

Biglycan in Lung Vascular Regeneration

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Impaired lung regeneration and repair contribute to the pathogenesis of chronic lung diseases. Angiogenesis plays a crucial role in organ regeneration and repair from injury. Understanding the mechanism of angiogenesis during regenerative lung growth is required for the development of more efficient strategies for chronic lung diseases. We have reported that endothelial cell (EC) proliferation during regenerative lung growth after unilateral pneumonectomy (PNX) is more prominent at the peripheral region compared to proximal region. ECM components in the post-PNX mouse lungs are spatially different between peripheral vs. proximal regions. Transcriptomic analysis reveals that the expression of extracellular matrix molecule biglycan is higher in the proliferating EC populations of the post-PNX lungs compared to sham operated mouse lungs. Biglycan knockdown inhibits EC DNA synthesis and angiogenic factor expression. Biglycan may be one of the therapeutic targets to stimulate lung vascular regeneration.

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