

Potential new approach to treatment of chronic lung diseases

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(Medical Xpress) -- Scientists at UCD have identified a potential new treatment for life-threatening complications associated with chronic obstructive lung diseases like emphysema and chronic bronchitis. Chronic obstructive lung diseases, most commonly caused by smoking, affect over 100,000 people in Ireland.

According to findings published recently in *Circulation*, it may be possible to target and regulate a protein that contributes to pulmonary hypertension - [high blood pressure](#) in the [arteries](#) of the lung - a disabling and potentially fatal complication for patients suffering from chronic obstructive lung disease.

Conway Fellow, Professor Paul McLoughlin from UCD School of Medicine, who led the project said, "diseases such as [emphysema](#), chronic [bronchitis](#) and fibrosis of the lungs cause abnormally low levels of oxygen in the lung. When the lung is starved of oxygen, blood pressure in the arteries of the lung increases causing damage to blood vessels and making it more difficult for the heart to pump blood, leading in many cases to heart failure and premature death".

While investigating the factors that contribute to high blood pressure in the arteries, the UCD research groups found that when oxygen levels in the lung are reduced, the body produces elevated quantities of a protein called gremlin - suggesting a link between elevated levels of gremlin and pulmonary hypertension.

Further investigations showed that mice whose genes had been mutated to reduce gremlin were protected against pulmonary hypertension, even when in a low oxygen environment similar to that found in lung disease. The heart was also protected and the damage to blood vessels in the lung was less severe.

Further research showed that gremlin was

elevated in the lungs of patients with [pulmonary hypertension](#), confirming a key role for the protein in damaging the blood vessels of the lung.

"These research findings suggest the potential for additional novel treatments of patients by designing drugs that block the actions of gremlin in the lung", said Professor McLoughlin.

More information: Cahill et al. Gremlin Plays a Key Role in the Pathogenesis of Pulmonary Hypertension. *Circulation* (2012) doi: 10.1161/?CIRCULATIONAHA.111.038125

Provided by University College Dublin

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