



VISUALIZATION AND INTEGRATION OF CANCER CELL RESPONSE DATA

Quantitative phase imaging (QPI) is a microscopy method that can be used to monitor cell behavior or response to targeted therapy.

Both the Judson-Torres and Zangle labs work on applications of QPI to study cancer. The Zangle lab uses a model-based approach. For example, predictions of how mass increases overtime due to growth or how stiffness is related to changes in cell mass serve as models that can be fit to experimental data to extract parameters describing cell behavior. The Judson-Torres lab uses a more data-based approach by, for example, identifying features that predict cancer cell behavior or disease progression with machine learning. Both approaches yield distinct outputs that are linked through the same underlying data type. Co-I Lex' lab develops interactive data visualization methods for biomedical applications.

This project will combine validation experiments with data visualization. Central to this effort is generating comparisons of distinct QPI data sets. Therefore, the visualization approaches of the Lex lab will be essential.

Key questions to be addressed by the conclusion of this project are: 1) Do Zangle lab and Judson-Torres lab methods produce data with equivalent clinical utility? 2) How can disparate QPI data types be presented in a way that maximizes usefulness, either in a research or clinical setting?

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