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Replenishment of recombinant UQCRB protein induces angiogenesis *in vitro* and *in vivo*

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Ubiquinol-cytochrome C reductase binding protein (UQCRB), one of subunits of mitochondrial complex III, is a specific cellular binding protein of anti-angiogenic natural small molecule, terpestacin. Mitochondrial Complex III (cytochrome bc1 complex) has been reported as a crucial regulator in hypoxia-induced angiogenesis through mitochondria-derived reactive oxygen species (ROS) involved oxygen sensing. Here, cell permeable recombinant UQCRB protein is generated using protein transduction domain (PTD), a small peptide transferring its binding partner into the cell to uncover the biological role of UQCRB. Consequently, PTD-UQCRB transduction enhances generation of mitochondrial ROS and HIF-1α stability. Also, trans-membrane delivery of PTD-UQCRB induces vascular endothelial growth factor (VEGF) expression and invasion of human umbilical vascular endothelial cells (HUVECs) *in vitro*. Furthermore, PTD-UQCRB treatment enhances wound healing *in vivo*. These results imply new insights into the function of PTD-UQCRB in angiogenesis via mitochondria-mediated ROS generation and also open new basis on application of PTD-UQCRB as a pro-angiogenic agent via regulating mitochondrial function.

Biography

Ho Jeong Kwon has obtained his BSc from Seoul National University, Korea and has completed his MS and PhD from University of Tokyo, Japan and Postdoctoral studies from Harvard University, USA. He is a Professor of Department of Biotechnology, Yonsei University, Korea and Director of Chemical Genomics Global Research Laboratory. He is serving as a Council Member of HUPO, the President of KHUPO and has been serving as a Council Member, Secretary General and Vice President of AOHUPO. He has published more than 170 papers in reputed journals and is an Editorial Board Member of repute journals.

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