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Intercellular communication mediated by exosomes as a new therapeutic target for pancreatic cancer

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Pancreatic cancer (PDAC) represents one of the most lethal cancers mainly due to a lack of reliable therapeutic options. Cell communication, in spite of playing a major role in tumor progression, is still off the cancer therapy landscape. Exosomes, extracellular vesicles derived from the endocytic pathway, are an important cell-to-cell communication system with neighbor/distant cells. Our main aim is to study the role of exosomes biogenesis during PDAC progression and understand if cancer exosomes biogenesis could be a new therapeutic target in PDAC. Rab GTPases are crucial proteins in exosomes biogenesis and are involved in all stages of the endocytic pathway. We show that during PDAC progression Rab-5, -7, -27a and -27b are differently expressed. Increased expression of Rab-27a and -27b correlates with an increase in exosomes number, and these features are associated with a more aggressive phenotype. Additionally, when treated with, the standard care chemotherapeutic for PDAC, cancer cells change their exosomes biogenesis pattern, increasing exosomes release. Finally, we are using an inducible and conditional genetically engineered Rab27a knockout mouse model that spontaneously develops PDAC, to study the role of exosomes and its biogenesis in disease progression and therapy response, evaluating exosomes-mediated communication as a new therapeutic option in PDAC.

Biography

Nuno Bastos has completed his BSc in Biochemistry in 2014 and MSc studies in Medicine and Molecular Oncology, last year, both in Porto University. During the BSc and MSc studies he was in Porto´s IPO researching the role of microRNAs in therapy response and resistance in renal cell carcinoma and its aplicability as biomarkers. Recently, he joined the Genetic Dynamics of Cancer Cells at I3S aiming to perform a PhD under the supervision of Professor Sónia Melo.

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