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Macrophage Mediated Cancer Cell Targeting

Molly Leyda

Children's Mercy Kansas City

Jacqelyn Nemechek

Children's Mercy Hospital

John Szarejko

Children's Mercy Kansas City

John M. Perry

Children's Mercy Hospital

Douglas Myers

Children's Mercy Hospital

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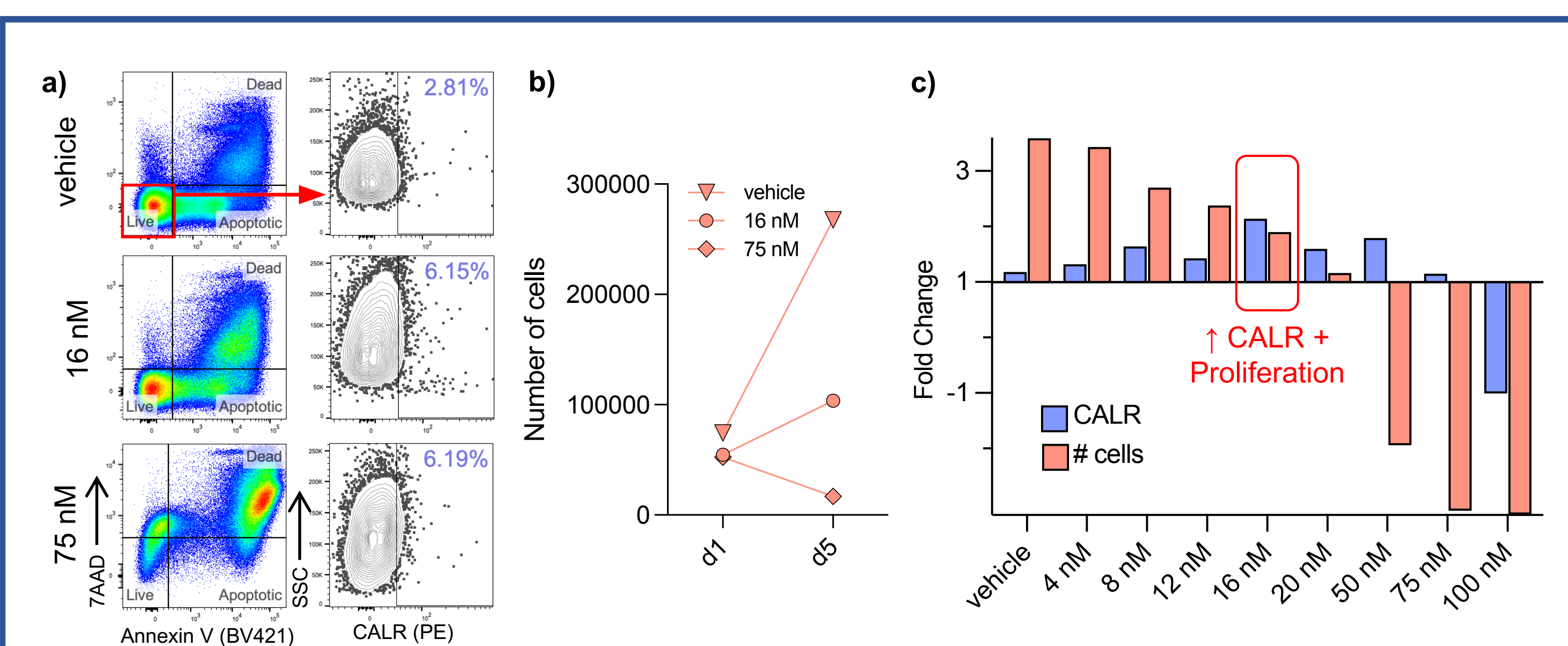
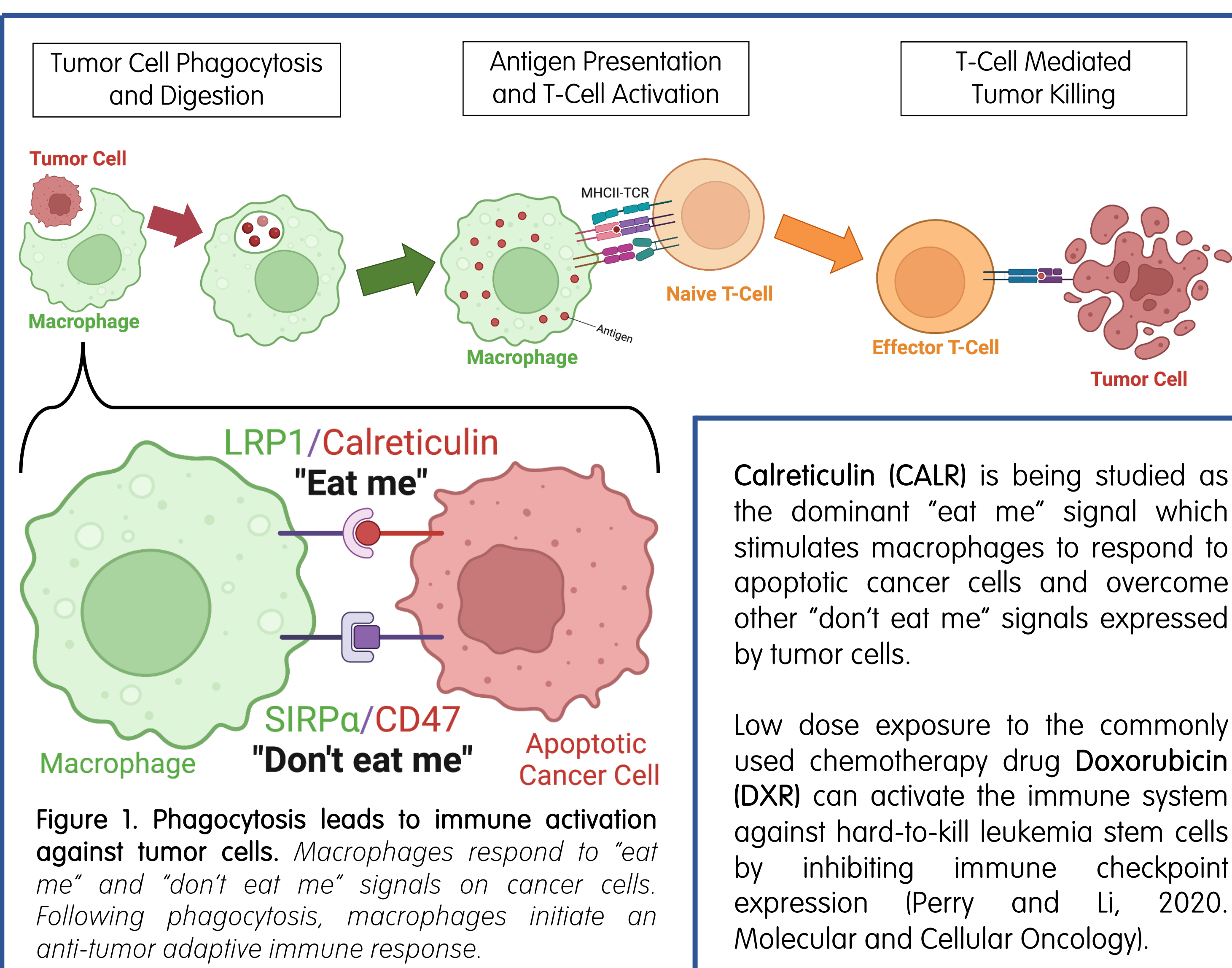
Macrophage Mediated Cancer Cell Targeting

