ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

DIPARTIMENTO
DI FARMACIA
E BIOTECNOLOGIE

AVVISO DI SEMINARIO

Il giorno **8 luglio 2025**
alle ore **11.00**

Dr. Michele Brischigliaro

Postdoctoral Research Associate
Department of Neurology, University of Miami - Miller School of Medicine (FL, USA)
(ospite del Prof. Giovanni Perini)

terrà un seminario in lingua inglese dal titolo:

Emerging mechanisms of human mitochondrial translation regulation

Area tematica: Molecular Genetics

in presenza:
Aula 1 SCIENZE FARMACEUTICHE, via Belmeloro6, 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

L' evento è organizzato nell'ambito del Corso di Dottorato in Biologia Cellulare e Molecolare

ABSTRACT

Translation of mRNA into protein marks the final step of gene expression, converting genetic information into functional components of the proteome. This process is tightly regulated to adjust protein levels across diverse biological contexts. While translation regulation has been extensively studied in viral, prokaryotic, and eukaryotic systems, the molecular mechanisms underlying mitochondrial translation remain less understood. In mitochondria, translation must be precisely controlled to manage the synthesis of hydrophobic proteins encoded by the organellar genome, ensuring their proper membrane insertion, accumulation, and assembly into oxidative phosphorylation (OXPHOS) complexes. Disruptions in this regulatory process are increasingly linked to human diseases, particularly those of genetic origin, such as mitochondrial disorders. Our work reveals how mitochondrial translation is regulated through a complex interplay between mRNA secondary structures and specialized translation factors, which together ensure the timely production, folding, and assembly of proteins into macromolecular complexes.

BIOGRAPHICAL SKETCH

Dr. Michele Brischigliaro is a Postdoctoral Research Associate in the Department of Neurology at the University of Miami, Miller School of Medicine (FL, USA). His research centers on the genetics of mitochondrial diseases and the core molecular mechanisms that govern mitochondrial biology. He obtained his PhD from the University of Padua (Italy) under the supervision of Prof. Rodolfo Costa. During his PhD, he investigated the molecular mechanisms underlying newly identified mitochondrial disorders associated with impaired assembly of the oxidative phosphorylation (OXPHOS) complexes. His work involved the development and characterization of novel *Drosophila melanogaster* genetic models to study mitochondrial disorders in vivo. During his PhD, he also trained at the MRC Mitochondrial Biology Unit at the University of Cambridge (UK) under the supervision of Prof. Massimo Zeviani, where he expanded his expertise in cellular models of mitochondrial disease. Over the course of his career, Dr. Brischigliaro's research has progressed from studying the biogenesis and assembly of the OXPHOS system in health and disease, to investigating the fundamental and disease-related mechanisms governing the expression of the mitochondrial genome. His current work in the laboratory of Prof. Antoni Barrientos explores how mitochondrial gene expression is regulated and coordinated with the biogenesis of the respiratory chain, uncovering how disturbances in these tightly linked processes contribute to human pathology. By integrating molecular genetics, model systems, and advanced biochemical approaches, his goal is to gain a deep understanding of the molecular basis of mitochondrial disorders and uncover fundamental mechanisms that may inform future therapeutic strategies.