

GelHeal: Cross-linked protein matrix hydrogels CPMH as topical formulation for skin regeneration

Advanced wound care healing:

GelHeal provides mechanical support enabling the body to regenerate the lost tissues effectively. The preclinical, experimental data generated for GelHeal, confirms the effective wound healing capacity without any toxicity.

Applications

- ▶ Burns up to Degree Three (In animal model)
- ▶ Accident Wounds, Cuts, Bite wounds.
- ▶ Ballistic Wounds: Can be used in warfare accidents
- ▶ Diabetic foot ulcer, pressure ulcer, venous leg ulcer, etc.
- ▶ Surgery wounds (intraoperative and postoperative).
- ▶ Prevention of Surgical site infections



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Categories of this invention

- ▶ Life Sciences (Biomaterial, Therapeutics)
- ▶ Materials (Thin films)
- ▶ Synthetic Biology

Intellectual Property
 Tradename (registered) – GelHeal
 Trademark Ref No: 4208328
 Application No: 202031000910:
 TEMP/E-1/981/2020-KOL

Technology

1. GelHeal is delivered in the form of a protein hydrogel.
2. On application to the affected area (Burned Skin, Damage Skin etc.), it adheres and fills the affected area followed by onsite crosslinks to provide a soft and stable scaffold of crosslinked protein matrix hydrogels (CPMH), which protect the damaged skin with an artificial skin-like layer.
3. It is a bi-component (Solid-Liquid) formulation system that provides platform matrix technology that promotes skin regeneration when applied to patients.
4. The onsite crosslinking and scaffolding provides a strain-less support framework for the blood vessels and other cells to regrow a new layer of the dermis.
5. It prevents the development of a scar and yields scar-free skin.
6. GelHeal is indigenously designed & developed, novel, and protected with IP.

Problem Addressed

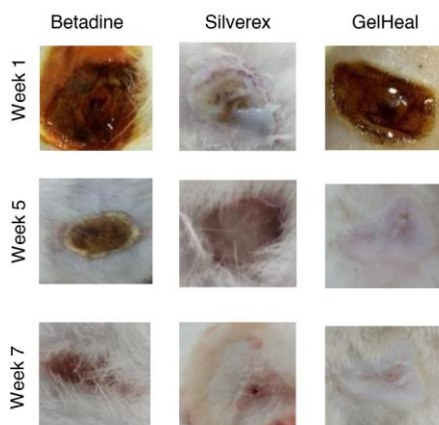
- ✓ Burn Sensation Control (Protein Hydrogel)
- ✓ Skin Protection (Adhesive, Seal and BioLamination)
- ✓ Skin Regeneration Support (Cross-linked PEG-Protein Matrix)
- ✓ Scar Free Skin (Tissue site Scaffolding for Strainless Support)
- ✓ No Surgery
- ✓ No Repetitive Hospitalization
- ✓ KIT for First Aid Box

Advantages

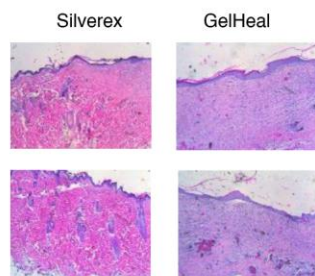
- No allergy. Purely Approved Biocompatible & Biodegradable Constituents.
- Wound-Based Scaffold Formation promotes wound Healing.
- Cross-linked product swells in water (ideal hydrogel) forming a tissue engineering matrix on the site that allows Nutrients/oxygen to pass freely.
- Protects the wound from external environment
- Adhesive And Laminative: Prevent Infection
- Provides a mechanical support for the skin cells
- Avoid Over-drying and provide Moist Environment
- Scaffold Support Skin Regeneration resulting in scare-free skin
- **Dermal Toxicity study** of CPMH GEL kit in rabbits clearance from INSTITUTIONAL ANIMAL ETHICS COMMITTEE, Kolkata.

Laboratory experiments

Testing of GelHeal in Rat Model

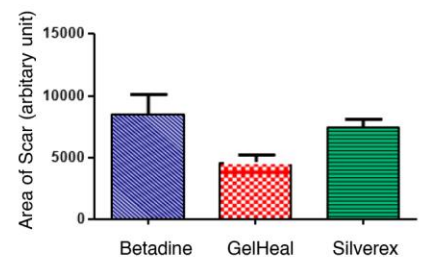


Histological Staining After Complete Recovery



GelHeal shows better recovery using Hematoxylin & Eosin staining.

Formation of Scarring After Healing



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