

# A Novel Biomaterial Containing Moon Jellyfish Collagen Accelerates Dermal Wound Healing

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- Moon jellyfish collagen accelerates the re-epithelization on collagen films
- Moon jellyfish collagen promotes granulation in collagen sponges
- Film-sponge hybrid type collagen dermal graft realized both regeneration

**Keywords:** Wound healing, Jellyfish collagen, Artificial dermis, Re-epithelization, Granulation

## Aim of the study

We obtained new finding that the moon jellyfish collagen remarkably accelerated skin regeneration in the application of artificial dermis. The artificial dermis using the collagen is applied by regenerative medicine of the skin widely. However epithelium reproduction onto the artificial dermis is hard and require the epidermal re-implantation afterwards. It had a problem of patients burden and QOL. The jellyfish collagen is already applied to food and cosmetics and is accepted as safe industrial material. The moon jellyfish collagen is expected to add new value of not only the progression of skin regenerative medicine but also skin care and cosmetology.

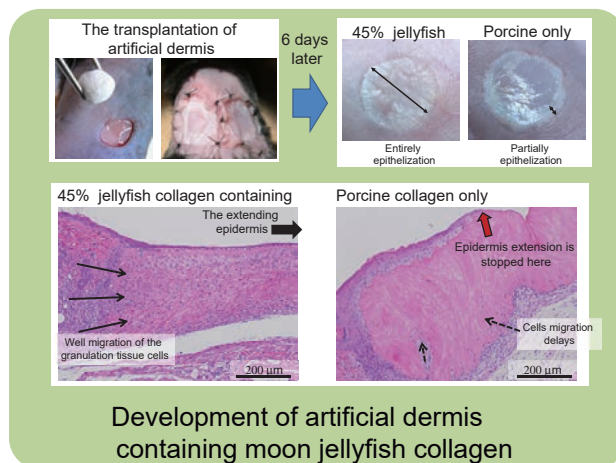
## Introduction of the study

The character of the moon jellyfish collagen

- It has a water solubility and cannot keep structure in vivo
- It shows remarkable re-epithelialization activity on grafts
- It promotes a cells migration and infiltration into the grafts

We decided a most suitable combination ratio of moon jellyfish and porcine collagen at 45:55 to keep structure in vivo, and to promote skin regeneration simultaneously.

The ideal artificial dermis was developed that it contained both structure of film and sponge and could promote the healing of epidermis and dermis at the same time.



