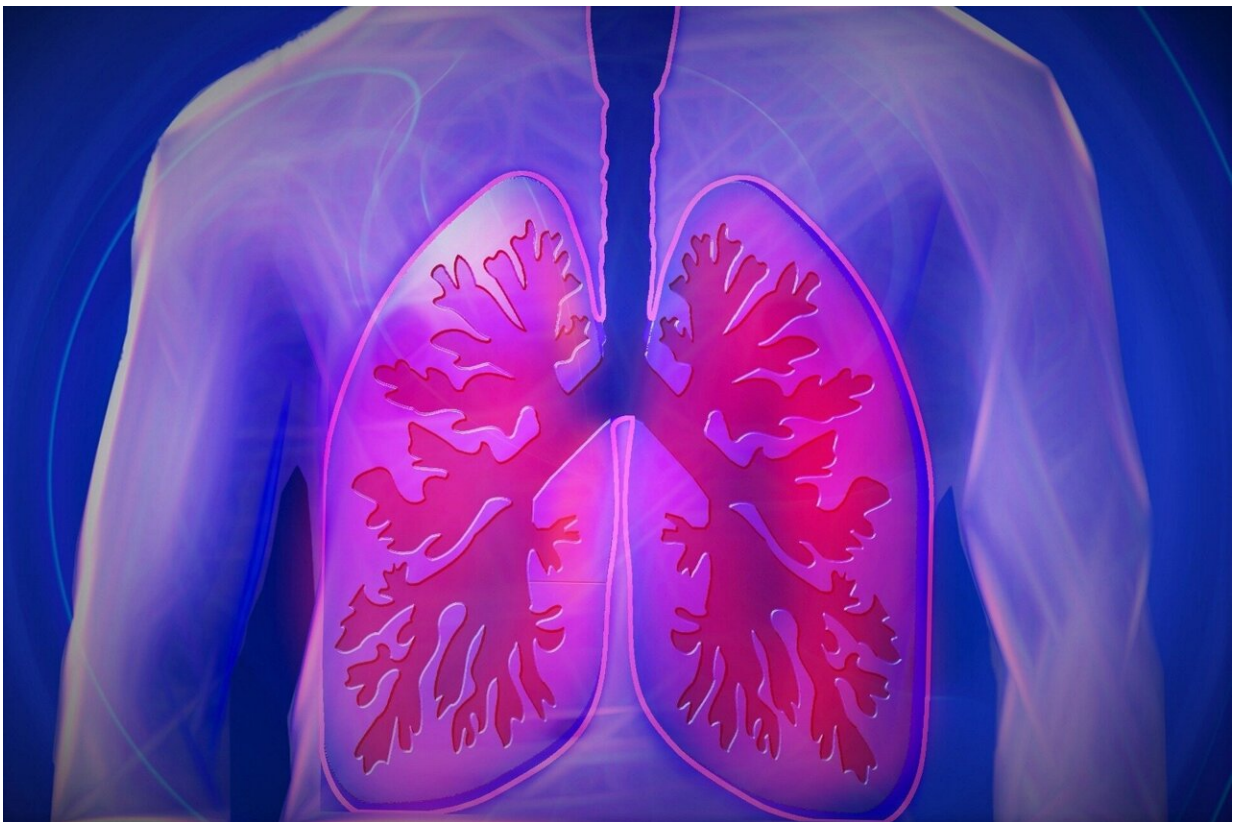


Progress in the application of nano- and micro-based drug delivery systems in pulmonary disease

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Credit: Pixabay/CC0 Public Domain

In a new article in the journal *BIO Integration* , the authors Rejoice Thubelihle Ndebele, Qing Yao, Yan-Nan Shi, Yuan-Yuan Zhai, He-Lin

Xu, Cui-Tao Lu and Ying-Zheng Zhao from Wenzhou Medical University, Wenzhou, China, discuss progress in the application of nano- and micro-based drug delivery systems in pulmonary drug delivery.

Nanotechnology is associated with the development of particles in the nano-size range that can be used in a wide range of applications in the [medical field](#). It has gained more importance in the pharmaceutical research field particularly in drug delivery, as it results in enhanced therapeutic drug performance, improved drug solubility, targeted drug delivery to the specific sites, minimized side effects, and prolonged drug retention time in the targeted site.

To date, the application of nanotechnology continues to offer several benefits in the treatment of various chronic diseases and results in remarkable improvements in treatment outcomes. The use of nano-based delivery systems such as liposomes, micelles, and nanoparticles in pulmonary drug delivery have shown to be a promising strategy in achieving drug deposition and maintained controlled drug release in the lungs. They have been widely used to minimize the risks of drug toxicity in vivo.

The authors of this article review recent advances in the application of nano- and micro-based delivery systems in pulmonary [drug](#) delivery for the treatment of various pulmonary diseases, such as lung cancer, asthma, and chronic obstructive pulmonary disease. Limitations in the application of these [drug delivery systems](#) and some key strategies in improving their formulation properties to overcome challenges encountered in [drug delivery](#) are also discussed.

More information: Rejoice Thubelihle Ndebele et al, Progress in the Application of Nano- and Micro-based Drug Delivery Systems in Pulmonary Drug Delivery, *BIO Integration* (2021). [DOI: 10.15212/bioi-2021-0028](#)

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