



Donnelly Centre
for Cellular + Biomolecular Research
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Donnelly Seminar Series

“Surveying the centrosome landscape using super-resolutions imaging and functional proteomics”



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Donnelly Centre Red Seminar Room

Abstract:

The centrosome is the major microtubule-organizing center (MTOC) in animal cells. Centrosomes control a plethora of cellular processes including the organization of the interphase microtubule network, the assembly of the mitotic spindle and the formation of cilia/flagella. Mitotic cell division relies on the formation of a robust bipolar spindle, which mediates the accurate segregation of genetic material to daughter cells. In mitosis, two centrosomes need to be present, each organizing one of the two spindle poles. Numerical and structural centrosome aberrations can give rise to the formation of abnormal mitotic spindle and genome instability. In vertebrates, cilia fulfill diverse functions critical for embryonic development and the homeostasis of adult tissues. Therefore, defects in cilia biogenesis and function can lead to the onset disease, commonly referred to as ciliopathies including conditions such as blindness, infertility, obesity, mental retardation, situs inversus and polycystic kidney disease. In my presentation I will discuss our work using sub-diffraction imaging coupled with functional proteomics to generate a nanometer functional atlas of the human centrosome-cilium interface and discuss recent progress on our understanding of the molecular mechanism underpinning the assembly and function of these fascinating organelles.

Host: Dr. Liliana Attisano