CSCB Seminar Series

Title:

Mitochondrial chaperones in heme synthesis

Abstract:

Red cells synthesize large quantities of heme during terminal differentiation. Central to erythropoiesis are protein chaperones that can regulate the rate of heme synthesis. I will discuss two novel regulators of heme synthesis, FAM210B and CLPX. FAM210B is a novel mitochondrial protein that is required for of mitochondrial iron import during terminal erythroid differentiation. Rather than directly transporting iron, it is likely that FAM210B mediates mitochondrial iron import through interactions with heme-synthesis enzymes. The second protein, CLPX, is a mitochondrial unfoldase which is ubiquitously required for mitochondrial protein quality control. A novel mutation in CLPX that causes erythroporphyria ablates CLPX ATPase activity, but surprisingly manifests as a gain of function mutation that causes overproduction of protoporphyrin IX, resulting in porphyria. This work reveals an important regulatory node where the mitochondrial protein quality control machinery intersects with a key step in heme synthesis. The discovery of FAM210B and CLPX as adaptor proteins in the heme synthesis pathway reveals another layer of complexity in regulation of fundamental pathways in tissue-specific biology.

Date:
8 June 2017,
Thursday

Time:
3.00pm – 4.00pm

Venue:
Meeting Room 7C, Level 7
Duke-NUS Medical School
8 College Road, S169857
(Opposite Singapore General Hospital, Block 6/7)

Host:
Dr. FU Naiyang, PhD
Assistant Professor,
Programme in Cancer & Stem Cell Biology,
Duke-NUS Medical School

Speaker:



Yvette Yien
Assistant Professor
University of Delaware

Biography:

Yvette Yien earned her PhD from the Mount Sinai School of Medicine in 2011 where she studied transcriptional regulation in erythroid cells. She completed postdoctoral work at Harvard Medical School which was funded by an NIH fellowship, and promoted to Instructor in Medicine in 2015 upon receiving an NIH K01 award. At Harvard, Dr. Yien studied the mechanisms by which red cells augmented iron uptake and heme synthesis in order to meet their demands for hemoglobin synthesis. Dr. Yien will be starting her lab as an Assistant Professor in the Department of Biological Sciences at the University of Delaware in Aug 2017. Her research program will study the intersections between iron metabolism and cell differentiation, and examine how different cell types couple iron metabolism to their specific needs.

No registration is required. All are welcome
Any enquiry, please contact: Amanda Chan (Tel: 6601 5700)