Artificial lungs grown in ‘hijacked’ mouse embryo could pave way for human transplants

Vaping aside, as dangerous air quality becomes increasingly prevalent in cities around the globe, the risk of serious lung disease will only rise.

The problem? Healthy donor lungs are few and far between, and because of their extraordinarily intricate structure, lungs are extremely difficult to perfectly 3D print or otherwise bioengineer.

[November 7], scientists from Columbia University Irving Medical Center, Stanford University, and the University of Tokyo teamed up in an outside-the-box attempt at making lab-grown lungs. Rather than engineering the organ, they hijacked a developing mouse embryo’s innate ability to develop any organ to “grow” third-party lungs right inside the embryo.

In two types of embryos deprived of cells that normally turn into lungs, the team inserted donor stem cells. Under the direction of genetic and chemical signals that orchestrate the entire blueprint of the body, the transplanted cells turned into fully functional lungs that kept the otherwise lung-less host mice alive well past birth.

“Our study shows that it may eventually be possible to develop new strategies for generating human lungs in animals for transplantation as an alternative to waiting for donor lungs,” said Dr. Wellington Cardoso, one of the lead authors of the study.

Read full, original post: How Scientists Grew Perfect New Lungs in Mouse Embryos