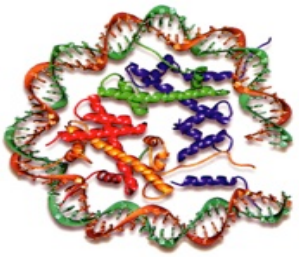
DSV Seminars 2018

UNIVERSITÀ DEGLI STUDI DI TRIESTE

DIPARTIMENTO DI SCIENZE DELLA VITA

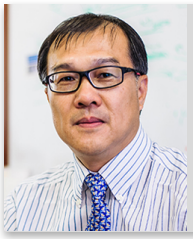
LABORATORIO NAZIONALE CIB

PhD Programs Molecular Biomedicine and JUMBO



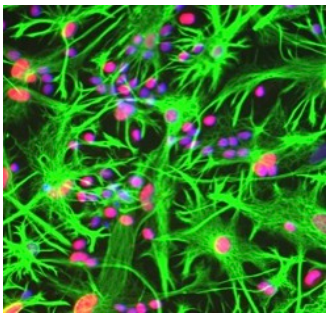
March 19, 2019 - 12:00

Lecture Hall, M Building
University of Trieste
Hosted by prof. G. del Sal

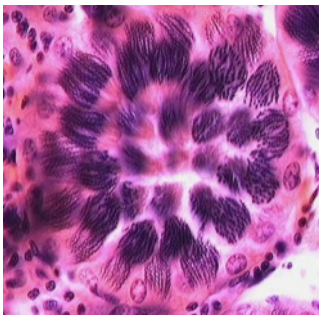


Prof. Yih-Cherng LIOU

Department Biological Sciences
National University of Singapore



Functional Conservation of Phosphorylation-Specific Prolyl Isomerases in different model organisms



Signalling pathways depend on attainment of proper activation levels that in turn rely on post-translational modifications (PTMs) of single pathway members. Among these PTMs, prolyl-isomerization by PIN1 represents a unique mechanism of spatial, temporal and quantitative control of signal transduction. Pin1 recognizes the phosphorylated Ser/Thr motif preceding a proline residue isomerizing the cis-trans conformation of prolyl-peptidyl bonds in its substrates resulting in the regulation of their biological functions. Pin1 is conserved from yeast to humans and studies performed in different model organisms suggest the existence of evolutionarily conserved molecular circuitries centred on this isomerase. In plants (Arabidopsis Thaliana), Pin1 controls flowering time and root gravitropism. In mammals, Pin1 has been shown to involve in Alzheimer disease, being functionally inactivated in patients, and in cancer, acting as an amplifier of oncogenic signalling pathways.
Dr LIOU's research interest is understanding how the prolyl isomerase regulates its targets by changing the conformation on the pSer/Thr-Pro motifs in plants and animals and human diseases.

Some research highlights of Prof. Yih-Cherng Liou's scientific activities

1. Demonstrate novel microtubule-associated proteins in chromosome oscillations.
2. Demonstrate roles of mitochondrial outer member proteins (ie. Fis1 and MiD51) in regulating mitochondrial dynamics and quality control.
3. First to generate and study Pin1 transgenic plants (*Arabidopsis Thaliana*) and other organisms.
4. First to demonstrate bio-physiological roles of the Pin1 prolyl isomerase in mammals .