Cancer vaccines generate robust antigen-specific anti-tumor responses by adjuvant-mediated induction of high energy-consumption state in immune cells. Unfortunately, this elevated and sustained energy immunometabolism mediated activation of immune cells is associated with toxicity and induction of autoimmune diseases. Moreover, because of immunosenescence due to aging, there is a reduced proliferation and potency of lymphocytes (T cells), increasing the susceptibility to tumorigenesis. Herein, an adjuvant-less immunometabolism modifying succinate-based microparticle (MP) therapy was developed to activate dendritic cells, and in turn the adaptive immunity, and reduce melanoma growth in aging mice.

**Results and Discussion**

- Successfully able to make metabolite-based polymers
- Succinate based polymeric microparticles were able to activate and modulate the innate immune system in vitro

**Future Work**

- MTT assay on YUMM1.1 cells using PLX4720 (BRAF inhibitor)
- Injection of YUMM1.1 cells in murine model
- Immunological study of immune cells in vivo

**Figure**: PEGS MPs are able to activate Innate Immune cells (A) DCs and (B) Macrophages using flow cytometry