New research describes bioreactor to support whole lung regeneration

May 3 2016

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An innovative mechanical system that mimics the ventilation and blood flow in the chest cavity, housed in a specialized, sterile bioreactor, can support the growth of engineered whole lungs at human scale. Researchers designed this biomimetic environment to advance toward clinical application of whole lung regeneration for transplant using a patient's own cells, as described in *BioResearch Open Access*, a peer-reviewed open access journal from Mary Ann Liebert, Inc., publishers. The article is available to download on the *BioResearch Open Access* website.

Micha Sam Brickman Raredon and coauthors, Yale University (New Haven, CT), MIT (Cambridge, MA), and Raredon Resources, Inc. (Northampton, MA), provide a detailed description of the design and construction of the novel bioreactor system that can accommodate human or pig lungs.

In the article "Biomimetic Culture Reactor for Whole Lung Engineering," the researchers present data from experiments that demonstrate the ability to keep lung tissue alive and functional and to remove the cellular material from an entire porcine lung while it is in the apparatus.

"The new bioreactor design described in this article will be of interest to those in the translational organogenesis and regenerative medicine community," says *BioResearch Open Access* Editor Jane Taylor, PhD, MRC Centre for Regenerative Medicine, University of Edinburgh, Scotland. "It begins to address the critical need to develop functional bioreactors suitable for clinical application,"

More information: Micha Sam Brickman Raredon et al, Biomimetic Culture Reactor for Whole-Lung Engineering, *BioResearch Open Access* (2016). DOI: 10.1089/biores.2016.0006

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