

Group #19

Development of Iron Oxide Nanoparticles for In Situ T-Cell Labeling and Imaging

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Abstract

Tracking immune cell migration throughout the body is important for understanding immune responses and evaluating cell-based therapies. This project explored an in situ labeling approach using superparamagnetic iron oxide nanoparticles (SPIONs) engineered to target the CD4 receptor on helper T cells. After introducing SPIONs in situ, we found the uptake amount to be greatly underwhelming and the results we did have can be explained by endogenous iron in the cells. Additionally, we did not have enough cells for our 72 hour run labeled and we had less time on the FACS than we needed. We can conclude there are other possible solutions that can lead to more efficient in vivo labeling.