

19th Euro Congress on Cancer Science and Therapy & 25th Cancer Nursing & Nurse Practitioners Conference

July 17-19, 2017 Lisbon, Portugal

ExoNet - Intratumor communication network mediated by exosomes in pancreatic cancer

Carolina F Ruivo

University of Porto, Portugal

Tumors are known to be heterogeneous, containing different cell types with distinct genetic and phenotypic features. Pancreatic cancer is a well-known example of tumor heterogeneity, showing a hierarchical organization of subpopulations with different tumorigenic potential. Intercommunication between tumor subpopulations is the key to development, progression and metastasis processes. Recent evidence shows that exosomes are important mediators of intercellular communication both at local and distant sites. If and how exosomes play a role in subpopulation communication is still unknown. In our work we have identified five subpopulations of pancreatic cancer cells based on cell surface markers which discriminate cells with different tumorigenic and self-renewal capacity. Using stable clones of cancer cells that express exosomes markers fused with fluorescent reporter proteins and secrete color-coded exosomes, we have studied the flow of exosomes between distinct subpopulations of cancer cells. Here we show that subpopulations of cancer cells communicate with each other via exosomes through an organized dynamic communication network (ExoNet). The presence of multicolor positive cells showed that exosomes are exchanged between different cancer cell subpopulations forming distinct routes of communication. The ExoNet reshapes in the presence of therapy to allow the tumor to respond and overcome the challenge. We have demonstrated that subpopulations of cancer cells communicate between them in a non-random manner using exosomes, and form a dynamic network of communication, which conveys the tumor with plastic properties that allows it to adapt in response to therapy.

Biography

Carolina F Ruivo has completed her Master's in Biomedical Engineering from IST, Lisbon in collaboration with University of Twente, Netherlands. Currently, she is working on a pre-doctoral project about the role of exosomes in tumor heterogeneity at Professor Sonia Melo's Lab, Genetic Dynamics of Cancer Cells Group at University of Porto, Portugal.

cruivo@ipatimup.pt

Notes: