20831.

# ProCutiGen® Hold

Style Longevity
Thermal Defense
Proactive Care

Active Concepts

VEGAN

SEPHORA CLEAN

CREDO CLEAN

GLOBALLY COMPLIANT

COSMOS COMPLIANT

ISO 16128

## THE FEATURES.

Why wait to repair damaged hair when you can help provide protection before it even happens? ProCutiGen® Hold is capable of modifying hair shape while protecting it from styling damage. Rather than focusing on repairing broken bonds that occur during physical and chemical stress, ProCutiGen® Hold consists of bivalent cationic peptides that create a de novo cuticle on the hair to prevent damage from happening in the first place.

*INCI: Phyllostachys Bambusoides Extract & Leuconostoc/Radish Root Ferment Filtrate*

TECHNICAL DATA SHEET.

# ProCutiGen® Hold

## THE STORY.

The "Plex Phenomenon" has swept the global haircare industry, resulting in a myriad of products focused on bond multiplying or re-bonding. As the market is currently saturated with formulations claiming to re-bond the hair, Active Concepts has taken a proactive approach towards technology that protects the hair. Active Concepts is shifting the focus to proactively protect the hair shaft through "ProBonding". ProCutiGen® Hold is an incredible scientific breakthrough that is slated to shake the foundations of how we consider preventative hair care – repair beyond the bond.

Cuticle preservation is essential to prevent hair damage. The cuticle is the outermost layer of the hair, composed of overlapping cells that shield the cortex, while holding moisture and protecting hair from the environment. Damage to the cuticle compromises the structural integrity of the hair shaft, making hair prone to breakage. Utilizing the concept of synthetic biology, ProCutiGen® Hold is made of bamboo-derived bivalent cationic lipopeptides that self-assemble into a neo-cuticle on the hair. The formation of this biomimetic cuticle helps to retain style while offering protection from harsh styling treatments to promote healthy hair.

## THE SCIENCE.

Given the nature of the hair, it can be rather difficult to straighten or curl the hair for long periods of time without inflicting damage. This is because keratins found in hair are very strong and insoluble fibrous alpha-helical proteins.[1] Damage that occurs to hair after chemical treatment is a result of the structural integrity of the cuticle being compromised. When the structure of the hair cuticle is degraded, hair is more susceptible to breakage. Hair needs a solid foundation to prevent damage, and the building block of hair is protein. Hair is primarily composed of protein, making structural support essential for maintaining fiber strength and resilience. Bamboo is celebrated for its rapid growth and natural structural strength, rooted in its resilient, fiber-rich composition.[2] Inspired by this natural resilience, ProCutiGen® Hold is a lipopeptide derived from bamboo protein, harnessing the natural strength of bamboo for hair protection.

The bivalent cation of ProCutiGen® Hold is the anchor to secure the neo-cuticle, as hair is naturally anionic. The specific amino acid composition, the structural material of the anchor, allows these properties which differentiate the bio-films formed by the ProCutiGen® line. Film-forming properties are a popular claim in hair care, however this is boring and usually misleading. A film can loosely be defined as a thin layer of something, by that definition, water on the skin is a film. A bio-film is of much more interest; a polymeric chain forming a conglomeration of proteins, amino acids and polysaccharides that creates a complex, supporting, interwoven matrix on the hair cuticle. A major benefit of the bio-film is its action as a scaffolding rather than a true barrier. Able to support and protect hair, this bio-film allows for hair that is strong enough to hold style longer. It is this bio-film that promotes the exhibition of properties such as moisturization, pH balance, barrier protection, and additionally, protection from hair styles falling flat after a prolonged period.

## THE TECHNICAL DETAILS.

**INCI.** Phyllostachys Bambusoides Extract & Leuconostoc/Radish Root Ferment Filtrate
**CAS.** 999999-99-4 & 1686112-10-6 (or) 9015-54-7
**EINECS.** 310-127-6 & N/A (or) 295-635-5
**EUROPE.** Compliant
**USA.** Compliant
**CHINA.** Compliant

**Origin.** Botanical/Bacteria
**Natural Antimicrobial.** Leuconostoc/Radish Root Ferment Filtrate*
**Preservatives.** None
**Solvents Used.** None
**Appearance.** Clear to Hazy Liquid

## THE FORMULATION TIPS.

**pH Stability.** 3 - 7
**Temperature Stability.** Stable up to 70°C. Product may change appearance if exposed to cold temperatures. Gently warm to 45-50°C and mix until normal appearance is restored.
**Use Level.** 1 - 10%

**Ionic State.** Cationic
**Alcohol Compatibility.** Compatible with up to 40% alcohol at 10%
**Solubility.** Water Soluble
**Pro Tips.** ProCutiGen® Hold can be incorporated into the aqueous phase of the formulation process.

