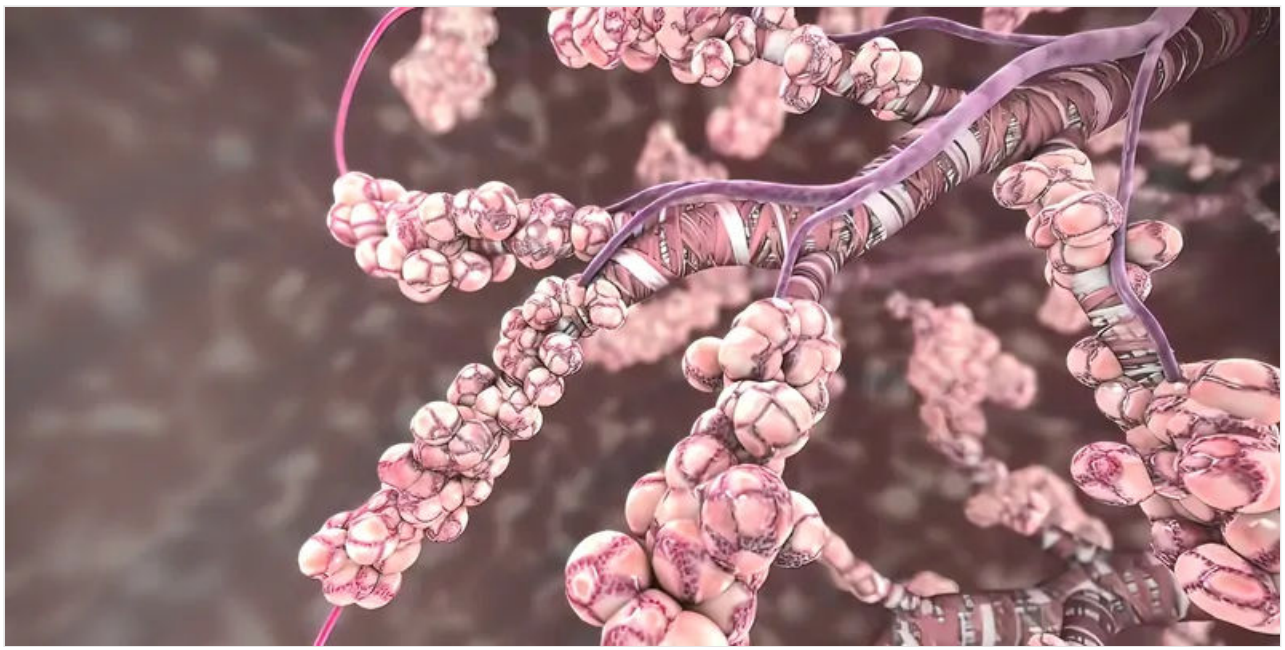
News



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New Possibilities for the Treatment of Pulmonary Fibrosis

The breakthrough focused on nano drug delivery rather than developing new therapeutics

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UTICA, NY — Imagine a future where a single injection of a drug can target a specific cell type, tissue, or organ to more efficiently treat disease without undesirable side effects. Well, that future is now. **A recent breakthrough publication** by scientists at the Masonic Medical Research Institute (MMRI) have discovered a novel way of treating pulmonary fibrosis, a progressive incurable disease that results in the stiffening of the lungs through scarring, using nanoparticles—materials thousands of times smaller than the diameter of a human hair.

"While these findings do not yet necessarily cure this disease outright, it shows we have the potential to dramatically impact and improve the quality of life for those affected," said the study's senior investigator, Jason R. McCarthy, PhD, associate professor and Science Operations Director at MMRI.

McCarthy along with 15 collaborators on this project, which include scientists from the MMRI, Massachusetts General Hospital, and Harvard Medical School, embarked upon this study in 2015. Their findings were published earlier this year in the *American Journal of Physiology-Lung Cellular and Molecular Physiology*. The team focused on the development of nanoparticles capable of targeting fibroblasts in the lung—the cell type responsible for the scarring—in order to deliver an effective drug that halts the progression of the disease.

"The idea behind the study was not to find a novel therapeutic, per se, but to look at whether delivering effective known drugs to specific cells in the lung can have a more potent therapeutic effect," McCarthy shared. "What we showed is that it is indeed possible to target a drug to diseased cells to interrupt the process of cell death and scarring."

McCarthy and his team are currently investigating whether this strategy could benefit other cell types in the lung as well, elucidating how they function, or malfunction, in the course of idiopathic pulmonary fibrosis. Similarly, they are also expanding their research beyond the lung, to investigate how use of this strategy can work in other organ systems, including the heart and liver.