CELLECTA

Combining Cell Barcoding and CRISPR sgRNA Libraries with Targeted Gene Expression Profiling for Single-Cell Genetic Analysis

Speaker: Dr. Alex Chenchik

Host: Li, Shang (Associate Professor), Programme in Cancer & Stem Cell Biology

ABOUT THE TALK

Pooled lentiviral libraries of CRISPR sgRNA to mediate genome-wide gene knockout have become an invaluable tool for uncovering the functional genetic drivers required for a biological response. Another type of pooled lentiviral library designed with unique DNA sequence tags have been used to label large populations of cells with unique cell-specific barcodes which allows for monitoring changes in sub-populations of cells with distinct phenotypes over time. Further, these barcode lentiviral libraries can be designed so that the unique barcode sequence is detectable in next-generation sequencing (NGS) RNA expression profiling assays (e.g., RNA-seq). As a result, investigators can analyze and link distinct molecular changes to sub-populations of cells with distinct gene expression profiles and phenotypes, such as drug resistance. The additional step then, of incorporating these cell barcodes together with genetic effectors, such as CRISPR sgRNA libraries, makes it possible to tease out gene expression changes that result from specific genetic disruptions, and link these to the development of specific phenotypes. Cellecta will discuss work we are doing to develop this integrated platform that combines CRISPR sgRNA screens with single-cell genetic analysis.

INVITATION

DATE: 22 February 2019 (Friday)

TIME: 12.00 – 14.00

VENUE: DUKE-NUS, Level 4, Room 4D

RSVP: Lunch will be provided. Please RSVP before 20 Feb 2019 to Wendy Wong

Email address: enquiry@sagehealthcare.sg

ABOUT DR. ALEX CHENCHIK



Dr. Alex Chenchik is the President and Chief Scientific Officer of Cellecta, Inc. Previously, as vice president of R&D at System Biosciences (SBI), he developed a genetic screen technology with pooled lentiviral shRNA. As director of the Gene Cloning and Analysis (GCA) group at Clontech Laboratories, he headed efforts to develop microarray and disease-profiling arrays for expression profiling, PCR-based technologies for gene cloning, and a subtraction-based approach for discovery of differentially expressed genes.

Dr. Chenchik received his doctorate degree in Molecular Biology from the Institute of Molecular Biology, Moscow, Russia, and was a research scientist at the National Cardiology Research Center in Moscow. He has authored over 50 publications and is an inventor with more than a dozen issued patents.

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