Al collegio docenti del Dottorato in Medicina Molecolare

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Ciclo XXXVI° Tutor: Prof.ssa Antonella Naldini

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Introduction
Dendritic Cells (DCs) are antigen presenting cells. Since they are required to migrate toward lymphoid organs, inflammatory areas and tumour microenvironment (TME), which are characterized by low oxygen tensions, DCs are frequently exposed to hypoxia. RNASET2 is a ribonuclease T2 family member that exerts a crucial role in the TME.

Methods
Human monocyte-derived DCs were isolated from buffy coats and were exposed to hypoxia (2% O2). DC viability was assessed by LIVE/DEAD assay, Fluorescein assay, JC-1 assay. The autophagic flux was evaluated by Lysotracker staining, Western Blot, confocal analysis. RNASET2 expression and secretion were assessed by Western Blot, qRT-PCR, ELISA.

Results
Our results showed that hypoxia enhances RNASET2 expression and secretion. The involvement of the PI3K/AKT pathway in RNASET2 regulation has been demonstrated in both immature and mature (lipopolysaccharide stimulated) DCs. PI3Ks were also involved in autophagy induction in hypoxic DCs: SAR405, a class III PI3K inhibitor, abolished autophagy.

Seminars attended:
"Studio della complessità cerebrale attraverso la dissezione e l'analisi single-cell" Elena Cattaneo 22-01-21
"Control of Ca2+ in the heart: free and beyond" David Eisner 14-01-21
"Connexin43 hemichannels and intracellular calcium: An axis of dysfunction in sudden cardiac death" Mario Delmar 19-01-21
"Life science: amazing professors at Meiji University in Tokyo" 26-11-20
"Western Blotting University: Courses designed to make you a western blotting expert" BioRad 19, 20, 21, 22, 23-04-21

Publications:
Monaci, S., Coppola, F., Giuntini, G., Roncoroni, R., Acquati, F., Sozzani, S., Carraro, F., Naldini, A. (2021). Hypoxia Enhances the Expression of RNASET2 in Human Monocyte-Derived Dendritic Cells: Role of PI3K/AKT Pathway. International Journal of Molecular Sciences, 22(14), 7564. (I.F. 5.923).