

Novel Dendrimer Hydrogels for Controlled Cellular Mechanics

The technology

This invention uses a highly efficient Michael-addition reaction to produce dendrimer hydrogels with modular physical and chemical properties. These new hydrogels have controlled mechanical property, network structure and swelling behavior. The production process is rapid without the use of a catalyst. The hydrogels are modulated to react to certain stimuli properties such as pH, light, enzymes and heat, to name a few. The gelation of the hydrogel shows a very high efficiency due to the reaction implemented. This novel hydrogel has multiple facets which can be applied to fields such as controlled drug delivery, targeted cell adhesion and tissue engineering.

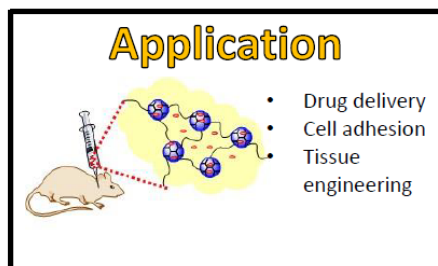
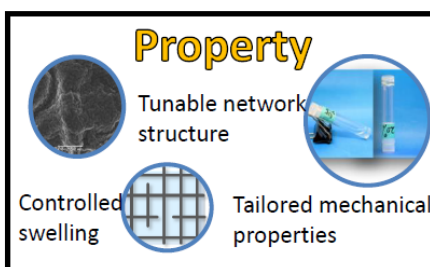
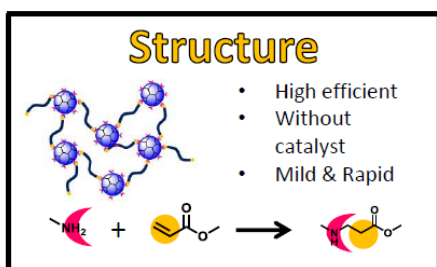


Figure 1. The structure, property, and application of the novel dendrimer hydrogels.

Benefits

- » Controlled mechanical property, network structures, and swelling behavior
- » Rapid process without the use of a catalyst
- » Modulated to obtain properties to respond to stimuli such as pH, light, enzymes, and heat

Applications

- » Tissue engineering and regeneration
- » Controlled cell adhesion and drug delivery

Patent status:

Patent issued: U.S. rights are available.
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License status:

This technology is available for licensing to industry for further development and commercialization.

Category:

Biomedical

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