

Technical workshop in Genetic and bioenergetic analysis of mitochondrial DNA mutations

University of Bologna, May 13-16, 2019

	May 13	May 14	May 15	May 16	Description
09:00-10:30	introduction to mitochondrial genetic methodologies	bench time - nucleic acid extraction / mtDNA PCR / Fluorescent PCR/mtDNA sequencing	data analysis (mtDNA mutation analysis including heteroplasmy evaluation)		The students will be acquainted with the molecular techniques for analysis of mtDNA variants. Upon completing the workshop, the attendees should be capable of mtDNA identification, quantification (heteroplasmy evaluation) and functional annotation of identified variants.
10:45-12:45	in silico assay design for mtDNA mutation identification/quantification				
13:00-14:00	free LUNCH	free LUNCH	free LUNCH		
14:00-18:00		Determination of ATP synthesis rate in mtDNA wild type and mutant cells (chemiluminescent assay))	Determination of mitochondrial membrane potential in mtDNA wild type and mutant cells (live imaging technique	Data analysis (ATP synthesis rate, mitochondrial membrane potential).	The students will learn the biochemical techniques to determine the functional effects of mtDNA variants. Upon completing the workshop, the attendees will be able to measure ATP production from different respiratory complexes and to evaluate the contribution of respiratory complexes in the maintenance of mitochondrial membrane potential.