Molly C. Leyda, Jacqelyn Nemechek, John Szarejko, Fang Tao, Tykeem Manor, John Perry, Doug Myers

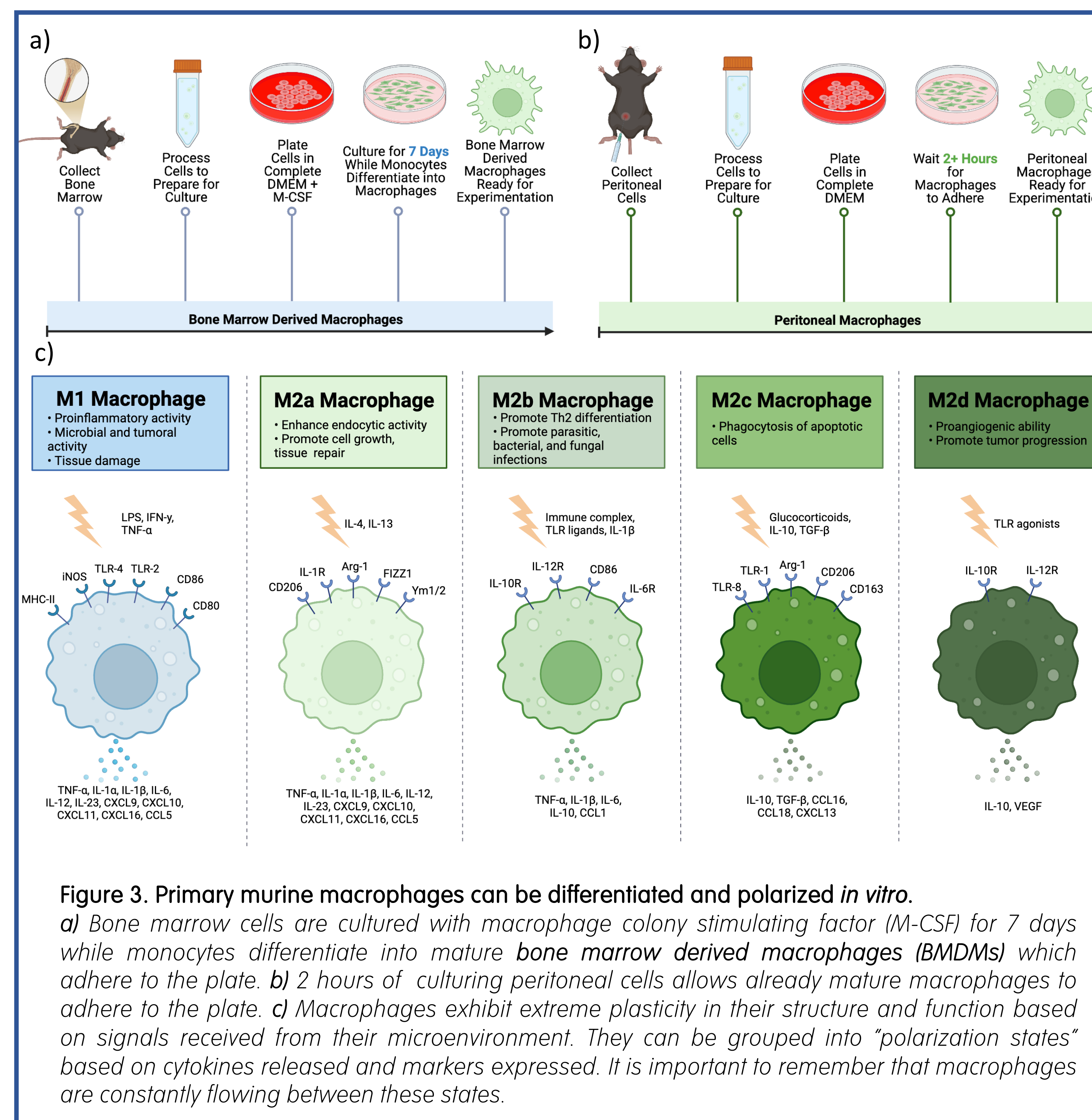
Children's Mercy Kansas City – Department of Hematology, Oncology, and Blood and Marrow Transplant

