Docket #: S07-019

Interpenetrating Network Hydrogels and their Photochemical Modification

An interdisciplinary team of Stanford University researchers have developed a novel interpenetrating polymer network hydrogel that is useful for a wide variety of medical, industrial and personal hygiene applications. The material is simultaneously mechanically strong, biocompatible, and highly water-absorbent. In addition, surface modifications can be used to attach biomolecules to the hydrogel.

Applications

- **Ophthalmic Implants**

Advantages

- **Mechanically strong** - high tensile and compressive strength
- **Low coefficient of friction** - high surface lubricity
- **Hydrophilic:**
  - 60 - 90% water content
  - high swellability
- **High permeability**
- **Optical transparency**
- **Biocompatibility**

Publications

- Tan XW et al. In vivo biocompatibility of two PEG/PAA interpenetrating polymer networks as corneal inlays following deep stromal pocket implantation. *J Mater Sci Mater Med* 2013 Apr; 24(4):967-977.

- Myung D, Koh W, Bakri A, Zhang F, Marshall A, Ko J, Noolandi J, Carrasco M, Cochran JR, Frank CW, Ta CN, "Design and fabrication of an artificial cornea based on a photolithographically patterned hydrogel construct." *Biomed Microdevices* 2007 Jan 20.

Patents

- Published Application: 20080269370
- Issued: 8,821,583 (USA)

Innovators

- David Myung
- Jaan Noolandi
- Christopher Ta
- Curtis Frank
- Laura Hartmann

Licensing Contact

Jon Gortat

Licensing & Strategic Alliances Director for Physical Science

Email