

Department of Immunology and Regenerative Biology | Dwek Institute for Cancer Therapy Research

 ZOOM ON CANCER

HYBRID LECTURE



**Prof. Tomer Shlomi**

The Faculties of Computer Science  
and Biology  
Technion

## Targeting metabolic vulnerabilities in cancer

**26<sup>th</sup> May**  
**Thursday** 2022

**14:00 Candiotty Auditorium**

Light refreshments will be served from 13:45

Cancer cells adapt their metabolism to support increased biosynthetic and energetic demands. Our research focuses on developing experimental-computational approaches for analyzing metabolic reprogramming in cancer cells, identifying metabolic vulnerabilities that can be therapeutically exploited. I will describe methods that we develop for inferring metabolic flux at distinct subcellular compartments, combining isotope tracing with metabolic modelling. We applied these tools to study the rewiring of one-carbon (1C) metabolism in cancer cells – a highly important metabolic system that supports nucleotide biosynthesis. Our work revealed that in contrast to the common view, cytosolic rather than mitochondrial serine catabolism is the predominant source of 1C units in a variety of tumors, due to poor capacity to retain intracellular folates. We also show that mitochondrial glycine cleavage contributes 1C units for biosynthesis specifically in liver cancer, and that it is essential for maintaining protein lipoylation and mitochondrial function. Genetic silencing of specific mitochondrial and cytosolic 1C enzymes is shown to inhibit in vivo tumor growth – suggesting novel anti-cancer metabolic drug targets.

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### Host

**Prof. Yosef Yarden**

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