

Poly(ethylene glycol) (PEG) Hydrogels

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UK Regenerative
Medicine Platform

What is it?

Highly tunable hydrogel for cellular encapsulation, drug delivery and tissue engineering

Strengths

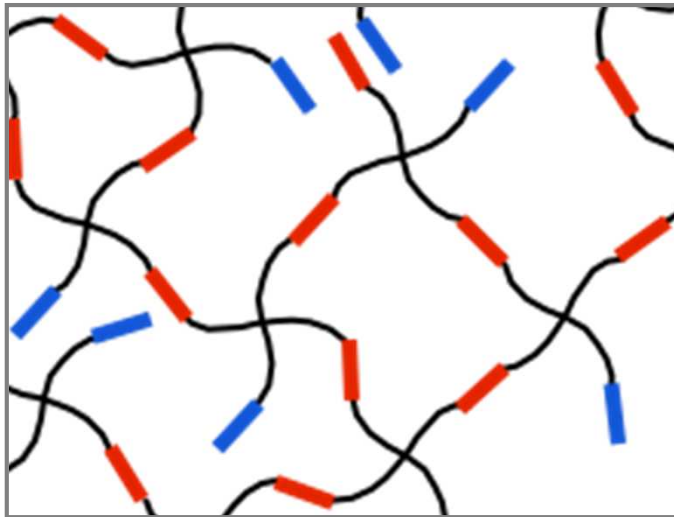
- Tailorable for optimal mechanical, physical, chemical, and degradation properties
- Can be functionalised with peptides
- Diverse crosslinking strategies

Weaknesses

- Without functionality, PEG is not easily degraded and mechanically weak

Potential Applications

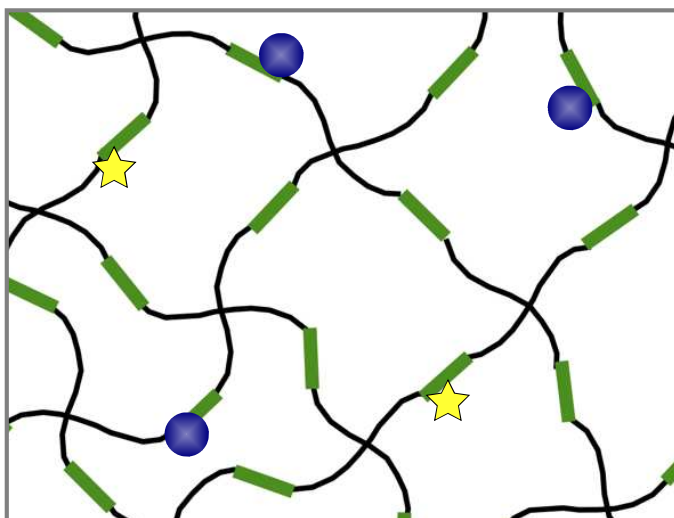
- Hydrogels cleaved by MSC MMP7 activity
- GAG-binding hydrogels for cartilage TE
- Heparin-binding peptides for cardiovascular application
- In vivo-trackable gels for MRI/fluorescent imaging



4-arm PEG

cell degradable peptide

bioactive peptide



4-arm PEG

bioactive peptide

in vivo fluorophore

MRI contrast agent

Schematics of tunable PEG hydrogels currently being investigated in the Stevens Group