The application of (2-Hydroxyethyl Methacrylate) HEMA hydrogel for wound healing

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Introduction
Chronic wound care has been gaining momentum due to drug delivery with the use of growth factors. Proteins such as Keratinocyte Growth Factor, KGF, leads to wound healing in the epithelial cells, and has also proven to promote wound closure. Hydrogels, serve as a vehicle that delivers the desired substance into the exact location needed for wound healing. Hydrogels aqueous nature allows the material to accommodate various therapeutic factors. 2-Hydroxyethyl Methacrylate, HEMA, hydrogel is optimal because of its ability to achieve different characteristics without significant change to the polymer.

Results
Swelling Procedure:
- Dried out gel
- Soaked gel in PBS (buffer)
- Masses were taken at various times to see hydrogels ability to absorb water

Perfluoropolyether, PFPE, surface modification, barrier layer

Uptake/Release Procedure:
- Gel soaked in protein solution
- Fluorescence taken at various times to determine how much protein is loaded onto the gel through diffusion

Conclusion
HEMA is an optimal hydrogel for uptaking various proteins to accelerate the wound healing process.

Future Direction
What ideal crosslinking, TMPTMA, percentage will uptake the most protein?
What pore size fits what protein?

References

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