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ID PROTEINS IS INVOLVED IN VASCULAR REMODELLING IN HYPOXIA-INDUCED PULMONARY HYPERTENSION RATS

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Objectives Previous research have suggested that Id proteins may play an important role in pulmonary hypertension (PH), but its exact role in hypoxia induced PH is seldom known. The present study is aim to study the role of Id1 and Id3 and the underlying mechanism in vascular remodelling of hypoxia induced pulmonary hypertension rats.

Methods Sprague Dawley rats were kept under hypoxia condition for 4 weeks to induce pulmonary hypertension. Id1 and Id3 expression in pulmonary arteries were detected by western blot and immunohistochemistry. The role of Id proteins in hypoxia induced proliferation of PASMCs was determined by Id gene siRNA knock down. Furthermore, the potential role of p21 and p27 was assessed after Id gene siRNA knock down to investigate the impact of Id proteins on cell cycle regulation.

Results Id1 and Id3 expression was significantly decreased in pulmonary arteries from hypoxia induced PH rats. Hypoxia induced down-regulation of Id1 and Id3 expression. while the proliferation of PASMCs induced by hypoxia was abrogated after Id gene silence. Id1 and Id3 were involved in p21 and p27 regulation under hypoxia as p21 and p27 expression was up-regulated by hypoxia after siRNA silencing of Id1 and Id3.

Conclusions Id1 and Id3 may play an important role in hypoxia induced vascular remodelling in rats. The effect of Id proteins on p21 and p27 expression was involved in proliferation regulation of PASMCs.