

Psychiatry and Neuroscience Seminar Series 2022



Dr Constantinos **DEMETRIADES**

(Host T Galli)

Max Planck Institute, Cologne, Germany

The reciprocal interplay between nutrient sensing and secretory pathways defines cellular homeostasis

Friday, September 2nd, 2022, noon

Room D Levy, 102-108 rue de la santé - 75014 Paris & VISIOCONFERENCE

Dr Constantinos **DEMETRIADES**

Cell Growth Control in Health and Age-related Disease, Max Planck Institute, Cologne, Germany

Cell growth is a crucial and tightly regulated process. Cells uptake nutrients from their environment (such as amino acids, sugars, and lipids), and use them to synthesize various macromolecules, which they incorporate to increase their mass and grow. These mechanisms are of great importance, as dysregulation of growth can lead to life-threatening disorders, such as cancer and other age-related diseases. We make use of human, mouse and *Drosophila* cell lines, to identify evolutionarily conserved processes and to address multiple fundamental questions: How is cell growth regulated in normal cells? How does its dysregulation contribute to the development of age-related disease? How do cells sense the presence or absence of nutrients, to regulate growth? How is information from multiple diverse signals integrated to regulate TSC/mTOR? How are these protein complexes regulated in a spatiotemporal and tissue-specific manner? Our research aims to elucidate existing and novel molecular mechanisms of cell growth control, mainly via regulation of the TSC and mTOR complexes, and to identify and functionally characterize novel components / regulators of these complexes, focusing on their putative implementation as new targets for drug development.

Keywords:

**Omics approaches, molecular biology, biochemistry
and high-resolution microscopy techniques**

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