Circulating Endothelial Cells evaluation in Healthy Calabrian Population

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Circulating endothelial cells (CECs), which are thought to derive from damaged vasculature, may be such a marker. Appropriate enumeration of these cells appears to be a technical challenge. Nevertheless, first studies using validated CECs assays have shown difficult in developing a specific and reproducible method of assessing endothelial damage/dysfunction. Because of this low number, enrichment steps are applied in several approaches, which inevitably leads to cell loss and underestimation of the actual CECs number. Next to proper sampling, thorough analysis of enrichment efficacy, reported in terms of purity and recovery is therefore mandatory before using such assays based on enrichment in the clinic. The SCENIC network has provided useful suggestions on how such a validation might be performed in practise. Inside the SCENIC network, our contribute has consited in the CECs analysis and characterization in patients of Calabrian origin. We have enrolled healthy subjects for the collection of peripheral, bone marrow and cordonal blood samples. Our results have contributed to define the final standardization procedure of blood sampling, analysis and preservation of the sample. Moreover, we have redesigned the hierarchy flux of endothelial differentiation pathway following the dynamic antigenic changes occurring on endothelial cells surface, during their stay within bone marrow, cordonal and peripheral blood. Finally, through a comparative study between the CECs data obtained analysing North and South of Italy, we highlighted that the EPCs value can be considered as potential predictive biomarker of metabolic syndrom an high risk factors for the development of cardiovascular and tumoral disease.