College of Science and Engineering

Department of Biomedical Sciences

Seminar

Responsibility of Circadian Clocks on Neurodegenerative Diseases

Dr. Jin Young Kim

Assistant Professor

Department of Biomedical Sciences, City University of Hong Kong

Date: 29 September 2016 (Thursday)

Time: 12:00 nn – 1:30 pm (Reception with light sandwiches starts at 11:45 am. To facilitate the order of sandwiches, please register through email yyfung2222@cityu.edu.hk.)

Venue: B6605, Academic 1, City University of Hong Kong

Language: English

Abstract

Neurodegenerative diseases in the central nervous system (CNS) including Alzheimer's disease (AD), Parkinson's disease (PD), and multiple sclerosis (MS) affect millions of people worldwide. However, there is no cure yet because regeneration of the CNS neurons is extremely rare. Therefore, when neurodegeneration is diagnosed, it is important to stop the progress immediately. This will reduce further damages and provide a chance to keep and recover neuronal functions. Our works about molecular mechanisms of neurodegeneration and circadian clocks suggest a well-known transcriptional corepressor, histone deacetylase 1 (HDAC1), as a molecular linker between them. HDAC1 nuclear export was induced during neurodegeneration and resulted in a decreased level of HDAC1 in the nucleus. We also found that HDAC1 depletion disrupted circadian clocks which are built on a transcriptional negative feedback loop. Circadian clocks are endogenous oscillators and regulate thousands of gene expression to control diverse cellular processes and signaling pathways to drive daily biological rhythms. Therefore, disrupted circadian clocks can be involved in diverse human diseases through altered transcription. Recent numerous studies have reported disrupted circadian clocks in patients with PD, AD, and MS, but underlying mechanisms are still unknown. Therefore, our studies are the first examples to provide a molecular linker between neurodegeneration and circadian clocks and address how disrupted circadian clocks are involved in the progress of neurodegeneration.

Biography

Dr. Kim received her M.S. degree at SungKyunKwan University in South Korea, where she studied the role of aminoacyl-tRNA synthetase complex under the mentoring of Prof. Sunghoon Kim. Then, she moved to USA for her next step and obtained PhD degree from Department of Neuroscience and Cell Biology at Rutgers University in 2009. During this period, she discovered the novel mechanism of neurodegeneration under the guidance of Prof. Patrizia Casaccia, and her work was featured in several leading journals because of its new perspectives in the field. In 2010, she joined Prof. Charles J. Weitz lab in Department of Neurobiology at Harvard Medical School for her postdoctoral training. Her work about the regulatory mechanism of circadian clocks was also highlighted. In September 2015, she joined the Department of Biomedical Sciences at City University of Hong Kong as an assistant professor.

**** All ARE WELCOME ****

Enquiry: Prof. Ying Li, Department of Biomedical Sciences, City University of Hong Kong.
Tel.: 3442 2669, Fax: 3442 0549, Email: yingli@cityu.edu.hk
Prof. Stella Pang, Department of Electronic Engineering, City University of Hong Kong.
Tel.: 3442 7838, Fax: 3442 0562, Email: pang@cityu.edu.hk