

March 22nd, 12pm, BMB Seminar Room

**New evidence of Insulin-like growth factor 1 system,
isoforms and their biological roles**

**Seminar by Prof. Giosuè Annibalini, PhD
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**Host: Paolo Ceppi
Section of Translational Biology, BMB**

Research Summary:

The activity of research of Dr. Annibalini is focused on the molecular mechanism underlying the health benefits of exercise, with particular interest in the exercise-induced regulation of inflammation and IGF-1 -related signaling pathways.

IGF-1 is an important factor that regulates a variety of cellular responses in multiple biological systems. The IGF-1 gene comprises a highly conserved sequence and contains six exons, which give rise to heterogeneous mRNA transcripts through a combination of multiple transcription start sites and alternative splicing. These multiple transcripts encode different IGF-I precursor polypeptides, namely the IGF-IEa, IGF-IEb, and IGF-IEc isoforms in humans, which also undergo post-translational modifications, such as proteolysis and glycosylation. My research demonstrated that disordered E-domains have distinct regulatory functions on IGF-1 prohormones production. In particular, N-glycosylation status of Ea-domain regulates the stability and secretion of IGF-1Ea prohormone and mature IGF-1. The biomolecular methodology developed by Dr. Annibalini allowed the analyses of the IGF-1 pool components in different cellular systems and models such as spheroids of tumor models, in cellular models of muscle differentiation and in the context of N-associated glycosylation diseases such as congenital disorder of glycosylation (CDG) in which the prohormone of IGF-1 is also involved.

De Santi M, Annibalini G, et al., J Cancer Res Clin Oncol. 2023 Sep;149(11):8639–8648.

Di Patria L, Annibalini G. et al., Cell Mol Life Sci. 2022 Feb 24;79(3):150.

Annibalini G. et al., Sci Rep. 2018 Jun 11;8(1):8919.