TEMS

Temasek External Monthly Seminar

TEMASEK LIFESCIENCES LABORATORY

ALL ARE WELCOME

10 April 2017 (Mon), 3pm
The Auditorium (Level 1)

Hosted by: Dr Chak Li Ling

The biology of RNAi in flies and mammals: tales of sex and blood

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Eric Lai received his B.A. from Harvard College, where he did his undergraduate thesis research with Gary Ruvkun at MGH/Harvard. He then obtained his Ph.D. at UC San Diego with James Posakony and his postdoctoral training at UC Berkeley with Gerald Rubin. In 2005, he started his laboratory at Sloan-Kettering Institute (NYC) to continue his interests in unraveling gene regulatory strategies that control development, behavior, and reproductive tissues.

At the heart of RNA interference (RNAi) lies the catalytic activity of the effector protein Argonaute (Ago). This enzymatic function, sometimes known as "Slicer" function, has been conserved from archaebacteria to humans, and thus is the core of the RNAi. While RNAi has proven to be a very useful experimental technique, and is also known to defend against selfish genetic elements such as viruses or transposons, it remains largely unknown whether RNAi is utilized to control endogenous gene expression. I will discuss ongoing and unpublished work from the laboratory that seeks to understand how RNAi, that is the capacity of Ago to cleave RNA, is used in Drosophila and mouse systems. These studies lead us to very different biology in the testis and in the blood, respectively.

Recent Publications:

1. Wen, J., H. Duan, F. Bejarano, K. Okamura, L. Fabian, J. A. Brill, D. Bortolamiol-Becet, R. Martin, J. G. Ruby and **E. C. Lai** (2015). Adaptive regulation of testis gene expression and control of male fertility by the Drosophila hairpin RNA pathway. Molecular Cell 57: 165-78.
2. Bortolamiol-Becet, D., F. Hu, D. Jee, J. Wen, K. Okamura, C.-J. Lin, S. L. Ameres and **E. C. Lai** (2015). Selective suppression of the splicing-mediated microRNA pathway by the terminal uridyltransferase Tailor. Molecular Cell 59: 217-228.
3. Sanfilippo, P., P. Smibert, H. Duan and **E. C. Lai** (2016). Neural specificity of the RNA binding protein Elav is achieved by post-transcriptional repression in non-neural tissues. Development 143: 4474-4485.