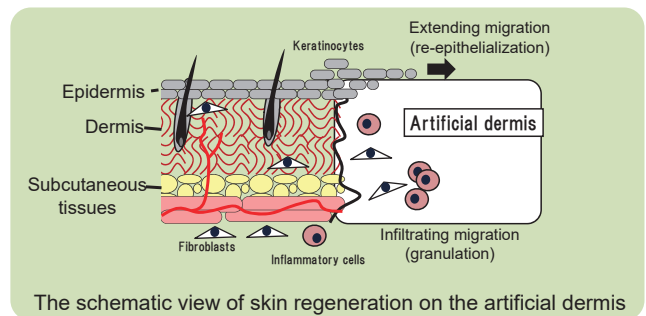
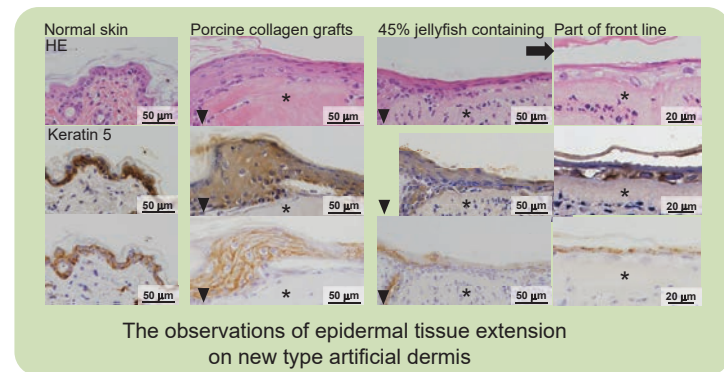
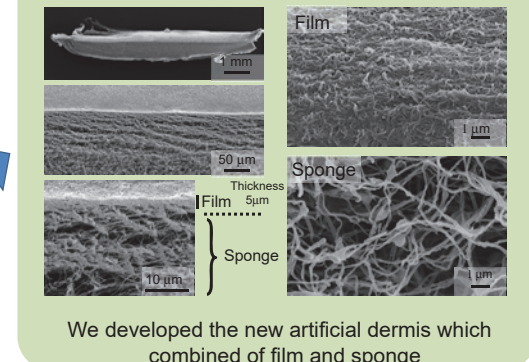
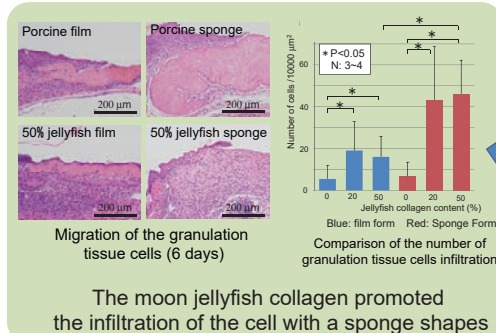
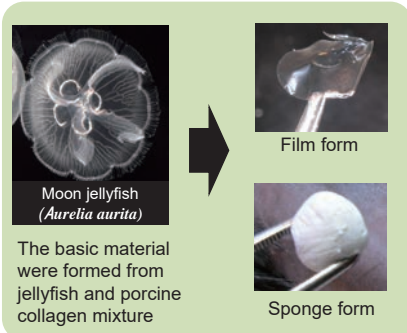
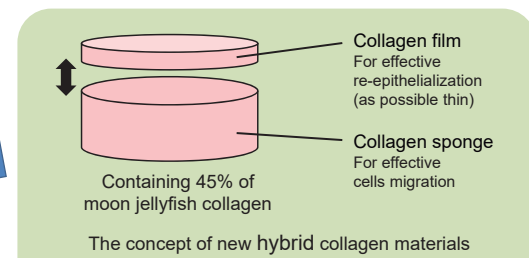
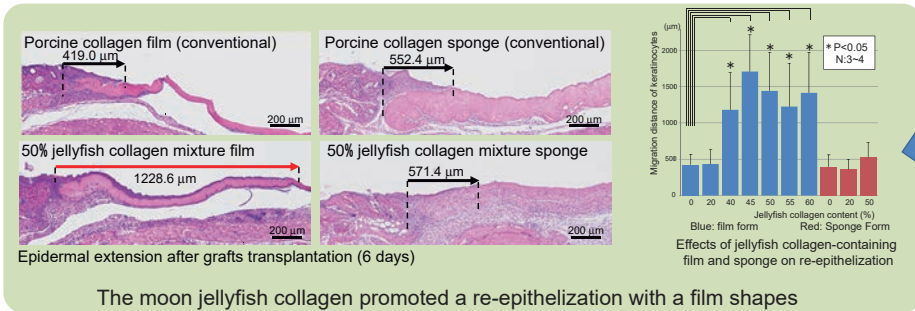
It is the new artificial dermis which formed scaffold using processing techniques of the collagen so that the cell migration promotion effect on epidermis and granulation tissue cell of the moon jellyfish collagen becomes best.

## Contact information for the collaboration

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Moon jellyfish collagen is purchased from  
 Jellyfish Research Laboratories, Inc.  
 TEL: +81-044-281-4098  
<http://www.jfish-lab.com>

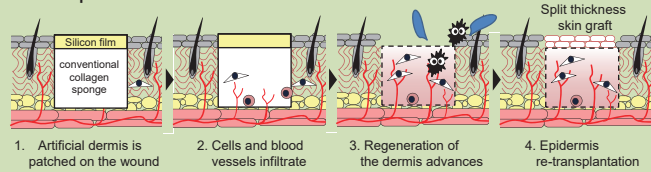
## The construction of the artificial dermis matrix based on skin regenerative effect



## The future prospects for the application of moon jellyfish collagen

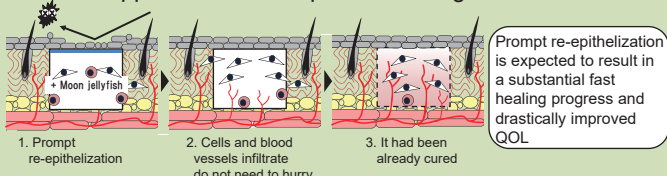
### ● The application of skin regenerative medicine

#### 1. The problem of the conventional artificial dermis



Re-epithelization on the artificial dermis is hard. After having waited for the reproduction of the dermis-like granulation tissue, we must perform self-epidermis transplant additionally. This additional period bring a risk and a burden in the patients.

#### 2. What happens when the epidermis is regenerated faster



- Additional self epidermis transplant is not necessary
- A healing period is shortened
- It does not cost medical expenses relatively

### ● Application except the artificial dermis

The moon jellyfish collagens are already trading in industrial resources derived from sea lives, and are widely recognized to safety. Additionally, it is free against many human/animal common infectious diseases like a BSE.

The moon jellyfish collagen has high water solubility and does not need the solubilization for further processing. As for this, it is thought that the development such as products using this collagen becomes more easy.

Utility value of the moon jellyfish collagen with the activity to promote the reproduction of the epidermis

- Adhesive plaster and ointment
- The functional cosmetics which can take care of skin
- The hair removal cream and the shaver gel with skin care
- The soaps and shampoos which have mild effect for brushing

The developed product has novelty because skin regeneration promotion activity of the moon jellyfish collagen is a new function.

### The change of skin regenerative medicine