



2013 ABSTRACTS



TIEN PENG, MD

Hospital of the University of Pennsylvania
Philadelphia, PA

The Role of Sonic Hedgehog (Shh) Signaling in Pulmonary Arterial Hypertension

The recapitulation of embryonic programs characterizes a variety of diseases that manifest abnormal cellular proliferation. Unraveling the biological complexity of embryonic vascular development has the potential to provide better understanding of the pathogenesis of adult vascular diseases such as pulmonary arterial hypertension (PAH). Sonic Hedgehog (Shh) is a master regulator of tissue-tissue interaction and cell fate during both heart and lung development *in utero*. In my preliminary studies, I demonstrated that Hedgehog signaling remains active in the adventitial layer of the adult pulmonary vasculature, and Hedgehog-activated adventitial cells proliferate to generate vascular smooth muscle in an animal model of PAH. Based on these data, I propose that Shh promotes pulmonary vascular remodeling in PAH by activating adventitial proliferation, and subsequent adventitial differentiation into vascular smooth muscle. I will address this hypothesis using both genetic and pharmacologic inhibition of Hedgehog to define Shh's role in an animal model of PAH.