



For Immediate Release

August 19, 2025
EXORPHIA Inc.

MicroRNA-4516 in EXORPHIA's MSC-EVs Shown to Suppress Pulmonary Fibrosis – Findings Published in International Journal

EXORPHIA Inc. (Headquarters: Tokyo, Japan) today announced that in collaboration with the Department of Respiratory Medicine at Juntendo University, has elucidated the mechanism by which MicroRNA-4516, abundantly contained in its proprietary MSC-derived extracellular vesicles (EVs), suppresses the progression of pulmonary fibrosis. The findings have been published in the international journal *Stem Cell Research & Therapy*, one of the leading peer-reviewed journals in the stem cell and regenerative medicine field.

Pulmonary fibrosis is a progressive and intractable disease characterized by scarring of lung tissue and impaired respiratory function, often leading to poor prognosis. Current therapies are limited to slowing disease progression, and no curative treatment exists. Therefore, developing new therapeutic approaches remains an urgent unmet medical need.

In this joint study, EXORPHIA handled EV manufacturing and characterization, while Juntendo University focused on mechanistic analyses. The results demonstrated for the first time that MicroRNA-4516 regulates fibrotic signaling pathways and suppresses the progression of pulmonary fibrosis. In animal models, antifibrotic effects were also observed, providing a solid scientific basis for future clinical applications.

Furthermore, it was confirmed that MicroRNA-4516 is abundantly contained in EXORPHIA's proprietary MSC-derived EVs for clinical use (international patent application WO2024/242132). These findings highlight both the therapeutic potential and the technological advantage of EXORPHIA's EV platform.

Published article: *Stem Cell Research & Therapy* (Online publication: August 15, 2025)

Title: "MicroRNA-4516 in extracellular vesicles-derived mesenchymal stem cells suppressed integrin α V-mediated lung fibrosis"

Link: <https://rdcu.be/eAZkj>

<https://doi.org/10.1186/s13287-025-04559-0>

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EXORPHIA's proprietary EV manufacturing process delivers higher reproducibility and product quality than conventional methods and is designed with GMP compliance in mind for clinical applications.



The company will advance EV-based therapeutics for pulmonary fibrosis and other fibrotic diseases, aiming to expand indications such as kidney fibrosis through collaborations with universities and pharmaceutical companies.

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Business: Research, development, manufacturing, and commercialization of EV-based therapeutics

Established: 2019

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