

Università degli Studi di Padova



Martedì **14 maggio 2019** alle ore **14:00** presso l'aula G del Centro Interchimico, via Marzolo 1

II Dr. Gabriele Giachin

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terrà il seminario dal titolo:

ECSIT Plays an Essential Role for the Mitochondrial Complex I Assembly (MCIA) Complex Formation

ECSIT (Evolutionarily Conserved Signaling Intermediate in Toll pathways) was originally identified as a highly conserved TRAF6-binding protein implicated in innate immune system response. ECSIT has also been described as a mitochondrial oxidative phosphorylation (OXPHOS) complex I (CI)-assembly factor. In the mitochondria, ECSIT predominantly functions in concert with two assembly factors, namely ACAD9 (Acyl-CoA Dehydrogenase family member 9) and NDUFAF1 (Complex I intermediate-associated protein 30), as part of a central CI assembly complex, the mitochondrial CI assembly (MCIA) complex (Figure 1). The crucial role of MCIA complex is supported by the existence of human CI deficiency -i.e. the most commonly observed mitochondrial disorder associated with mitochondrial

dysfunctions- in patients harboring mutations in genes encoding components of this complex [1]. How the MCIA factors function to promote CI assembly and stability is not know yet. Here, we present the first biochemical and structural characterization of the human MCIA complex mainly by Small angle X-ray Scattering, (native) Mass Spectroscopy and cyro-Electron Microscopy approaches. We show that ECSIT recruits ACAD9 forming a hetero-tetrameric complex. Overall, our structural biology study identifies ECSIT as essential "hub" for the assembly of CI assembly factors, which are instrumental for mitochondria functions in health and disease.

[1] G. Giachin, et al., (2016) Front Mol Biosci 3, 43.



Model of the molecular assembly of the MCIA complex and its role in the assembly of the CI.

La presenza della S. V. sarà molto gradita

Il Direttore del Dipartimento Michele Maggini

Roberto Battistutta