Pinoxide Stimulates Collagen Production
and Increases Localized Blood Flow

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AGI Dermatics (Freeport, N.Y.) has announced new clinical research that indicates Pinoxide, a proprietary blend of bicyclic monoterpene diols (BMTd), is an effective agent in treating photodamaged skin by significantly increasing collagen production and simultaneously decreasing production of collagenases.

Exposure to ultraviolet rays from sunlight accounts for nearly all of the symptoms of premature skin aging. Consequences of long-term exposure are many, but one of the most disturbing is photodamage, including fine lines and wrinkles. Cells release enzymes that break down collagen at a faster rate, causing collagen fibers to fray. They separate from living cells, which makes the healing process more difficult. The result is a disorganized network of collagen fibers, known as solar scars. When the skin repeats this imperfect rebuilding process over years of sun exposure, wrinkles develop.

"Our clinical research suggests BMTd compounds are useful in maintaining high collagen levels within the layers of sun exposed skin," said Dan Yarosh, Ph.D., president of AGI Dermatics. "This is extremely valuable when we consider the existing data that shows BMTds also increase nitric oxide levels and play a major role in collagen synthesis."

This study examined the effects of BMTds on both collagen production and expression of collagenase, specifically metalloproteinase-1 (MMP-1). Collagenases, such as MMP-1, degrade collagen, which results in damage of the dermal matrix, expressed as wrinkles, a molecular marker for aging.

Research also examined the theory that treatment of the epidermis with BMTds might prompt repair of the dermis – the tissue which provides flexibility, elasticity and strength to skin.

"We know photodamage accounts for nearly all of the symptoms of premature skin aging, and wrinkles associated with aging are a result of a decrease in collagen," Dr. Yarosh said. "The data suggests that BMTd compounds play a promising role in treating the underlying causes of wrinkles and in promoting increased circulation by boosting nitric oxide levels." The study indicates a significant 91% increase in collagen production in fibroblasts and a significant 30% decrease in MMP-1 production.

Researchers have also discovered that the boost in localized blood flow, prompted by BMTds, reduces the appearance of under eye circles. "The tissue under the eye is very thin, and when blood flow slows or stalls, it presents as a discernable purple color," Dr. Yarosh noted. Remergent Microcirculation Therapy (formulated by AGI Dermatics) contains two BMTds and a calming agent to reduce inflammation. The outpatient treatment is applied under the eyes to build collagen and reduce circles. Contained in a 15 ml airless pump (similar to a pen), the cream is dispensed in metered doses for optimal effectiveness.

Five additional studies support the hypothesis that BMTd compounds increase microcirculation. "Pinoxide clearly improves the appearance of lip color, reduces the appearance of dark under eye circles and strengthens skin elasticity," said Dr. Yarosh, one of the study authors. "We knew from other laboratory studies that we could achieve increased amounts of these mediators, but to actually see the effects in skin was remarkable." Targeting underserved circulation in skin is a new approach to understanding the changes that lead to skin aging.