

Medical therapeutic



> TRL 3
> Pre-clinical

Problem

Current tissue engineering, regenerative medicine and cell therapy approaches often rely on biomaterials that provide limited control over the timing and rate of therapeutic delivery. Many existing hydrogel and drug delivery systems release bioactive molecules too quickly, reducing treatment effectiveness and requiring repeated administration. In addition, available materials may lack flexibility in tuning degradation rates to suit different cell types, tissue environments or therapeutic objectives. Researchers and developers need delivery platforms that can maintain therapeutic activity over extended periods while supporting tissue repair and cell expansion. This challenge is particularly important in wound healing, stem cell culture and regenerative medicine application

Solution

The technology comprises synthetic hydrogel-based microcarriers engineered to provide controlled and sustained delivery of therapeutic molecules. The platform enables adjustment of key material properties, including degradation rate, stiffness and swelling behaviour, allowing performance to be tailored for specific biomedical applications. The microcarriers can incorporate a range of growth factors and biologically active compounds, which are released in a controlled and largely linear manner over time. By enabling customisable degradation and therapeutic release profiles, the technology offers a versatile platform for regenerative medicine, tissue engineering and advanced cell culture applications. The modular design also supports incorporation of multiple therapeutics.

Intellectual Property Status

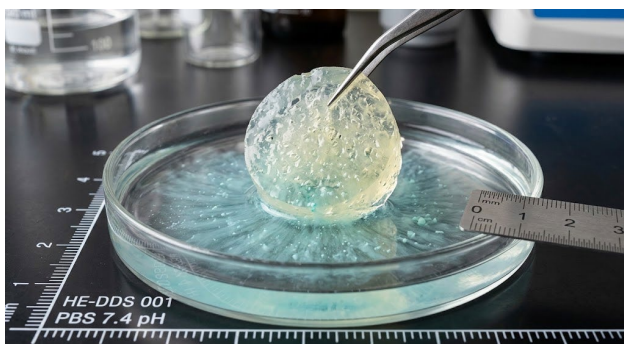
This invention is the subject of a provisional patent application AU: 2026900812

Potential Commercial Applications

- Controlled-release delivery platform for wound healing therapeutics and regenerative medicine products.
- Injectable biomaterial constructs for tissue repair and regeneration.
- Stem cell expansion and advanced cell culture applications requiring sustained growth factor delivery.
- Delivery system for biologics, growth factors and other therapeutic agents with tunable release profiles.
- Platform technology enabling incorporation and controlled delivery of multiple therapeutics within a single product

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