BACKGROUND

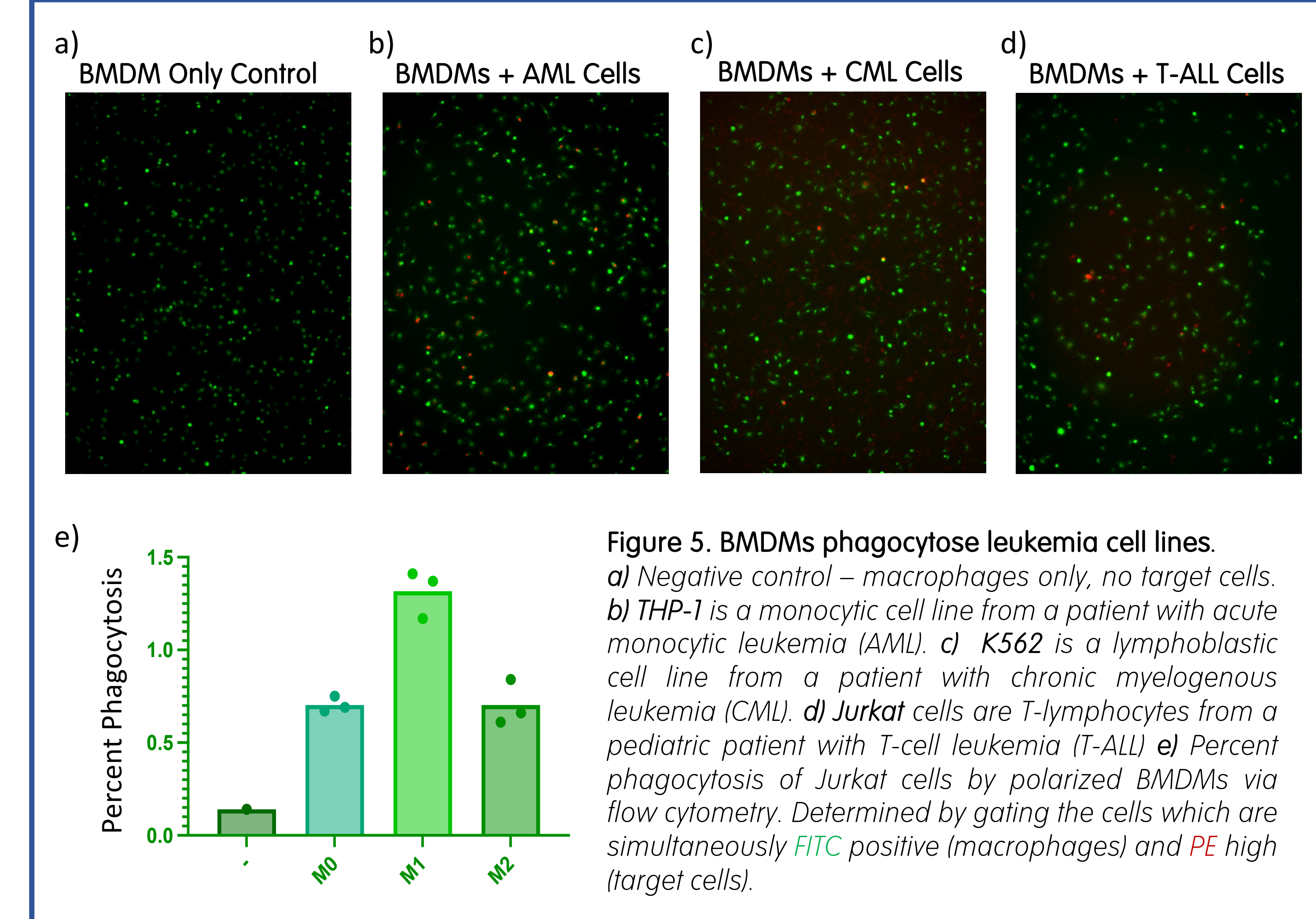
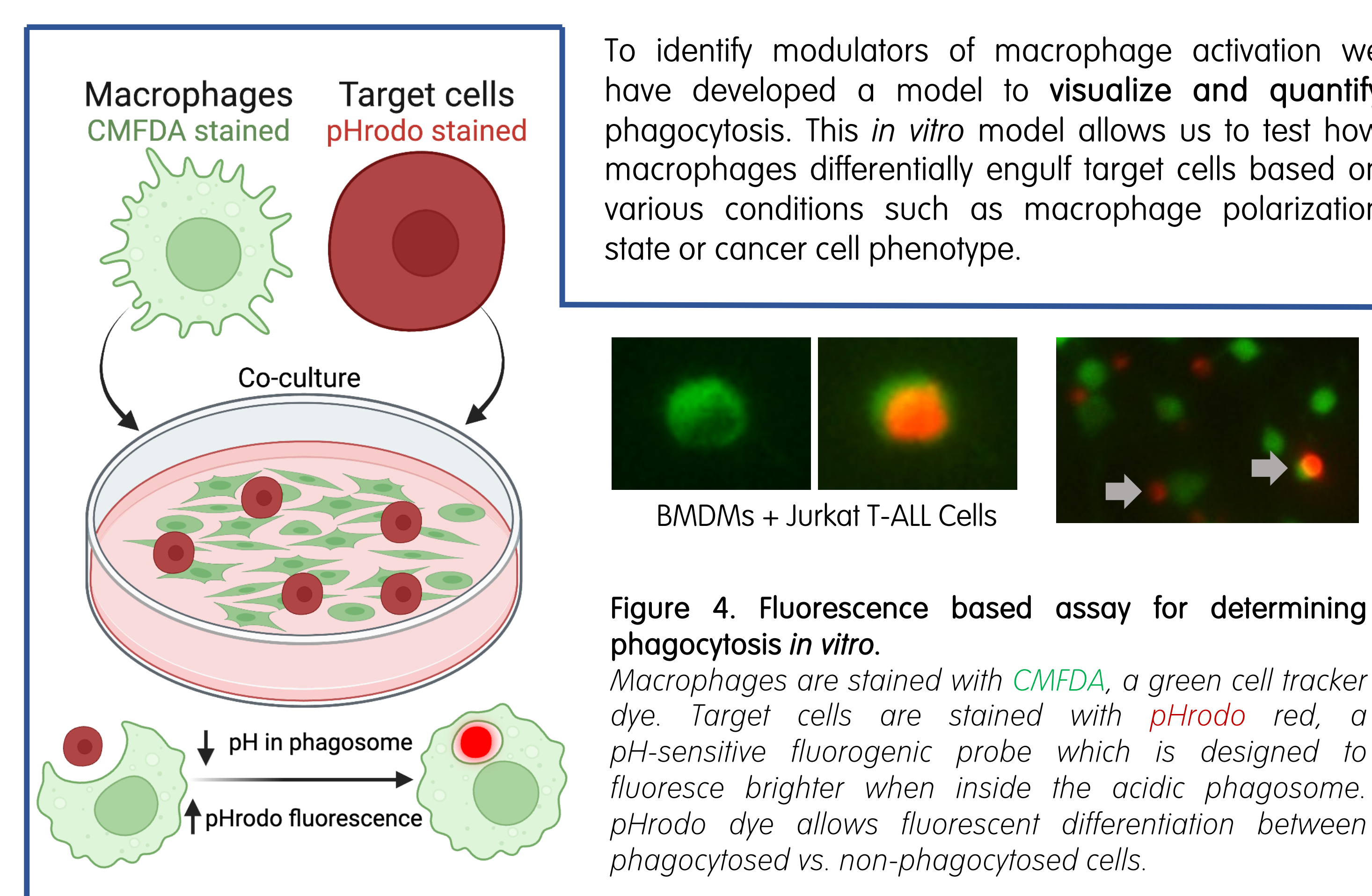
Macrophages are a diverse and widespread type of innate immune cell which play an important role in homeostasis and defense. In a process called phagocytosis, macrophages engulf dying cells, foreign substances, and pathogens. As professional antigen presenting cells (APCs), macrophages can present antigens from phagocytosed cells and initiate an adaptive immune response against remaining cells of the same type. Despite the immunosuppressive nature of the tumor microenvironment, macrophages have tumor infiltrating abilities where they either promote or inhibit cancer development. Questions remain about how macrophages recognize, or fail to recognize, cancerous cells for clearance, and how they promote vs. inhibit tumor progression.



