

## **Deciphering Metabolic Rewiring in Cancer**

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Metabolism, the process of converting nutrients into energy and building blocks of life, is distinctly abnormal in cancers. Many cancers metabolize glucose differently from normal cells by relying on glycolysis even in oxygen-rich environments, and this key metabolic difference is known as the Warburg effect. While we take advantage of the Warburg effect for cancer diagnosis using PET imaging, a definitive explanation for how it benefits cancer cells remains elusive, and we have not exploited it for therapy. In this talk, I will detail metabolomic investigations that combine computational, biochemical, genetic, and mass spectrometry approaches. First, I will detail our work in uncovering the role of the glycolytic enzyme pyruvate kinase in the Warburg effect. Second, I will discuss our efforts in investigating breast cancer heterogeneity and metabolism to develop personalized therapy. Finally, I will present our research on targeting metabolic pathways to block breast cancer metastasis.