JOINT TRANSNATIONAL CALL 2016:

"Minimally and non-invasive methods for early detection and/or progression of cancer"

PARTNER REQUEST/COLLABORATION OFFER

If you would like to have your profile published on the TRANSCAN-2 website, "Looking for a research partner" webpage, please fill out this form and send it to ✉
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***I agree with the publication of my contact data and of this form on the TRANSCAN-2 Website:**

☑ 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):

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):

Our group has a broad background in cellular and molecular biology and a longstanding familiarity in manipulating genes, microRNAs and hypoxia in hematopoiesis and acute myeloid leukemia (AML). Particularly, we have expanded our research to include: *a)* microRNAs as regulators of target genes involved in metastatic dissemination, growth and survival of cancer cells, and *b)* hypoxia, which has emerged as a key component of the microenvironment of cancer and leukemia.
Whether genetic diagnosis through identification of chromosomal translocation and/or fusion gene remains mandatory for patient eligibility to be continued on treatment, such as for example ATRA or ATO-based treatment in a subgroup of AML (APL), additional markers with prognostic significance are needed to identify clinical characteristics of AML patients for a better prognostic evaluation and for a more appropriate therapeutic approach. Furthermore, the aggressive kinetics of relapsing AML underscores the need for improved early detection of residual disease after induction chemotherapy. In this context, microRNAs have attracted attention as a potential source of novel AML biomarkers, and microRNA expression profiles have been associated with AML subtypes, mutations, and overall survival.
Exosomes, which are small, membrane-enclosed extracellular vesicles, are directly secreted by AML blasts, carrying a select panel of cellular microRNAs and proteins; they can be isolated from many body fluids, including plasma and serum, providing potential advantages in both sensitivity and specificity over conventional biomarkers based on direct measures of plasma-associated microRNAs. Then, exosome microRNAs can be identified and investigated as a marker of AML disease burden.
Our expertise in microRNAs manipulation and leukemic and cancer cell cultures has recently been extended to anti-tumor treatments, including drugs that inhibit HIFs (hypoxia-inducible factors) recently identified and validated as anticancer agents. By using anti-HIF drugs we have demonstrated the impact of hypoxia in the regulation of microRNA and target genes involved in migration or adhesion of leukemic cells.
From this perspective and bringing our expertise, as well as the experimental tools developed for the manipulation of microRNAs in leukemic cells, our group would like to contribute to a consortium interested in identifying new biomarkers of prognosis, such as microRNAs or exosome microRNAs, in AML or in myelodysplastic syndrome (MDS) that can transform into AML, a phenomenon that is accompanied by a deregulation of microRNA processing.

In our Institute several specific facilities, shared by Departments and Centers, are available: a Cytometry facility, the Cell factory FaBioCell, a Confocal Microscope facility, a Proteomics facility and Scientific computing.

Selected Publications:

- *Oxidative stress and hypoxia in normal and leukemic stem cells*. Testa U, Labbaye C, Castelli G, Pelosi E. Exp Hematol. 2016;44(7):540-60.
- *Differential hypoxic regulation of the microRNA-146a/CXCR4 pathway in normal and leukemic monocytic cells: impact on response to chemotherapy.* Spinello I, Quaranta MT, Paolillo R, Pelosi E, Cerio AM, Saulle E, Lo Coco F, Testa U, Labbaye C. Haematologica. 2015;100(9):1160-71.

- *Human TM9SF4 Is a New Gene Down-Regulated by Hypoxia and Involved in Cell Adhesion of Leukemic Cells.* Paolillo R, Spinello I, Quaranta MT, Pasquini L, Pelosi E, Lo Coco F, Testa U, Labbaye C. PLoS One. 2015;10(5):e0126968.
- *miR-146a controls CXCR4 expression in a pathway that involves PLZF and can be used to inhibit HIV-1 infection of CD4(+) T lymphocytes.* Quaranta MT, Olivetta E, Sanchez M, Spinello I, Paolillo R, Arenaccio C, Federico M, Labbaye C. Virology. 2015; 478:27-38.
- *The emerging role of MIR-146A in the control of hematopoiesis, immune function and cancer.* Labbaye C, Testa U. J Hematol Oncol. 2012; 5:13.
- *MicroRNA-146a and AMD3100, two ways to control CXCR4 expression in acute myeloid leukemias*. Spinello I, Quaranta MT, Riccioni R, Riti V, Pasquini L, Boe A, Pelosi E, Vitale A, Foà R, Testa U, Labbaye C. Blood Cancer J. 2011;1(6):e26.
- *The miR-15a-miR-16-1 cluster controls prostate cancer by targeting multiple oncogenic activities.* Bonci D, Coppola V, Musumeci M, Addario A, Giuffrida R, Memeo L, D'Urso L, Pagliuca A, Biffoni M, Labbaye C, Bartucci M, Muto G, Peschle C, De Maria R. Nat Med. 2008;14(11):1271-7.
- *A three-step pathway comprising PLZF/miR-146a/CXCR4 controls megakaryopoiesis.* Labbaye C, Spinello I, Quaranta MT, Pelosi E, Pasquini L, Petrucci E, Biffoni M, Nuzzolo ER, Billi M, Foà R, Brunetti E, Grignani F, Testa U, Peschle C. Nat Cell Biol. 2008;10(7):788-801.