





JOINT TRANSNATIONAL CALL 2017: "Translational Research on Rare Cancers"

PARTNER REQUEST/COLLABORATION OFFER

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YES



SEARCH FOR A COLLABORATOR

IF YOU ARE LOOKING FOR A PARTNER IN YOUR SUGGESTED PROPOSAL, PLEASE SPECIFY ALSO THE NEEDED EXPERTISE

Project proposal

Project title (draft):

Short description of the project in preparation and of the consortium; description of the areas of expertise needed (Max. 2000 words):

The role of exosome-derived microRNAs as potential diagnostic and prognostic biomarkers in therapeutic monitoring for cancers.



OFFER FOR COLLABORATION

IF YOU PROPOSE YOURSELF AS A PARTNER IN A CONSORTIUM, PLEASE DETAIL YOUR EXPERTISE

Short description of the areas of interest and expertise (Max. 2000 words):

Both normal and cancer cells release membrane-bound exosomes (with an average diameter of between 30 and 100 nm) into the extracellular space and body fluids. Exosomes represent an exciting area of biomarker research (DNA, a variety of RNA species mainly miRNAs and proteins), as their contents are a wealth of information on the state of their cell of origin and function in biological processes and they are present in a multitude of body fluids, including blood, semen, and saliva.

This bioactive molecules are transferred from donor cells to target cells, leading to reprogramming of the target cells. Therefore, the specific exosomes secreted by tumor cells that contain the biomarkers can be used to predict the existence of cancer patients. Nevertheless, exosomes represent not only very promising candidate markers for cancer diseases but a potential therapeutic opportunity as well.

One of the therapeutic strategies of exosome is the inhibition of onco-miRNAs' expression by delivery of specific miRNA antagonists such as anti-miRNAs. Exosome loaded with therapeutic anti-miRNA oligonucleotides complementary to the sequence of the targeted mature oncogenic miRNAs can be delivered either systemically or through local injection into the tumor. Another therapeutic strategies is the removal of exosomes from the body circulatory system or to prevent the fusion or uptake of exosomes by target cells to inhibit tumorigenesis.

Exosome derived miRNA research is highly dynamic and promises novel approaches to cancer patient diagnostics as well as therapy. Exosomes provide an enormous promise and a fresh therapeutic are for delivery of different synthetic and biological molecules in cellular therapy. Exosomes are perfectly biocompatible, they reduced toxicity and immunogenicity, display great stability in body fluids and can be loaded with specific molecules to targeted cells in cancer treatment.

We aim to develop:

1. More sensitive, fast and effective method for isolating exosomes from blood plasma samples.
2. Analysing miRNA profiles of normal and cancer samples.
3. Providing a strategy for the prevention, early diagnosis and treatment of cancer.

