

Shanghai Issues First Standard for Plant-Derived Exosome Nanovesicles

SHANGHAI, CHINA, August 2, 2026 /EINPresswire.com/ -- Group standard T/SDMDA 003—2026 takes effect Aug. 1, setting purity and concentration requirements for a natural nanomaterial used in cosmetics, medical devices and specialized nutrition.

A Chinese industry association has issued a technical standard governing the industrial production of plant-derived exosome-like nanovesicles (PELNVs), a class of naturally occurring nanoscale carriers drawing growing commercial interest in skincare, wound care and functional nutrition.

The standard, designated T/SDMDA 003—2026 and titled “General Technical Guidelines for the Industrialization of Plant-Derived Exosome-Like Nanovesicles (PELNVs),” was released July 20 in Shanghai by the Shanghai Yangtze River Delta Medical Device Industry Promotion Association. Hangzhou Omni Dynamics Biotechnology Co., Ltd.

served as the principal drafting organization. The association describes the document as the first general technical standard to address industrialization of PELNVs across the full production chain.

The standard takes effect Aug. 1, 2026.

What the standard covers

PELNVs are nanoscale vesicles extracted from plant material. They have a lipid bilayer membrane, typically measure between 30 and 500 nanometers in diameter, and naturally carry proteins, nucleic acids and metabolites. Researchers have studied them for their ability to transport bioactive compounds between cells.

Until now, companies working with the material have had no shared technical reference for defining product quality. The new standard sets baseline requirements including a minimum purity of 70 percent and a minimum particle concentration of 109 particles per milliliter, and addresses production, testing and quality-evaluation methods across four application categories: cosmetics, medical devices, foods for special medical purposes, and pharmaceutical development.

“When quality specifications for a new raw material are established, downstream companies

gain a common technical language for product registration and filings,” said Dr. Qian Xueqing, chief executive of Hangzhou Omni Dynamics Biotechnology and the standard’s principal drafter. “That is what a document like this is for.”

Lin Senyong, president of the Shanghai Yangtze River Delta Medical Device Industry Promotion Association, said the standard is intended to give the sector consistent terminology and quality-evaluation criteria, which he said had been a barrier to commercial adoption.

Company background

Hangzhou Omni Dynamics Biotechnology was established in 2025. Its founding team had worked on plant-derived vesicle technology for approximately four years prior to incorporation, and drafting of the standard took place over roughly three years.

The company says its development work draws on genomics, metabolomics and spatial proteomics platforms, and that validation testing was conducted in collaboration with research teams at Shanghai Jiao Tong University, Fudan University and Jiangnan University.

Runda Medical Technology Co., Ltd. (SH: 603108) holds a 20 percent equity stake in Hangzhou Omni Dynamics through a subsidiary.

Applications and regulatory status

The company has described technical work in four areas, at differing stages of development:

- Cosmetics. Vesicle-based ingredients for transdermal delivery of active compounds, intended for filing as a cosmetic raw material and supplied to skincare brands and contract manufacturers.
- Medical devices. Dressings targeting acne, dermatitis and post-procedure skin recovery. The company says it has held preliminary discussions with China’s National Medical Products Administration regarding a Class III drug-device combination pathway. No regulatory application has been approved to date.
- Foods for special medical purposes. Oral formulations intended to improve the bioavailability of compounds such as NMN and curcumin, subject to registration requirements for medical foods.
- Pharmaceuticals. Early-stage exploratory work on vesicles as a biological delivery vehicle. This work is at a research stage; no drug candidate has entered clinical development.

Market context

Interest in the material reflects broader demand for naturally derived ingredients across skincare, medical devices and specialized nutrition. The four application areas addressed by the standard together represent end-markets in China worth more than RMB 2 trillion (approximately USD 280 billion) annually.

China’s cosmetics market recorded transaction value of RMB 1.07 trillion (approximately USD 149 billion) in 2024, according to the China Association of Fragrance, Flavour and Cosmetic

Industries. The country's medical device market exceeded RMB 1.09 trillion in 2024, according to Qianzhan Industry Research Institute. The market for foods for special medical purposes reached RMB 23.2 billion in 2024, up 24 percent year over year, according to ASKCI Consulting.

Within the cosmetics sector, raw materials accounted for roughly RMB 65 billion in China in 2024, according to Zhiyan Consulting, while functional skincare — the segment most directly relevant to PELNVs — was estimated at approximately RMB 48.7 billion by Qianzhan Industry Research Institute, drawing on Frost & Sullivan data. Globally, the cosmetic active ingredients segment, into which PELNVs fall, was valued at approximately USD 24 billion in 2024, according to Business Research Insights.

Regulatory filings for new cosmetic ingredients in China reached 90 in 2024, a record high, according to the China Association of Fragrance, Flavour and Cosmetic Industries — an indication of accelerating industry interest in novel raw materials.

Few companies in China currently produce PELNVs at commercial scale. Hangzhou Omni Dynamics says it has established production capacity intended to supply raw material to manufacturers in China and abroad.

At the release event, Professor Liu Yun of the Shanghai Cancer Institute presented research on vesicle applications in anti-inflammatory activity, antioxidant effects, gut health and delivery of bioactive compounds. Professor Ma Gang of the Bio-X Institute at Shanghai Jiao Tong University, citing work in psoriasis models, said source control and batch-to-batch consistency remain central obstacles to commercial translation — an issue the new standard is intended to address.

Four organizations have committed to implementing the standard in its first phase: Shanghai Runda Rongjia Biotechnology Co., Ltd.; Hangzhou Omni Dynamics Biotechnology Co., Ltd.; Shanghai Dongli Health Research Institute Co., Ltd.; and Minuo (Shanghai) Exosome Biomedicine Co., Ltd.

About Hangzhou Omni Dynamics Biotechnology Co., Ltd.

Hangzhou Omni Dynamics Biotechnology Co., Ltd. is a biotechnology company headquartered in Hangzhou, China, specializing in the research, development and industrial application of natural extracellular vesicles (EVs). The company provides integrated solutions spanning raw material development, characterization, functional validation, formulation and product translation for applications in cosmetics, specialized nutrition, medical devices and innovative therapeutics. Its technology portfolio also covers EV-based drug development, advanced therapy research support and the delivery of nucleic acids, peptides, proteins, small molecules and other bioactive compounds. Hangzhou Omni Dynamics is one of the principal drafting organizations of group standard T/SDMDA 003—2026.

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