

*5th Annual Symposium on Prostate Cancer
Clark Atlanta University*

SAMPLE ABSTRACT FORM

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(Read all of the instructions carefully before preparing your abstract.)

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- 5. *Deadline due:* **February 6, 2009****

Hypoxia Pre-Conditioning Enhances the Response of Endothelial Cells to a Denudation Injury

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Hypoxia preconditioning is the phenomenon whereby brief period of exposure to a hypoxic or ischemic environment can produce a state where cells will show an enhanced or heightened response to a subsequent injury or stress. Studies to date suggest that this short-term exposure to hypoxia will induce several factors that are known to play critical roles in vascular wound repair, as well as, wound repair of other tissue cells. Secondly, HIF_{1α} and VEGF are two primary factors induced by hypoxia, which may mediate the effects of mechanical injury as well. We investigated the hypothesis that factors that promote the endothelial repair process can be enhanced by hypoxia-preconditioning. Confluent human umbilical vein endothelial cells (HUVEC) were subjected to hypoxia preconditioning by placing cultures in BioBag Chambers (Becton Dickinson) for 2-4 hr. Cultures were then subjected to a denudation injury, the media was replenished and the cultures placed under normoxic conditions. Control cultures were maintained under normoxic conditions and subjected to a denudation injury without hypoxia preconditioning. Injured HUVEC cultures were also assessed for the expression of HIF-1α, VEGF, PDGF, ICAM-1, and FAK by western blot analysis and immunocytochemical staining. HUVEC that were subjected to hypoxia preconditioning exhibited more rapid movement into the wound area than those of control (normoxia) cells. Hypoxia pre-conditioning resulted in increased expression of HIF-1α, VEGF, PDGF, ICAM-1 and Occludin. Further, hypoxia preconditioning resulted in enhanced FAK expression localized more peripherally, compared to control cultures. Taken together, these studies suggest that hypoxia preconditioning prepares the cells for subsequent injury by heightening growth factor and other gene expression. Additionally, the enhanced FAK expression suggest that the cells may be primed for rapid migration following an injury, since FAK is an important component of focal adhesion sites, and plays a significant role in modulating migration.

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