Clinical Snippets

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MORNING-AFTER PILL FOR SUNTAN

Early treatment of sunburn with cyclo-oxygenase inhibitors may reduce skin cancers, as suggested by the study from St. Louis and Rochester. Prostaglandin (PG) synthesis increases as part of a repair response to UV light; however, this may be associated with the persistence of cells with mutated DNA sequences, which could evolve into cancers. Inhibition of keratinocyte PG synthesis with potent PG inhibitors increased apoptosis and may eliminate those mutated cells. The morning-after pill for suntan would be an important addition to the beach bag. (J Invest Dermatol 121:853–861, 2003)

COX-2 AND PREOCIOUS CATAGEN

Topical prostaglandin for glaucoma increases eyelash growth; some patients treated with cyclo-oxygenase inhibitors develop alopecia. Müller-Decker and coworkers report that COX-2 expression in the basal layer of the hair follicle and the epidermis leads to premature catagen and alopecia in mouse skin. In these transgenic animals the alopecia was prevented with a COX-2 inhibitor. Considering the common use of COX-2 inhibitors, hair-related effects in patients should be closely investigated. (J Invest Dermatol 121:661–668, 2003)

ENERGY SHORTAGE IN HAILEY-HAILEY KERATINOCTYES

Actin, a ubiquitous component of the cytoskeleton, cannot be properly reorganized in Hailey-Hailey (HH) keratinocytes and is associated with low ATP levels in HH cells. Actin polymerization and filopodia are among the first responses to increased calcium. When actinomycin was used in normal keratinocytes to inhibit oxidative phosphorylation, the HH phenotype was reproduced. Aronchick and coworkers found the cytoskeleton of HH keratinocytes did not organize after stimulation by increased calcium and the normal extension of the cytoskeleton to the plasma membrane did not occur. (J Invest Dermatol 121:681–687, 2003)

NEUROPATIIY, ULCERS AND GROWTH FACTORS

Diabetes, leprosy, and genetic disorders of growth factors can produce associated skin ulcers and decreased Nerve Growth Factor (NGF) levels in the skin. In this article by Kanda and Watanabe, 17-beta-estradiol (E2) stimulated NGF secretion several-fold in mononuclear cells, although testosterone and progesterone did not. Tamoxifen, an estrogen antagonist, did not alter NGF. Detailed molecular studies demonstrated that membrane-associated E2 and not the nuclear steroid receptor for E2 was the important component of mediating this response. Cyclic AMP was the mediator of the estrogen response membrane-related response. These findings may lead to hormonal and growth factor treatment of skin ulcers. (J Invest Dermatol 121:771–780, 2003)

HOUSEKEEPING GENES DO GOOD WORK

Housekeeping genes are usually thought to be the “grunts” of the cell—quietly doing important but essentially dull jobs such as making ATP and keeping metabolic pathways near and clean. It is remarkable that a deficiency of one enzyme, the gene for fumarate hydratase, an enzyme of the Krebs cycle, is associated with cutaneous and uterine leiomyomas in families around the world, as reported by Martinez-Mir and colleagues. This disorder raises fundamental questions about the relations among energy metabolism, proliferation and malignancy that may be addressed by studying the cells from these patients and their homologous mouse models. (J Invest Dermatol 121:741–744, 2003)

AS2O3 FOR CTCL

When Sezary was describing his “monster” cells, organic arsenicals were part of the therapy for syphilis. Inorganic arsenic is a known carcinogen and it is intriguing that in the era of new recombinant biological response molecules arsenic is still of interest. In the study reported by Michel and coworkers, AS2O3 induced apoptosis, which can be potentiated by ascorbic acid and occurs in normal T cells and in the abnormal T cells of those with Sezary’s syndrome. AS2O3 has been used in the treatment of promyelocytic leukemias and may have a potential role in CTCL/Sezary’s syndrome. (J Invest Dermatol 121:881–893, 2003)