



VINIFERAMINE®

# MOLECULES & HEALTH

HEALING THROUGH MODERN SCIENCE WITH SMALL MOLECULE TECHNOLOGIES

## Avoiding Hand Dermatitis

Hand dermatitis is one of the most common problems encountered in dermatology with a prevalence possibly as high as 50% or greater in certain occupations. The discomfort associated with hand dermatitis frequently results in a decreased quality of life. In fact, hand dermatitis can be debilitating for many years.

Dermatitis (or eczema) is inflammation of the skin, characterized by itchy (pruritic), red, weeping skin with vesicles and/or crusty patches. The risk factors for hand dermatitis include chemical exposures, frequent handwashing, and wet-work environments contributing to a higher prevalence in specific occupations including healthcare professionals, machinists, hairdressers, and food industry employees.

Several of the extraordinary small molecules found in Viniferamine® At Home™ skin care products have potent anti-inflammatory activities including the beneficial polyphenols oleuropein, resveratrol, and epigallocatechin-3-gallate (EGCG) from olives, grapes, and green tea, respectively, as well as the important small molecules, melatonin, and L-glutathione. In addition, dipotassium glycyrrhizate and components of shea butter also possess anti-inflammatory activities.

Three of the most common types of hand dermatitis include atopic dermatitis (AD), allergic contact der-

matitis (ACD) and irritant contact dermatitis (ICD). AD is the most common chronic inflammatory skin disease that often occurs in association with food allergies, hay fever or asthma.

It affects approximately 15-30% of individuals in the early years of life with a lifetime prevalence of approximately 10-20%. AD is characterized by immune dysregulation and epidermal barrier dysfunction caused by genetic mutations in a structural protein (filaggrin) essential for the formation of the skin barrier as well as natural skin moisturizers. A decreased content of specific lipids (ceramides) in the epidermis is also typical of AD. Due to their impaired skin barrier function, individuals with AD are more likely to develop ACD and ICD. AD has also been associated with obesity and exposure to air pollutants including tobacco smoke.

ACD is a delayed hypersensitivity response that occurs when an allergen comes in contact with the skin. Inflammation is usually delayed by a few days from the time of exposure. Contact allergens do not produce immune responses by



themselves but must bind to epidermal proteins in order to elicit a response. Hundreds of chemicals present in almost every industry including metals, resins, and rubber additives have been found to cause ACD, which is the second most commonly reported occupational illness. Frequent water exposure increases sensitization to allergens, making ACD more common in occupations where wet-work is combined with exposure to allergens.

ICD is an inflammatory response that results from activated innate immunity to skin damage without prior sensitization. The severity of ICD is proportional to the nature of the irritant and the extent of damage to the skin barrier. Organic solvents including acetone can extract lipids from the top layer of the epidermis (stratum corneum) disrupting the skin barrier. In contrast, detergents like sodium lauryl

sulfate (SLS) can damage structural proteins, including keratin, exposing new water binding sites, causing hyper-hydration of the stratum corneum and disorganization of the lipid bilayers.

Viniferamine® At Home™ skin care products include ingredients that enhance epidermal barriers. Measuring transepidermal water loss (TEWL) is one way to assess the quality of the skin barrier and how well it functions. Oleuropein has been shown to reduce transepidermal water loss indicating its ability to increase skin barrier function. Evidence also demonstrates that melatonin has a stimulatory role in building and maintaining the epidermal barrier. In addition, dipotassium glycyrrhizate protects against degradation of hyaluronic acid, which helps maintain skin hydration. Viniferamine® At Home™ skin care products protect



epidermal barriers. Unlike soaps that may include harsh detergents, Viniferamine® At Home™ Clean N Moist includes phospholipids, nutrients and moisturizers to gently cleanse and protect skin. Furthermore, the dimethicone found in Viniferamine® At Home™ Silicone Skin Barrier provides a breathable barrier to protect skin and help keep it hydrated.

Specific genetic, immune, and environmental factors predispose individuals to an increased risk of

hand dermatitis. Protecting skin by using Viniferamine® At Home™ Renewal Skin Moisturizer, Clean N Moist, and Silicone Skin Barrier will enhance the skin barrier to help defend against allergens and irritants. Moreover, many of the potent small molecule ingredients that are included in Viniferamine® At Home™ skin care products protect against inflammation.

## References

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