** Please note this product contains Leuconostoc/Radish Root Ferment Filtrate (Tradename: M15008-Leucidal® Liquid) - produced by Active Micro Technologies, LLC - containing 18.0–22.0% Phenolics (tested as Salicylic Acid). Please refer Leucidal® Liquid product literature for additional information.*

# ProCutiGen® Hold

## THE BENEFITS OVERVIEW.

**Style Longevity** *Hair Curl Retention Assay*

**Thermal Defense** *Hirox 3D Imaging*

**Proactive Protection** *Scanning Electron Microscopy Assay*

## THE EFFICACY.

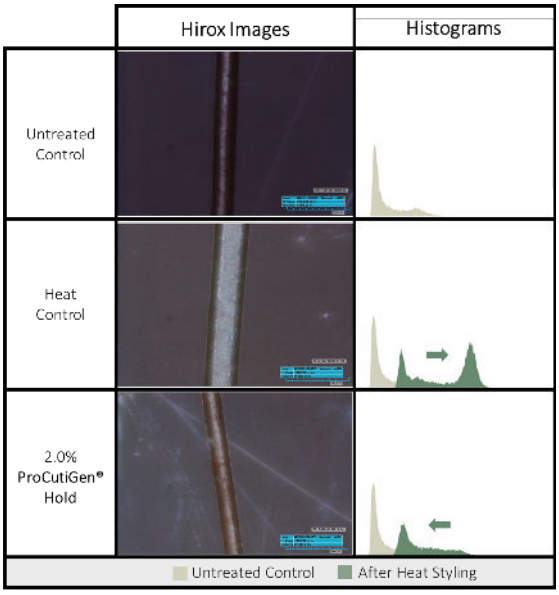
### Style Longevity

Curls can lose definition over time as humidity, friction, and natural fiber memory work against style retention. A Hair Curl Retention Assay was conducted to evaluate the style holding performance of ProCutiGen® Hold. Six virgin brunette tresses were treated with either DI water or 2.0% ProCutiGen® Hold, curled using heatless curlers, and monitored under ambient conditions. Curl length and retention were assessed over 24 hours to determine long term style durability.


**Retains 79% of curl shape after 24 hours**

### Thermal Defense

Heat styling is a go to for achieving sleek finishes, defined curls, and long lasting shape, but repeated exposure to high temperatures can place significant stress on the hair fiber. Elevated heat can disrupt keratin structure and weaken the cuticle, leading to dryness, brittleness, and breakage over time. Supporting the hair before heat exposure helps preserve strength, smoothness, and overall fiber integrity. Accordingly, a Hirox 3D Imaging Analysis was conducted to assess the ability of ProCutiGen® Hold to protect hair against heat styling damage.

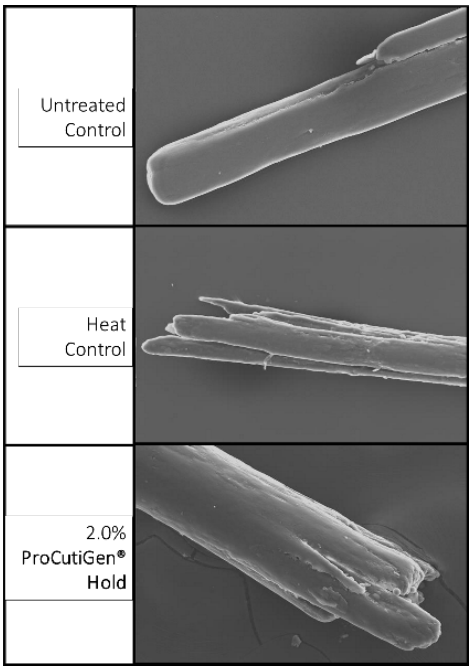



**Significantly reduces visible heat damge**

## THE EFFICACY CONTINUED.

### Proactive Protection

Heat styling delivers sleek, defined results but repeated high temperatures can compromise the hair cuticle, leading to roughness and breakage over time. Supporting the fiber before heat exposure helps preserve smoothness and structural integrity. To evaluate protection at the surface level, Scanning Electron Microscopy (SEM) imaging was used to visually assess cuticle condition following thermal styling and determine the ability of ProCutiGen® Hold to maintain fiber integrity.




**Visibly smooths and strengthens against heat**

References:
1. Yang, F., Zhang, Y., Rheinstädter M. "The structure of people's hair." PeerJ. 2.619 (2014).
2. Wang, Y., et al. " A systematic review on the composition, storage, processing of bamboo shoots: Focusing the nutritional and functional benefits." Journal of Functional Foods. 71 (2020).

**Active Concepts LLC**
Lincolnton, NC - USA
Tel +1 704-276-7100
info@activeconceptsllc.com

**Active Concepts SRL**
Bareggio, (Milano) ITALY
Tel +39 02 90360719
info@activeconcepts.it

**Active Concepts LLC, Asia**
Kaohsiung, Taiwan
Tel + 886 73599900
info-asia@activeconceptsllc.com.tw

**Website**
www.activeconceptsllc.com

**Social Media**
@activeconceptsglobal