



Figure 1. Injectability of packed GelMA HMP.

## Technology Summary

New technology has been created to convert protein-based materials into stable microgels and assemble them into granular hydrogel scaffolds (GHS) without the need for light exposure. This non-invasive approach allows tissue regeneration inside the body. This includes methods for stable microgel formation, followed by orthogonal crosslinking to form GHS, which can be decorated with various bioactive factors or encapsulate them to enhance their function. Additionally, we introduce methods for creating GHS composites/nanocomposites that mimic native tissues' characteristics.

## Application & Market Utility

Exciting possibilities for tissue regeneration are now attainable without open surgery using this technology, as it offers a superior platform for biomedical applications. These GHS are assembled from thermally stable microgels, enabling their use inside the body without immediate dissolution and facilitate tissue engineering and regeneration in various organs. The non-light-mediated chemical assembly further enhances their applicability. The market utility of this innovation is vast, promising advancements in wound healing, tissue repair, and regenerative medicine.

## Next Steps

Researchers plan to collaborate with physician researchers at the College of Medicine to test this exciting technology in vivo.

### TECHNOLOGY READINESS LEVEL

4

#### Seeking

Investment | Licensing | Research

#### Keywords

- Regeneration
- Biomedicine

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