Discovering Targeted Cancer Therapies Through Developmental Phosphoproteomics

Teresa Purzner, MD

Department of Developmental Biology, Stanford University
Division of Neurosurgery, University of Toronto
Targeted cancer therapies are often limited by:

1. tumor heterogeneity

2. rapid drug resistance from mutations at, or downstream of, the targeted protein

The goal of my research is to discover more robust targeted cancer therapies, using medulloblastoma as my model tumor system.
I applied recent advances in mass spectrometry to explore the protein changes that drive proliferation in cerebellar granule neuron precursors; the developmental cell of origin of MB.
Through this approach we were able to identify therapies that are effective across multiple MB cell lines, including cells otherwise resistant to currently available therapies. Treatment of mice with medulloblastomas had long-term survival after only 30 days of treatment.
We hope to initiate clinical trials in children and adults with medulloblastoma beginning in 2018, lead by the PBTC in collaboration with Stanford SPARK
Mentors and Collaborators

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