# Methods for Using Microorganisms in the Treatment of Skin and Mucus Membrane Diseases

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## SUMMARY

UCLA researchers in the Division of Dermatology within the Department of Medicine have developed a novel formula and method for using microorganisms as a topical probiotic.

## BACKGROUND

According to the National Health Interview Survey, probiotics ranked fifth among natural products commonly used for children in the U.S. Probiotics are extremely popular in Europe and Japan, and the market for probiotic use in the U.S. is starting to grow rapidly. Currently, probiotics in the U.S. are available as dietary supplements and as an additional component in dairy foods (probiotic yogurts). As a treatment, probiotics have been used for gastrointestinal diseases such as infectious diarrhea, ulcerative colitis and Crohn's disease, for inflammatory skin disorders such as acne, and for preventing tooth decay. Although topical probiotics have been well studied, only a few patents exist. These patents focus primarily on direct use of probiotics with specific bacterial species to treat skin disease or as a prophylactic. These patents, however, do not suggest the use of naturally occurring non-pathogenic bacterial, fungal or viral skin/mucus flora as a full collection to treat skin diseases.

## INNOVATION

The technology consists of unique formulations of microorganisms to be used as topical probiotics. It can used alone or as part of a treatment regimen for any skin or mucus membrane disease to eliminate, replace, or add specific bacteria, fungus or viruses. This technology proposes the use of a variety of naturally occurring non-pathogenic bacterial, fungal or viral flora as a full collection. Additionally, the technology describes the use of non-pathogenic or low-pathogenic bacteria/fungi/viruses that occupy the same ecological niche as the pathogenic strains to be used as a treatment for skin disease. Finally, inventors suggest the novel use of these topical probiotics to be used in conjunction with antimicrobial therapy.

## APPLICATIONS

- As a topical probiotic to protect against cutaneous colonization and proliferation of pathogenic microorganisms in both humans and pets
- As a prophylaxis after handwashing to halt the spread of infectious microorganisms
- As a combination therapy with antimicrobiotics for the treatment of skin and mucus membrane diseases

## ADVANTAGES

- Using the full collection of bacteria, fungi, and viruses found in healthy skin or mucus membranes may more effectively out-compete and inhibit pathogenic microbes
- Combination of topical probiotics with antimicrobial therapy is novel and may be significantly more effective than either treatment alone

## STATE OF DEVELOPMENT

This formulation was tested on Propionibacterium acnes bacteria and topical probiotic treatment using non-pathogenic strains were able to outcompete the pathogenic strains more effectively than using antimicrobial therapy alone. The non-pathogenic bacteria also induced lower levels of inflammation than pathogenic bacteria.

## CONTACT

UCLA Technology Development Group
ncd@tdg.ucla.edu
tel: 310.794.0558.



## INVENTORS

- Kim, Jenny J.

## OTHER INFORMATION

### KEYWORDS

topical probiotics, bacterial/fungal/viral probiotics for treatment of skin disease, combination therapy of topical probiotics with antimicrobial therapy, prophylactic topical probiotics, formulation of microorganisms

### CATEGORIZED AS

- **Medical**
  - Therapeutics

### RELATED CASES

2014-503-0

## PATENT STATUS

| Country | Type | Number | Dated | Case |
|---|---|---|---|---|
| Switzerland | Issued Patent | 3139939 | 09/06/2023 | 2014-503 |
| Germany | Issued Patent | 3139939 | 09/06/2023 | 2014-503 |
| France | Issued Patent | 3139939 | 09/06/2023 | 2014-503 |
| United Kingdom | Issued Patent | 3139939 | 09/06/2023 | 2014-503 |
| Netherlands (Holland) | Issued Patent | 3139939 | 09/06/2023 | 2014-503 |
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**UCLA Technology Development Group**

10889 Wilshire Blvd., Suite 920,Los Angeles,CA 90095

https://tdg.ucla.edu

Tel: 310.794.0558 | Fax: 310.794.0638 | ncd@tdg.ucla.edu