Dottorato di ricerca in Scienze Veterinarie [XXXIII] CICLO - Anno di corso: [1°]

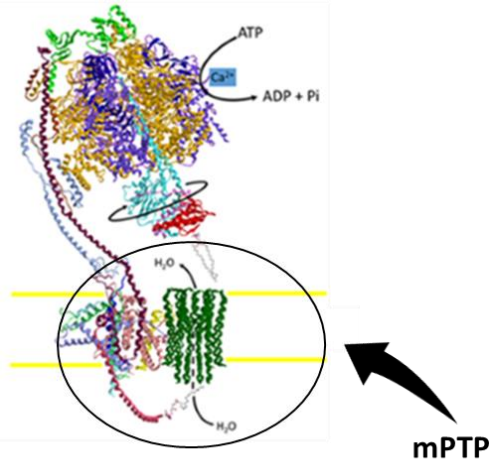
Dott.ssa Ilaria Troisio **Curriculum:** Scienze di Base

Supervisor: Dott.ssa Nadia Govoni **Cosupervisor(s):** Prof.ssa Maria Lura Bacci, Prof. Salvatore Nesci

Study of cardiac functionality, biomarkers and physiological parameters predictive of transplantability in a porcine ex vivo model of donation after cardiocirculatory death (DCD) heart

Objective Test the possible protective effect of **IO-SMPs** (inside-out submitochondrial particles) on one of the earliest cardiomyocytes degeneration borne by mitochondria on the **F_1F_o-ATPase complex**. The target complex is considered responsible for the opening of a channel though the inner membrane called **mPTP** (mitochondrial permeability transition pore) that initiates cascade events leading to cell death.

Materials and Methods IO-SMPs have been isolated from mitochondria of 3 swine hearts, to test their action on an ex-vivo porcine model (3 DCD hearts), especially on Oxidative Phosphorylation, evaluated by a Clark- type electrode using a thermostated Oxytherm System, and on an indirect index of mPTP opening with Spectrofluorophotometry analysis.

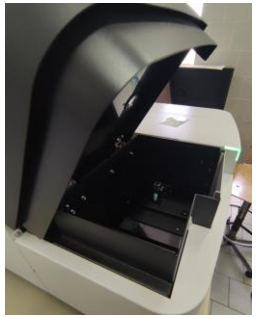


Results Studies are currently ongoing, but the preliminary results show that:

<u>IO-SMPs are capable of delaying the mPTP opening</u>

Conclusions This is a first step towards an in-depth characterization of the physiological process activated by a prolonged warm ischemia within mitochondria.

Future Proposal Increase knowledge on DCD cardiomyocytes' metabolism using the Seahorse XFp analyzer and Mitochondrial F-ATPase Activity with spectrophotometrically evaluation.



References:

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ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA
DIPARTIMENTO DI SCIENZE MEDICHE VETERINARIE