

$\gamma\delta$ -T cell-derived exosome platform for innovative immunotherapy against EBV-associated tumors

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Technology

EBV-associated tumors (e.g. NPC) imposes a heavy tumor burden in Hong Kong and Eastern Asia, with high relapse rates in advanced cases. To overcome the limitations of cell-based immunotherapies in solid tumors, we developed a scalable antitumor platform using $\gamma\delta$ -T cell-derived exosomes ($\gamma\delta$ -T-Exos). Through optimized expansion techniques, we achieved high-yield $\gamma\delta$ -T-Exos that retain natural cytotoxic and immune-regulatory functions, offering MHC-independent tumor targeting and superior tumor penetration. We further enhanced their therapeutic potential through combination with radiotherapy, development of $\gamma\delta$ -T-Exos-based cancer vaccines, and integration with photosensitizers for photo-activated tumor killing. This versatile platform represents a breakthrough in cell-free cancer immunotherapy.

Service scope

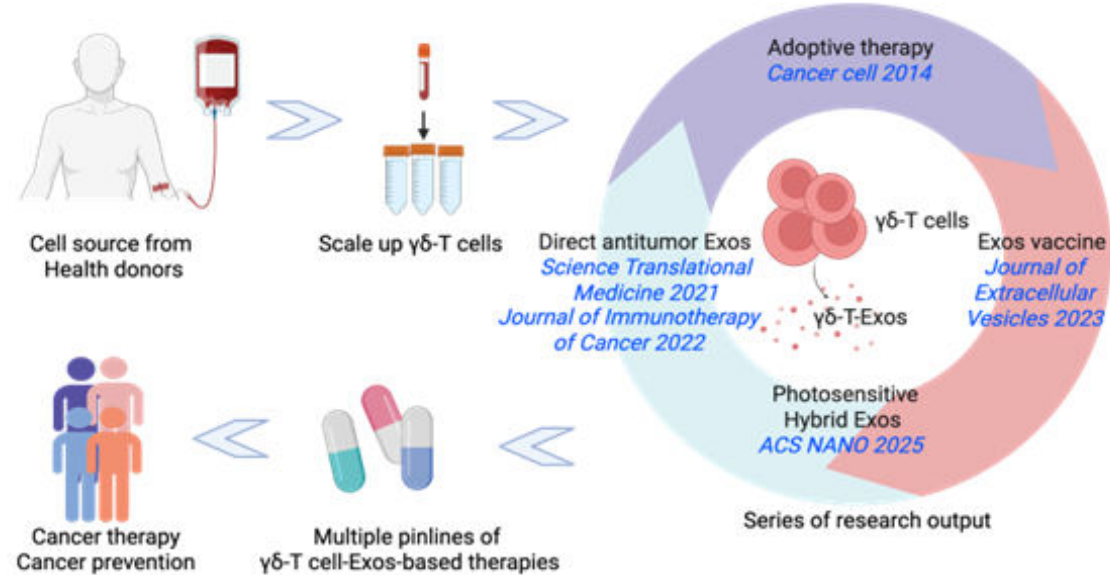
Patients with EBV-associated tumors (e.g., EBV-lymphoma, NPC, EBV-positive gastric cancer)
High-risk individuals (e.g., chronic EBV carriers, family history of EBV-related cancers)

Key advantages

- ✓ Off-the-shelf products
- ✓ Superior tumor penetration
- ✓ Low immunogenicity
- ✓ Resistant to immunosuppressive tumor microenvironment
- ✓ Ease of engineering and surface modification
- ✓ Greater scalability & stability

Development plan

2025-2026: Establish GMP manufacturing and complete GLP-compliant preclinical studies
2026-2027: Submit IND application for regulatory approval
2027-2029: Launch and complete Phase I clinical trials in EBV-associated NPC
2030 onward: Advance to Phase II/III clinical trials and expand indications to other EBV-associated tumors



Supporting information

Publications: Published in leading journals including *STM*, *Cancer Cell*, *JITC*, *ACS Nano*, and *JEV* (IF>15).

Patents: Seven patents granted in the US, China, and Europe.

Awards: Two Gold Medals and Jury Prizes at the 2025 Geneva International Invention Exhibition

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