

## Topical Antibiotic for Faster Wound Healing

### Summary (1024-character limit)

Currently available topical antibiotic formulations effectively eliminate bacteria at a wound site. Eliminating bacteria in the wound also eliminates the molecular signals present in bacterial DNA that stimulate the immune system's wound healing processes. Without these signals, the rate of wound healing is diminished. The National Cancer Institute Laboratory of Experimental Immunology seeks parties interested in licensing a topical antibiotic formulation to accelerate wound healing.

### NIH Reference Number

E-294-2011

### Product Type

- Therapeutics

### Keywords

- Wound healing
- Immunostimulation
- CpG motifs
- TLR7
- TLR9
- Oigodeoxynucleotides
- ODN.

### Collaboration Opportunity

This invention is available for licensing.

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### Description of Technology

Currently available topical antibiotic formulations effectively eliminate bacteria at a wound site. Eliminating bacteria in the wound also eliminates the molecular signals present in bacterial DNA that stimulate the immune system's wound healing processes. Without these signals, the rate of wound healing is diminished.

The present technology provides a means of improving the activity of topical antibiotics by supplementing the antibiotic formulation with immunostimulatory oligodeoxynucleotides (ODN). These ODN express the CpG motifs present in bacterial DNA and safely mimic the immune stimulation induced by bacterial DNA. The formulation may be applied directly to a wide variety of wounds to skin (such as traumatic, burn, or surgical wound, or the eyes (such as corneal abrasions) to effectively eliminate infection and stimulate rapid healing of the wound.

### Potential Commercial Applications

- Topical antibiotic
- Wound healing for burn patients, patients with major surgeries and wounds.

### Competitive Advantages

- Eliminates wound site bacteria while retaining immune stimulating properties
- Promotes faster wound healing

### Inventor(s)

[Dennis M Klinman \(NCI\)](#)

### Development Stage

- Pre-clinical (in vivo)

### Publications

Ito H, et al. Antibiotics delay wound healing: an effect reversed by co-administering TLR7 and 9 ligands. [[Current Angiogenesis. 2012 Apr;1\(1\):46-51.](#)]

Sato T, et al. Accelerated wound healing mediated by activation of Toll-like receptor 9. [[PMID: 20946144](#)]

Yamamoto M, et al. The acceleration of wound healing in primates by the local administration of immunostimulatory CpG oligonucleotides. [[PMID: 21421264](#)]

### Patent Status

- **U.S. Patent Filed:** U.S. Patent Application Number 10,076,535, Filed 24 Oct 2014
- **Foreign Filed:** - Patent Application Canadian 2871490, Filed 29 Mar 2013
- **Foreign Filed:** - Patent Application Australian 2013252785, Filed 29 Mar 2013

### Related Technologies

- E-242-2007

### Therapeutic Area

- Skin and Subcutaneous Tissue