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## **Ashland introduces Neomatrix™ biofunctional, a pentapeptide inspired by skin's natural healing ability**

### ***Boosting in vitro expression of stratifin signaling proteins, Neomatrix™ biofunctional supports skin's own cross-communications linked to dermal remodeling and wrinkle repair***

WILMINGTON, DE - Ashland Specialty Ingredients, a commercial unit of Ashland Inc. (NYSE: ASH), today introduced Neomatrix™ biofunctional, a novel skin pentapeptide inspired by stratifin signaling proteins, an epidermal biomessenger that functions on an intercellular basis to support skin's own dermal remodeling and repair functions. Designed to help skin optimize cross-talk for dermal remodeling, the pentapeptide has been shown to enhance in vitro expression of epidermal stratifin and to support in vitro production of skin matrix rebuilding components, such as pro-collagen, collagen I, collagen II and hyaluronic acid. In clinical studies, Ashland demonstrated that Neomatrix biofunctional answers a global cosmetic need in wrinkle repair, wherein 12 volunteers aged 41 to 61 years observed highly statistically significant reductions in the total number of "crow's feet" wrinkles.

"Wrinkles can be considered similar to wounds that skin has to repair," said Justine Cotton, global marketing manager, skin care biofunctionals, Ashland Specialty Ingredients. "We know from ongoing research that communication between skin compartments, which plays an essential role in the repair process, is reduced and becomes less effective with age. Neomatrix biofunctional is based on the science of wound healing and the dermal remodeling processes essential for wrinkle repair."

#### **Skin is a complex system**

Healthy-looking skin is a result of a complex equilibrium of thousands of processes that protect, repair and respond to environmental exposure. Skin reacts in an orchestrated cascade of cellular processes to self-repair and remodel. Dermal remodeling is achieved through turnover, which consists of a fine balance between the synthesis of new skin matrix components, such as neo-collagen, and depletion of old matrix components by specific enzymes, such as metalloproteinase. Neomatrix biofunctional, shown to enhance expression of stratifin signaling proteins in vitro, may support dermal turnover balance, resulting in wrinkle repair, as demonstrated in clinical studies.

#### **Optimizing communication for wrinkle repair**

Stratifin biomessengers cross-communicate between keratinocytes and fibroblasts to initiate dermal remodeling. Neomatrix biofunctional has been shown in a series of tests to optimize keratinocyte-fibroblast cross-communications in vitro.

In vitro results with Neomatrix biofunctional at 1 percent demonstrate a 52 percent increase in stratifin release after only one hour. As research has shown, stratifin production, by informing fibroblasts to remodel, helps skin maintain a natural mild physiological expression of MMP-1 mRNA, whose job is to degrade aged or damaged collagen. In parallel, neo-collagen mRNA is produced, providing the means for new collagen production that may be required to achieve dermal turnover balance. Indeed, enhanced expression of MMP-1 mRNA and production of neo-collagen mRNA were observed in vitro after application of Neomatrix biofunctional.

New skin care innovations supported by in vitro observations, are essential to the success of products formulated for efficacy. Studies show Neomatrix biofunctional helps keratinocytes express stratifin signaling proteins in vitro. Optimal expression of these signaling proteins helps to assure the cross-communications required for robust fibroblast expression of dermal remodeling components. No other commercially available ingredient is demonstrated in vitro to bolster epidermal-dermal cross-communications in a way that stimulates both collagen degradation and production in vitro.

#### **From science to better looking skin**

In wrinkle repair clinical evaluations, an eight-week, double-blind clinical study with 12 volunteers ranging in age from 41 to 61 years showed highly statistically significant reductions in the number and average depth of facial wrinkles, when compared with a placebo. Applying Neomatrix biofunctional cream on the face twice per day, volunteers also exhibited statistically significant reductions in total and average wrinkle length, when compared with a placebo.

#### **Skin care concepts inspired by biomessaging science**

Cosmetic formulations utilizing Neomatrix biofunctional may help skin achieve a dermal turnover balance through a reduction of aged dermal components and increase in new dermal components. Ashland formulation and technical teams will support a range of skin care formulation types conceived for beauty effects, for facial day and night skin care products that reduce visible signs of aging, promote wrinkle repair, smooth skin texture and firm the skin.

"Ashland invites formulators to imagine facial care products based on a novel scientific concept, one that offers consumers new reasons to feel confident about their skin. Neomatrix biofunctional is now available for use in a range of wrinkle repair, firming and remodeling formulations. A series of prototypes available to formulators may be used as starting points for new innovations," said Cotton.

### **About Ashland Specialty Ingredients**

Ashland Specialty Ingredients, a commercial unit of Ashland Inc., offers industry-leading products, technologies and resources for solving formulation and product performance challenges in key markets including personal care, pharmaceutical, food and beverage, coatings and energy. Using natural, synthetic and semi-synthetic polymers derived from plant and seed extract, cellulose ethers and vinyl pyrrolidones, Ashland Specialty Ingredients offers comprehensive and innovative solutions for today's demanding consumer and industrial applications.

### **About Ashland**

In more than 100 countries, the people of Ashland Inc. (NYSE: ASH) provide the specialty chemicals, technologies and insights to help customers create new and improved products for today and sustainable solutions for tomorrow. Our chemistry is at work every day in a wide variety of markets and applications, including architectural coatings, automotive, construction, energy, food and beverage, personal care, pharmaceutical, tissue and towel, and water treatment. Visit [ashland.com](http://ashland.com) to see the innovations we offer through our four commercial units - Ashland Specialty Ingredients, Ashland Water Technologies, Ashland Performance Materials and Valvoline.

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