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World's first HLA-G targeted exosome therapy for cancer by Taiwan enters US clinical trials

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SOB100 is globally the only exosome-based platform engineered to target HLA-G



A research team led by Dr Der-Yang Cho, Superintendent of China Medical University Hospital (Taiwan), in collaboration with Shine-On Biomedical Co., has developed the world's first targeted exosome drug delivery platform aimed at HLA-G (Human leukocyte antigen G), marking a major milestone in the field of precision oncology.

The novel platform, named SOB100, has completed preclinical studies and demonstrated promising efficacy in treating aggressive cancers such as breast cancer and glioblastoma.

The platform has received approval from the US Food and Drug Administration (FDA) to begin Phase I clinical trials in humans.

While HLA-G is typically restricted to placental tissue, many tumours exploit this mechanism to suppress immune detection. SOB100 uses a gene-engineered exosome membrane embedded with nanobodies that bind to HLA-G, allowing for precise delivery of therapeutic agents in SOB100 to tumour cells while minimizing the systemic toxicity often seen with conventional chemotherapy.

Shine-On Biomedical has also signed a memorandum of understanding (MOU) with a Singapore-based exosome manufacturer for co-development and licensing of SOB100-based therapies, including methods for loading chemotherapy drugs into HLA-G-targeted exosomes. This international partnership is expected to accelerate SOB100's global clinical adoption and commercial expansion.