Anchors weigh in on cytoplasmic dynein regulation

Date: 30th September, 2016
Time: 9 PM
Venue: TP Room

About the Speaker:

Ms. Vaishnavi Ananthanarayanan is an INSPIRE Faculty Fellow at Indian Institute of Science, Bengaluru, in biotechnology. She did both her BE (Hons.) in Computer Science and MSc (Hons.) in Biological Sciences at BITS Pilani Goa Campus. Then she went on to do her PhD at Max Planck Institute of Molecular Cell Biology and Genetics, in Germany.

Excerpt from the talk:

The speaker spoke in detail on the structure and function of cytoskeleton and on different types of cytoskeleton filaments. She spoke about how several key processes in the cell, such as vesicle transport and spindle positioning, are mediated by the motor proteins kinesin and cytoplasmic dynein, which move along the microtubule cytoskeleton. She explained these concepts using a video which depicted how microtubules act as intercellular highways (i.e. passage for the cargo to travel) and also as cables (as in pulling cable cars), pulled by dynein. Then she spoke about some techniques on single molecule tracking such as HILO microscopy, which uses the principle of total internal reflection (TIR).

For the functions that require movement of the centrosome and the associated nuclear material, dynein needs to have a stable attachment at the cell cortex. In fission yeast, Mcp5 is the anchor protein of dynein and is required for the oscillations of the horsetail nucleus during meiotic prophase. While the role of Mcp5 in anchoring dynein to the cortex has been identified, it is unknown how Mcp5 associates with the membrane as well as the importance of the underlying attachment to the nuclear oscillations and in essence, dynein activity. In mammalian cells, where a single cytoplasmic dynein is required for a myriad of functions in different stages of the cell, it is important that the activity of the motor be regulated.

Answering to question asked regarding internship, she said that she will be more than happy to have applicants for internship or project related work at IISC, Bangalore. She also mentioned that Bio Engineering Summer Training is a good summer internship program offered for those students who are interested in research work. On an ending note, she said that students should start off with projects right away since it helps them a lot in the future.

In a nutshell, it was an interactive and informative session.

By
M Mohith