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Phenotypic and functional characterization of endothelial progenitor cells isolated from peripheral blood of renal cell carcinoma patients

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Endothelial progenitor cells (EPCs) are mobilized from either bone marrow or arterial walls to restore blood perfusion to ischemic organs and establish the vascular network within growing tumors [1]. The Ca^{2+} machinery plays a key role in EPC activation and might serve a molecular target for novel therapies of highly angiogenic tumors, such as renal cell carcinoma (RCC) [1]. The Ca^{2+} toolkit is remodelled in EPCs isolated from RCC patients (RCC-EPCs) as respect to healthy donors [2]. The present study was undertaken to evaluate for the first time the functional properties of EPCs isolated from tumor patients by focusing on RCC-EPCs. We extended our analysis at microscopic level by monitoring the sub-cellular structure of RCC-EPCs relative to their Ca^{2+} signalling fingerprint. Our results showed a striking functional and ultrastructural difference between RCC-EPCs and their normal counterparts, which might be the basis for designing novel, more specific anti-angiogenic treatments.

References

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