



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

DIPARTIMENTO
DI FARMACIA
E BIOTECNOLOGIE

AVVISO DI SEMINARIO

Il giorno **4 Giugno 2024**
alle ore **14:00**

Prof. Noah Moruzzi

Assistant Professor at the Dep. of Molecular Medicine and Surgery (MMK)
Karolinska University/Hospital, Stockholm, Sweden

(ospite del prof. Christian Bergamini)

terrà un seminario in lingua inglese dal titolo:

**Obesity-related metabolic disorders:
a focus on endocrine pancreas and liver by
in vivo imaging in the anterior chamber of
the mouse eye**

Area tematica:
Biochemistry

in presenza:

Aula 1, via Belmeloro 6, Bologna BO

Collegli e studenti sono cordialmente invitati

ABSTRACT

Obesity-related disorders such as metabolic associated fatty liver disease (MASLD) and type 2 diabetes mellitus (T2DM) experience a steady increase in prevalence mainly due to dietary habits and decreased physical activity. Like in humans, a T2DM phenotype can be recapitulated in mouse due to the development of fatty liver as consequence of diet rich in fat. Contrarily, primary insulin release due to diets rich in sugars and fat will cause secondary insulin resistance in the liver and MASLD development. Even if the result is similar, the mechanism by which these two organs communicate in those circumstances is difficult to study due to lack of continuous noninvasive monitoring platforms at cellular resolution.

Our lab showed that the anterior chamber of the eye (ACE) is a suitable transplantation site for islets of Langerhans in experimental models of T2DM where they mirror properties and function of in situ pancreatic islets and which serve as reporter islets. Recently, we have established and characterized a platform for noninvasive and longitudinal in vivo imaging at cellular resolution of 3D liver spheroids which preserve liver-like features in the ACE. Thus, this model allows us to study pancreatic islets, liver-like tissue and their crosstalk to uncover new aspects of organ physiology and pathology during development of metabolic disorders.

Hence, our overall ambition is to find mechanisms and to design novel strategies to settle the so far unmet scientific/clinical problems currently associated with MAFLD and T2DM disease development.

BIOGRAPHICAL SKETCHES

As a doctoral student with Prof. Kerstin Brismar, I focused on the regulation of metabolism by pathological glucose levels on human primary cells and oxygen tension in pancreatic islets. Moreover, in a 3-years period at the Helmholtz Munich, I worked on how cell metabolism affects the primary cilium in vitro and in diabetic mouse models. During this period, I participated in several exciting collaborations which gave me a great experience to work in teams. A brief experience outside academia showed me that research was my passion. Meanwhile, I was fortunate to receive a NovoNordisk postdoctoral fellowship where in the following 3 years I investigated the mechanisms of insulin receptor isoform changes in obese and diabetic mice under the supervision of Dr. Ingo Leibiger in the laboratory of Prof. Per-Olof Berggren. Moreover, I followed some projects on diet-induced diabetes which reconnected with my main expertise on metabolism and nutrition. My long-term research goals involve building an independent research group and developing a comprehensive understanding of the early dysregulation during type 2 diabetes development to identify new intervention strategies to prevent or arrest the disease.