1163-92-752 **Anna S Frank**, **Kamila Larripa**, **Hwayeon Ryu*** (hryu@elon.edu), **Ryan G Snodgrass** and **Susanna Roblitz**. *Bifurcation and sensitivity analysis reveal key drivers of multistability in a model of macrophage polarization.*

We analyze a mathematical model for polarization of a single macrophage which, despite its simplicity, exhibits complex dynamics in terms of multistability. In particular, we demonstrate that an asymmetry in the regulatory mechanisms and parameter values is important for observing multiple phenotypes. Bifurcation and sensitivity analyses show that external signaling cues are necessary for macrophage commitment and emergence to a phenotype, but that the intrinsic macrophage pathways are equally important. Based on our numerical results, we formulate hypotheses that could be further investigated by laboratory experiments to deepen our understanding of macrophage polarization. (Received September 12, 2020)