

Dr. Ching-An Peng Selected for ASCEND2.0 Cohort to Revolutionize Plant-Derived Extracellular Vesicle Purification

University of Idaho Professor will participate in the selective ASCEND2.0 cohort funded by the NIH - National Institute of General Medical Sciences project

MOSCOW, ID, UNITED STATES, December 18, 2024 /EINPresswire.com/ -- Dr. Ching-An Peng, a Professor in the Department of Chemical and Biological Engineering at the [University of Idaho](#), has been selected to participate in the highly selective I-RED, [ASCEND2.0](#) 2024-2025 cohort. Funded by the National Institutes of Health (NIH) National Institute of General Medical Sciences project, the ASCEND2.0 program is designed to fast-track biomedical innovations by equipping researchers with entrepreneurial skills and resources to bring groundbreaking ideas from the lab to the market through the I-RED West Program.



Dr. Ching-An Peng

Dr. Peng is a leader in innovative biomedical research, specializing in drug and gene delivery. His expertise in cutting-edge nanotechnology and engineering principles has contributed to significant advancements across a range of biomedical applications such as cancer photothermolysis using nanomaterials and gene-directed enzyme prodrug therapy.

Pioneering New Approaches to Extracellular Vesicle Purification

For the ASCEND2.0 cohort, Dr. Peng is developing a particle-based immunoaffinity method to isolate highly purified and intact extracellular vesicles (EVs) from plants. Plant-derived EVs are typically isolated by labor-intensive and time-consuming differential ultracentrifugation. The new approach could make the separation process done in a timely fashion.

Dr. Peng's innovative methodology uses a chitin particle-conjugated affinity approach with intein-

mediated splicing to preserve the integrity, structure, and function of EVs. This approach promises a highly efficient and scalable solution to isolating plant EVs, paving the way for their use in diverse fields such as medicine, pharmaceuticals, and agriculture.

Leveraging ASCEND2.0 for Commercialization

The proposed technology has already been submitted to the University of Idaho as an invention disclosure. ASCEND2.0 funding will enable Dr. Peng to strengthen this disclosure and pursue patent protection. Additionally, he plans to expand the technology by developing chitin particles functionalized with plant specific moiety for purifying highly-specific plant EVs, a crucial advancement for EV applications.

During the program, Dr. Peng will collaborate with industry experts and legal counsel to prepare a patent application, laying the groundwork for future commercialization. He also aims to seek partnerships and resources to develop a Small Business Innovation Research (SBIR) or Small Business Technology Transfer (STTR) proposal for NIH funding.

Broad Applications and Impact

The purified EVs developed through Dr. Peng's research have wide-ranging potential applications, from cancer therapeutics to novel drug delivery systems and agricultural innovations. By addressing current limitations in EV isolation and purification, this work promises to deliver transformative solutions for medicine, pharmaceuticals, and food industries.

"Through ASCEND2.0, I aim to bridge the gap between innovation and application," said Dr.



Dr. Peng's Lab



**University
of Idaho**

University of Idaho Logo

Peng. "This program provides an unparalleled opportunity to refine our technology and bring impactful solutions to diverse sectors."

For more information about Dr. Ching-An Peng's research, please contact:

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About the ASCEND2.0 Program

ASCEND2.0, (the grant 5UT2GM148080), funded by the National Institutes of Health (NIH), is an initiative designed to accelerate the commercialization of biomedical innovations by equipping researchers with entrepreneurial skills and strategies for bringing their discoveries to market. The primary goal of this award and the IDeA Regional Entrepreneurship Development (I-RED) program is to support small business concerns in IDeA regions to develop educational products that promote entrepreneurship in underserved states through local academic institutions. Educational efforts utilizing these products are expected to build biomedical researchers' and students' entrepreneurial skills that are crucially needed to translate scientific discoveries and innovative technologies into commercial products to the benefit of the public and the patient. I-RED was designed by NIGMS for IDeA states.

The IDeA program focuses on building research capacity in states with historically low levels of NIH funding. It supports advancements in basic, clinical, and translational research, alongside faculty development and infrastructure enhancements. By strengthening institutional capabilities in biomedical research, ASCEND2.0 enhances the competitiveness of investigators in securing research funding while enabling clinical and translational research to address the needs of medically underserved communities.

IDeA-Eligible States

The program is open to institutions in the following states and territories: Alaska, Arkansas, Delaware, Hawaii, Idaho, Kansas, Kentucky, Louisiana, Maine, Mississippi, Montana, Nebraska, Nevada, New Hampshire, New Mexico, North Dakota, Oklahoma, Rhode Island, South Carolina, South Dakota, Vermont, West Virginia, Wyoming, and Puerto Rico.

ASCEND2.0 plays a pivotal role in empowering biomedical researchers to transform their innovations into impactful healthcare solutions, fostering excellence in underserved regions.

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