

Derma Cream for Wound Healing and Skin Regeneration

Current wound healing compositions offer protection against infection and prevent further damage, but they are not efficient in promoting significant regeneration of skin tissue. Therefore, there is a need to introduce better wound treating compositions that not only protect the tissue from further damage but also promote faster healing. Increase in life expectancy around the world has resulted in expansion of the proportion of geriatric population who are more likely to undergo major surgeries and suffer from falls and diabetic ulcers. Consequently, the wound care market is expected to grow at a CAGR of 3.7% resulting in a total market size of US\$ 22 billion by 2022. Besides the aging population, there is significant demand for effective wound healing methods for patients with burns resulting from radiotherapy, chemotherapy and laser surgery. A clinically effective wound healing treatment will also be beneficial to people suffering from skin damage caused by chronic wounds, burns, soft tissue injury from trauma and other causes. To address this need for improved wound treatment, researchers at NSU developed a novel composition for wound healing. This therapeutic composition contains growth factors (GF) that not only prevent further tissue damage but also promote regeneration of skin tissue and prevent infection of the affected area. Preliminary studies conducted by NSU's researchers indicate that this new derma cream can be successfully applied to treat a broad range of conditions that require promotion of wound healing and skin regeneration. It is evident from the outcomes that this new technology will be beneficial to a number of people and therefore possesses significant clinical and economic potential.

Technology

The proposed technology, invented by H. Thomas Temple, MD and Wendy W. Weston, PhD, offers an improved chemical composition for treating wounds. The researchers have utilized factors present in placental tissues to enhance the antimicrobial, anti-inflammatory and epithelialization properties of this derma cream. The inclusion of micronized freeze-dried or dehydrated powdered placental tissue makes the composition a rich source of growth factors (GFs). These GFs are key ingredients in this unique composition as they enhance regeneration of skin tissue and promote faster healing of wounds. Additionally, the topical application of this composition is capable of reducing the risk of infection, as the micronized placental tissue particles possess antimicrobial properties. The product can be developed by combining powdered freeze-dried placental (amnion, chorion, umbilical) tissues with either aloe or allantoin (5-ureidohydantoin or glyoxyldiureide) or both. This composition can be developed into a pharmaceutical product that can be applied topically to the affected area for promotion of skin regeneration, preventing infection, healing of wounds, and minimizing scars. Owing to its skin rejuvenation ability, this composition can also be used to develop a cosmetic product that can be applied topically to facilitate scar reduction and restoration of skin health.

Application

- For treating skin damage caused by trauma, burns, accidents and surgery
- Treating wounds and enhancing healing in patients suffering from diabetic ulcers, pressure ulcers or soft tissue injury from trauma
- Treating patients who have undergone laser surgery, chemotherapy radiation, or cosmetic surgery
- Minimizing and reducing scars caused by previous surgeries or keloids
- Besides the therapeutic medical applications, this product can also be used for cosmetic purposes to promote skin rejuvenation and thus restore skin health

Advantages/Benefits

- Increased clinical efficiency at a decreased cost compared to currently existing skin regeneration and wound healing compositions
- Presence of GF in the composition ensures faster skin regeneration and wound healing compared to existing wound care treatments, which do not contain growth factors.
- Presence of placental tissue also offers anti-inflammatory properties
- In addition to enhancing healing and regeneration, this composition will prevent the damaged area from infection owing to the antimicrobial properties of the placental tissue particles
- Can be developed and commercialized into different forms of products – powder, cream or a kit including ingredients for preparing the composition

Status of Development

- Necessary steps for screening the placental tissues for possible diseases, tissue selection criteria, procedures for sterilization, freeze drying, and micronizing have been perfected
- Optimal amounts and permitted ranges of all the components (aloe, allantoin and micronized freeze-dried placental tissue powder) required for developing the dermal cream have been determined
- Studies have been performed to successfully demonstrate the anti-microbial properties of the composition

Patent Status

Provisional Patent Application filed on 13th September, 2018.

Information on Inventors



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