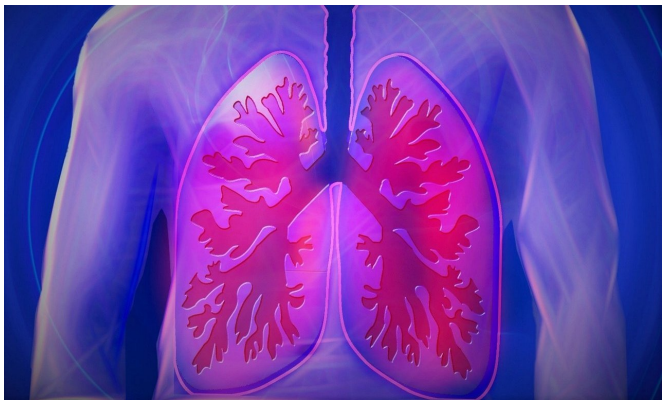
Study identifies therapeutic target for high blood pressure in the lungs

1 October 2019, by Jane Murcia



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Researchers have identified a potential new therapeutic target for those who have high blood pressure in the lungs, or what is known as pulmonary hypertension secondary to pulmonary fibrosis, a lung disease in which lung tissue becomes damaged and scarred. The discovery helps explain the previously unknown mechanism behind the development of pulmonary hypertension in people with pulmonary fibrosis.

Pulmonary hypertension, a life-threatening disease, is a major complication of pulmonary fibrosis, yet it is poorly understood. Pulmonary fibrosis is a debilitating lung disease with limited treatments available. Characterized by an accumulation of scar tissue in the lung, it leads to shortness of breath, severe loss of quality of life and, often, an early death. Currently, an estimated 100,000 people in the United States have pulmonary fibrosis and about 40 percent of those eventually will develop high blood pressure in the lungs and require lung transplantation because of their resistance to drug therapies. A number of factors may contribute to developing pulmonary fibrosis, including autoimmune diseases, radiation and the environment.

Researchers used tissues from whole lungs removed from transplant patients with pulmonary fibrosis and pulmonary hypertension, and found an unusually higher level of the protein known as Slug in their lungs. Researchers developed a new animal model of pulmonary fibrosis and pulmonary hypertension, which mimicked their findings in the lungs of human beings. By utilizing a commonly used synthetic molecule known as siRNA to inhibit the expression of Slug in the lungs of rats with pulmonary fibrosis and pulmonary hypertension, the blood pressure in the lungs was lowered.

The study suggests that people with pulmonary fibrosis who developed pulmonary hypertension also exhibit stiff blood vessels in the healthy, non-scarred areas of their lungs. Findings also indicated that by decreasing the Slug protein in diseased lungs, there is a potential to lower the severity of pulmonary hypertension in people with pulmonary fibrosis. Blocking that protein could become a potential novel therapy for pulmonary fibrosis -pulmonary hypertension, which currently has no approved treatment.

The research is published in the journal *EMBO Molecular Medicine*.

More information: Gregoire Ruffenach et al. Histological hallmarks and role of Slug/ PIP axis in pulmonary hypertension secondary to pulmonary fibrosis, *EMBO Molecular Medicine* (2019). DOI: 10.15252/emmm.201810061

Provided by University of California, Los Angeles