



COACTIV+™ TECHNOLOGY

Kane Biotech's patented coactiv+™ technology is specifically formulated to destabilize biofilm and create an environment for fast wound healing. This multi-functional and gentle formulation makes it a perfect companion treatment to DispersinB® Hydrogel, also part of the Kane Biotech antibiofilm wound care portfolio.

SETTING A NEW STANDARD IN BIOFILM TREATMENT

DESTABILIZE EXISTING BIOFILM AND IMPROVE PERMEABILITY

INHIBIT GROWTH OF BACTERIA (BACTERIOSTATIC, BUT NOT BACTERICIDAL) AND FUNGI INCLUDING YEAST

REGULATE WOUND PH CONDUCIVE TO HEALING

COACTIV+™ - DELIVERING CONTINUOUS INFECTION FIGHTING ACTIVITY TO CHRONIC AND ACUTE WOUNDS

Coactiv+™ is a biofilm destabilizing formula with continuous activity. The key ingredients are recognized as safe by the FDA and have been purposefully selected to provide support throughout the entire wound healing cascade.

- EDTA: ethylenediaminetetraacetic acid (EDTA) is a chelating (binding) agent that sequesters the metal ions present in the wound and needed for bacterial growth, function and ultimately, biofilm organization. Thus, once the metal ions are bound to EDTA, bacterial growth is inhibited and biofilm is destabilized.
- Sodium citrate/citric acid: Elevated wound pH is a characteristic of hard to heal chronic wounds which are often inflamed and infected. Sodium citrate/citric acid acts as a buffering agent that helps to reduce elevated pH and/or maintain a lower pH which is conducive to wound healing. Similar to EDTA, sodium citrate is also a metal ion chelator, thus aids in microbial growth inhibition and biofilm destabilization.

The combination of metal ion sequestering and pH lowering activity of coactiv+ provide an environment for effective biofilm destabilization. In addition, this activity has been shown to reduce overactive proteolytic function within wounds. Elevated levels of proteases are associated with chronic wounds and are known to cause tissue damage, inflammation and delayed healing.

MAJOR ADVANTAGES

- Continuous bacterial static, antifungal and biofilm destabilizing activity
- Buffering agent to lower and maintain favourable pH conducive for wound healing
- Help reduce metalloprotease and elastase activity in chronic wounds
- Biocompatible and non-toxic
- Prophylactic treatment for acute wounds at risk for infection, such as surgical incisions, pin sites and burns.
- Patent protected

KANE BIOTECH IS A CANADIAN-BASED BIOTECHNOLOGY COMPANY ENGAGED IN THE DEVELOPMENT & COMMERCIALIZATION OF TECHNOLOGIES THAT PREVENT AND REMOVE MICROBIAL BIOFILMS.

COACTIV+™ ADDRESSES WOUND CARE NEEDS

It has been reported that biofilms are present in at least 80 per cent of surgical-site infections (SSIs).¹ Preventing biofilm formation helps to reduce long-term issues for the patient and the associated healthcare costs. The most important components of biofilm management are frequent cleansing and debriding of the wound area before bacteria can form established biofilms. Due to the impenetrable nature of biofilms, commercially available antimicrobials and wound dressings are often ineffective in managing infections²

References

1 Romling U, Balsalobre C. Biofilm infections, their resilience to therapy and innovative treatment strategies. J Intern Med 2012; 272: 541–561.

2 Black CE, Costerton JW. Current concepts regarding the effect of wound microbial ecology and biofilms on wound healing. Surg Clin North Am 2010; 90: 1147–1160.

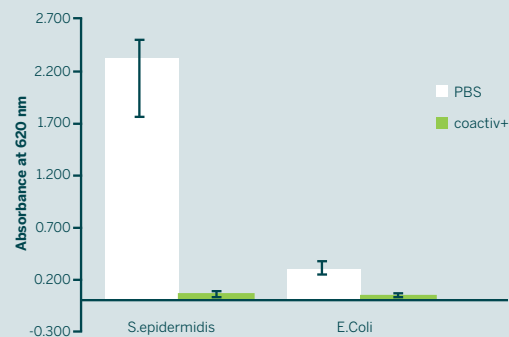
"Lab tests show that coactiv+™ effectively inhibits formation of bacterial biofilms and reduces the bioburden in preformed biofilms. The active ingredients in this innovative and patented formulation are FDA approved and GRAS, thus minimizing issues of cytotoxicity and skin irritation. coactiv+™ could be incorporated into multiple product applications providing clinicians with important tools throughout the wound healing process in the fight against biofilm formation and bioburden proliferation."

