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Ultrastructural and functional differences between normal and tumor endothelial progenitor cells

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Endothelial progenitor cells (EPCs) may be released from bone marrow to sustain the angiogenic switch that promotes tumor growth and metastatization of several solid cancers (Moccia et al., 2014). It has long been thought that tumor endothelium represents a rather stable structure, devoid of the genetic heterogeneity featuring neoplastic cells; however, more recent studies showed that tumor endothelial cells (TECs) present with an altered gene expression profile that bestows massive morphological and functional differences on them as compared to normal cells (Aird, 2012). Similarly, circulating EPCs isolated from individuals suffering from metastatic renal cellular carcinoma (mRCC) undergo a significant remodelling of their Ca^{2+} machinery, which is a master regulator of both angiogenesis and vasculogenesis. The present study clearly indicate that EPCs isolated from RCC (RCC-EPCs) and breast carcinoma (BC-EPCs) patients display ultrastructural and functional differences as compared to normal cells (N-EPCs).

References

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Keywords

Endothelial progenitor cells, renal cellular carcinoma, breast carcinoma, electron microscopy, TUNEL assay, apoptosis.