ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

DIPARTIMENTO
DI FARMACIA
E BIOTECNOLOGIE

AVVISO DI SEMINARIO

Il giorno **16 febbraio 2026**
alle ore **10.00**

Prof.ssa Erika Fernandez-Vizarra

Professoressa Associata in Biochimica, Università di Saragozza, Spagna
(ospite della Prof.ssa L. Iommarini)

terrà un seminario in lingua inglese dal titolo:

Modulation of the OXPHOS system by mitochondrial membrane potential and ion fluxes

Area tematica: Neuroscienze

in presenza:
Aula Farbiomot Via Selmi 3, Bologna

e in streaming:
https://teams.microsoft.com/l/meetup-join/19%3aN09c0NIyEssBnF7ObCyDOQwkgDWm1qdd9f7F2nJV9fw1%40thread.tacv2/1631519544944?context=%7b%22Tid%22%3a%22e99647dc-1b08-454a-bf8c-699181b389ab%22%2c%22Oid%22%3a%225a941351-ef41-4aa4-8771-fa50a6d62ca1%22%7d

Seguirà il seminario «**Deciphering the role of TMEM65 in respiratory Complex I biogenesis**» tenuto dalla Prof.ssa L. Iommarini e la discussione e disseminazione dei risultati del progetto
«**Biochemical mechanisms and cellular consequences of mitochondrial cation flux: from bioenergetics to metabolic rewiring» - COFIN-PRIN 2020**
Codice progetto: 2020RRJP5L_004; CUP J33C22000060001
(PI Prof.ssa A.M. Porcelli)

ABSTRACT

Mitochondrial oxidative phosphorylation (OXPHOS) is tightly regulated by ion fluxes that shape the electrochemical properties of the inner mitochondrial membrane. Central to this control is the mitochondrial membrane potential (Δψm), a major component of the proton motive force generated by the electron transport chain. Δψm drives ATP synthesis and governs the movement of ions across the inner membrane. While proton flux establishes Δψm, the coordinated transport of K^+, Na^+, and Ca^{2+} fine-tunes its magnitude and stability. Calcium uptake links energetic demand to ATP production, whereas potassium cycling influences matrix volume and cristae organization, indirectly affecting respiratory efficiency. Controlled modulation of Δψm prevents excessive reactive oxygen species formation and supports metabolic flexibility.

BIOGRAPHICAL SKETCH

Erika Fernandez-Vizarra is a Spanish biochemist and mitochondrial biologist. She earned her degree in Chemical Sciences from the University of Zaragoza and completed her PhD in Biochemistry and Molecular and Cellular Biology there in 2005, focusing on the regulation of mitochondrial DNA expression. After her doctorate, she pursued postdoctoral research on mitochondrial disease genes at the Istituto Neurologico “C. Besta” in Milan. She later established her own research group on mitochondrial pathologies at the Institute of Health Sciences of Aragon. From 2013 to 2020 she was a Senior Investigator Scientist at the Mitochondrial Biology Unit in Cambridge, UK, leading work on cellular models of mitochondrial diseases. Following a research period at the University of Glasgow, she held a position as Researcher at the University of Padua. Currently, she is Associate Professor at University of Zaragoza, where her research focuses on the molecular mechanisms underlying mitochondrial disease, with a particular focus on OXPHOS complexes and supercomplexes assembly.