

“Large scale CRISPR loss of function screens identify regulators and targets in β -catenin driven cancers”

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Joseph (Sefi) Rosenbluh is an early career researcher who has made major contributions in functional cancer genomics and our understanding of how β -catenin signaling promotes cancer. After completing his PhD at the Hebrew University of Jerusalem, he moved to the Broad Institute of Harvard and MIT as a postdoctoral fellow and later as an instructor of medicine. Joseph has recently joined the faculty of Monash University and in addition to heading a research lab he directs a new functional genomics platform at the Hudson Institute. His recent focus has been on developing CRISPR technologies for loss of function screens, and new approaches such as genetic interaction mapping and high throughput RNA sequencing. In total, he has authored 24 research publications, including 10 in the last five years, many of which are influential publications in journals such as *Cell* (3 papers), *Cell Systems*, *Nature Genetics* and *Nature Communications*.

Mutation leading to constitutive β -catenin activity are present in nearly all colon cancers and are essential for maintaining tumor growth. However, despite large efforts we lack efficient β -catenin inhibitors. We have taken an alternative approach, using genome wide RNAi and CRISPR screens to identify genes that are required for proliferation only in the context of aberrant β -catenin activity. We demonstrate the utility and off target effects of each of these approaches and describe a new platform that combines different methodologies and enables identification of highly specific cell essential genes. Our work identified a transcriptional complex composed of β -catenin and YAP1 that drives the expression of genes that promote cancer cell survival. Although my work has focused on β -catenin driven colon cancer we are now applying the same approaches as a general strategy for unbiased studies of how genes function in normal tissues and how they are deregulated in disease.

Date:

**Thursday,
21st September
2017**

12pm-1pm

A light lunch and refreshments to follow

Location:

**TRF Building,
Level 2,
Seminar rooms
1+2**

27-31 Wright Street,
Clayton, 3168

