. We believe that further development of this model will allow consideration of metastatic potential in both in vitro and in vivo settings. (Received July 10, 2017)