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Medical researchers at U of Alberta discover potential treatment for pulmonary hypertension

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Researchers in the Faculty of Medicine & Dentistry at the University of Alberta are one step closer to a treatment for a deadly disease.

Pulmonary arterial hypertension, which is high blood pressure in the lungs, currently has only a few treatment options but most cases lead to premature death. It is caused by a cancer-like excessive growth of cells in the wall of the lung blood vessels. It causes the lumen, the path where blood travels, to constrict putting pressure on the right ventricle of the heart which eventually leads to heart failure.

Evangelos Michelakis, his graduate student Gopinath Sutendra and a group of collaborators have found that this excessive cell growth can be reversed by targeting the mitochondria of the cell, which control metabolism of the cell and initiate cell death.

By using dichloroacetate (DCA) or Trimetazidine (TMZ), mitochondria targeted drugs, the activity of the mitochondria increases which helps induce cell death and regresses pulmonary hypertension in an animal model, says Sutendra.

Current therapies only look at dilating the constricted vessels rather than regression, so this is a very exciting advancement for the lab.

"In the pulmonary hypertension field they're really looking for new

therapies to regress the disease, it might be the wave of the future," said Sutendra. "The other thing that is really exciting is that TMZ and DCA have been used clinically in patients so it's something that can be used right away in these patients."

Clinical trials are expected to be the next step. Michelakis is currently working with a college in the United Kingdom to have patients with pulmonary hypertension take DCA.

Provided by University of Alberta