HUMAN TIE2-EXPRESSING MONOCYTES (TEMs)

The present invention relates to a new cell type identified and characterized for the first time in human peripheral blood and cancer, called Tie2-expressing monocytes (TEMs). These cells:
1) are a subset of monocytes with features, such as the expression of a characteristic combination of surface markers, only in part overlapping with their mouse counterpart;
2) are distinct from classical proinflammatory cells,
3) are preferentially recruited to tumors,
4) display marked proangiogenic activity.
Circulating huTEMs are a distinct monocyte population endowed with tissue remodelling and migration ability. These Tie2-expressing monocytes markedly promote angiogenesis in xenotransplanted human tumours. In human cancer patients, TEMs were observed in the blood and were specifically recruited to the tumours, where they represented the main monocyte population, distinct from tumour-associated macrophages (TAMs). In vitro, TEMs migrated towards Angiopoietin-2, a TIE2 ligand released by activated endothelial cells and angiogenic vessels, suggesting a homing mechanism for TEMs to tumours (Venneri et al., Blood 2007 Feb 27).

Main Advantages of the offer
Human TEMs may provide a novel, biologically relevant marker of angiogenesis and represent a previously unrecognized target of novel anticancer as well as antiangiogenic therapies. Furthermore, TEMs can be used as gene delivery vehicles in the setting of an autologous bone marrow transplant or adoptive transfer.

Partners profile
Fondazione Telethon is seeking commercial partners interested in therapeutics, diagnostics and/or prognostics in the field of tumor and angiogenesis. These cells could be used as:
- diagnostic markers for some cancer/angiogenic phenotype
- carriers for anti cancer/anti angiogenic therapies
- targets for anti cancer/ anti angiogenic therapies
- gene delivery tool

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