MACROPHAGE DIVERSITY

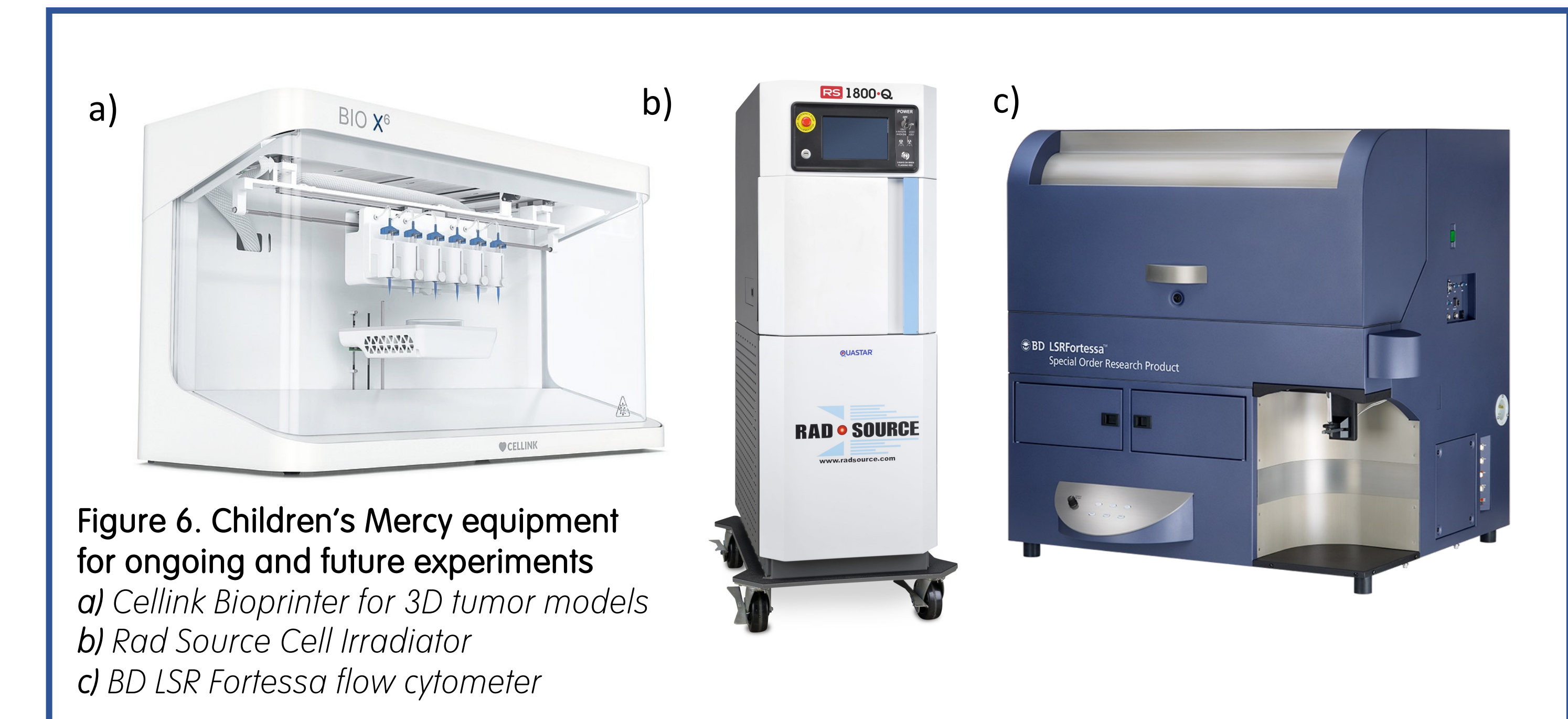


LEUKEMIA CELL PHAGOCYTOSIS ASSAY



ONGOING & FUTURE

- Treat target cells with radiation and low dose DXR to examine apoptosis and phagocytosis
- Induce macrophage polarization and assess effect on phagocytosis capability
- Assess CALR expression on target cells and the effect on macrophage response
- Test a CALR-targeting chimeric antigen receptor on macrophages
- Bioprint 3-dimensional tumor models to test macrophage homing and phagocytosis



ACKNOWLEDGEMENTS

Figures created with:

bioRENDER KEYENCE FLOWJO Prism

THE UNIVERSITY OF KANSAS
CANCER CENTER

Children's Mercy KANSAS CITY
Research Institute