Medical Chemistry Seminar

“Development of new CRISPR/Cas9-based tools to identify cancer drug targets and mechanisms of phagocytosis”

演者: Dr. Michael C. Bassik

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Date: June 28 (Fri), 2019
Time: 16:00–17:00
Venue: Seminar Room 102, Building A (医学部A棟102室)

My laboratory is focused on (1) the development of new technologies for high-throughput functional genomics using the CRISPR/Cas9 system, and (2) application of these tools to (a) identify drug targets in cancer and (b) study mechanisms of cellular uptake by endocytosis and phagocytosis of diverse particles (ranging from bacteria, viruses, and protein toxins to cancer cells).

Recently we have created a platform for high-throughput pairwise expression of sgRNAs directed against known drug targets, and used it to identify rare synthetic lethal combinations. The corresponding drugs exhibit expected synergy, and show promise in a leukemia model. In order to more precisely study how drugs interact with their targets, we have also developed a strategy to use dCas9 to redirect the somatic hypermutation machinery used in antibody affinity maturation; this can be used to evolve new protein variants with altered activities and drug binding properties.

I will discuss the use of these screening tools in current efforts to study macrophage function and identify new vulnerabilities in cancer models.

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