Research team successfully grows human lung in lab

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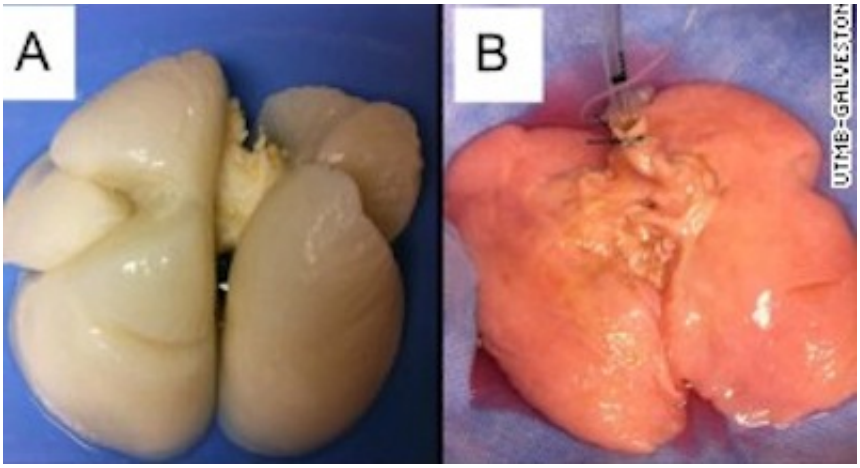

Credit: UTMB

(Medical Xpress)—A team of researchers with the University of Texas has, for the first time, successfully grown a human lung in a lab. Project leads Dr. Joaquin Cortiella and Dr. Joan Nichols announced the landmark breakthrough to various members of the press this past week, describing the procedure and what was achieved.

Growing organs in the lab has become a reality in the past couple of years as scientists have learned more about stem cells and how they mature to become the cells that make up organs and other body parts. Windpipes, for example, have been successfully grown and implanted into human patients, and just last spring, a team of researchers at

Massachusetts General Hospital in Boston successfully implanted lab grown kidneys into rats. In this new effort, the researchers have been focusing on growing one of the most complicated organs in the human body—the lungs.

Nichols explained the procedure in simple terms. Lungs from two deceased juveniles were obtained. The first lung was stripped of all of its cells leaving just a scaffolding of elastin and collagen. Healthy cells were then taken from the second lung and applied to the scaffolding. Once thoroughly coated, the lung-to-be was placed in a glass tank full of a nutrient-rich solution where it soaked for four weeks. During that time, new cell growth filled in the scaffolding resulting in a new lung. To be sure their technique really worked, the team repeated the whole exercise with another set of lungs and found the same result.

The researchers don't know how well the newly grown lung might work if it were implanted into a person, if at all, but are confident that they are on the right track in growing lungs in a lab that will eventually be used to replace damaged lungs in actual patients, helping thousands of people who die every year waiting on a transplant.

Nichols was cautiously optimistic in her description of the work, suggesting that the team has taken something from science fiction and made it a reality. On the other hand, she notes that much more work still needs to be done—she doesn't expect lab-grown lungs to be transplanted into humans for at least a dozen years.

The team next plans to repeat the process with pig lungs and then to implant the results into a live pig to see how well they actually work.