Gregory Schultz, PhD

Professor, Dept Obstetrics & Gynecology
Director, Institute for Wound Research
University of Florida

COACTIV+™ INHIBITS BIOFILM FORMATION

Evaluation of coactiv+™ on biofilm formation. *S. epidermidis* and *E. coli* were cultured in growth media supplemented with coactiv+™ or phosphate buffered saline (PBS) in a 96 well microtiter plate at 37°C for 24 hours. After removing planktonic cells from the wells, the remaining biofilm was stained with crystal violet and quantified by absorbance at 620nm. The ANOVA test showed a statistically significant difference in the ability of coactiv+™ to inhibit biofilm formation relative to the PBS control ($p < 0.05$).



COACTIV+™ WASH REDUCES BIOBURDEN IN PREFORMED BIOFILMS

Evaluation of coactiv+™ on dissolution of preformed biofilms. *S. epidermidis* were cultured on nitrocellulose membranes placed on growth media for 24 hours at 37°C. The membranes were treated with coactiv+™ or PBS for 30 min and 24 hr and then the planktonic cells on the membranes were removed by washing. The biofilm embedded microorganisms on the membranes were released and quantified by serial dilution plate assay. Bioburden is expressed as reduction in log cfu and the bioburden reduction as % cfu reduction in comparison to PBS control treatment. The ANOVA test showed a statistically significant difference of coactiv+™ to reduce bioburden in preformed biofilms relative to the PBS control ($p < 0.05$) after 24 hr treatment.

Treatment duration	Change in bioburden compared to PBS treatment	
	Log CFU	Percent
30 min	0.45 ± 0.37	>57.2%
24 hr	5.39 ± 0.14	>99.99%

COACTIV+™ REGULATORY PATHWAY

Under the Wound Care patent, Kane will be submitting a 510(k) application to the FDA for regulatory clearance of a coactiv+™ Surgical Rinse or Hydrogel. Once clearance is granted, the product can act as a predicate device enabling the development of further coactiv+™ wound care technologies and products.

EXCLUSIVE WORLDWIDE PATENTS AND OTHER PRODUCTS

The coactiv+™ technology is protected by a strong patent family comprising 3 patents, allowing worldwide coverage for multiple applications including wound care, personal care and oral care. Coactiv+™ wound care is covered under US Patent No.: 9,980,497, B2 issued 2018-May-29.

- Under the Oral Care patent, product is already commercialized under the bluestem™ brand from Kane's Animal Health division. The full lineup of products help fight plaque and tartar (calculus) biofilms as well as halitosis in pets.
- Under the Skin Care patent, product is already commercialized under the DermaKB Biofilm brand from Kane's Human Health division, and includes a shampoo and scalp detoxifier that break down bacterial and fungal biofilms associated with chronic skin conditions to help reduce symptoms of skin irritation, itching, redness and dryness. Product is also commercialized under the silkstem™ brand from Kane's Animal Health division, and includes a spray foam aerosol shampoo that selectively reduces biofilm accumulation to help reduce symptoms associated with common skin conditions.

WOUND CARE PRODUCT OPTIONS UNDER DEVELOPMENT INCLUDE:

- 1) Surgical Rinse for use in cleansing, irrigating, moistening and debriding acute, chronic and surgical wounds, abrasions and lacerations
- 2) Prophylactic pre-treatment (liquid or gel) to help prevent the establishment of biofilm in wounds.
- 3) Hydrogel to maintain wound bed hydration, inhibit biofilm formation and reduce proteolytic activity in chronic wounds
- 4) Impregnated dressings (foam or hydrofiber) to maintain dressing sterility, inhibiting biofilm formation and reducing proteolytic activity in chronic wounds

CONTACT INFORMATION