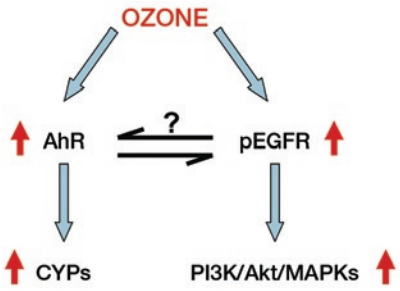
The Ozone Effect

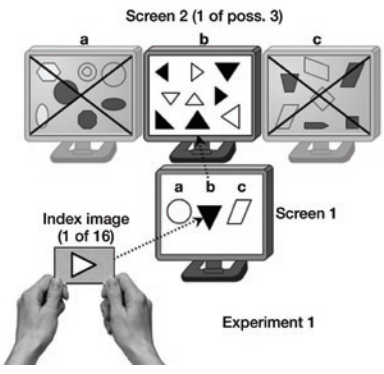


Ozone cytotoxicity, which stems from antioxidant depletion, affects cells in both the stratum corneum and the deeper layers of skin. Afaq and colleagues implicated the aryl hydrocarbon receptor in induction of cytochrome P450s (CYP1A1, CYP1A2, and CYP1B1), which are responsible for metabolic activation of environmental procarcinogen pollutants. In addition, in cultured normal human epidermal keratinocytes, ozone exposure resulted in increased phosphorylation of the epidermal growth factor receptor and subsequent activation of downstream signaling molecules (PI3K/Akt) that have been implicated in neoplastic transformation; however, this pathway is not integral to CYP induction by ozone in the cultured cells. ***See page 2396***

Tick Defense

Upon exposure to *Borrelia burgdorferi*—the causative agent of tick-borne Lyme disease—skin cells, including keratinocytes, Langerhans cells, and dermal fibroblasts, activate the NF-κB pathway and produce inflammatory molecules that include chemokines, cytokines, and antimicrobial peptides. Marchal and colleagues reported that IL-8 and defensin, but not cathelicidin, were induced by exposure to this spirochete. Importantly, incubation of host cells with tick salivary gland extract significantly inhibited this induction. Because the initial cutaneous phase of spirochete infection may determine whether the disease disseminates to the joints, heart, and nervous system, *B. burgdorferi* may benefit from minimizing the antimicrobial and antichemotactic functions of the innate cutaneous immune response. ***See page 2515***

Novice "Diagnostic Snap"



An intriguing question in dermatology is how experts recognize dermatological lesions. To explore this topic, Brown and colleagues examined the ability of non-experts to match images of basal cell carcinomas, squamous cell carcinomas, and seborrheic keratoses to images in a computer database. Although this matching approach has proved useful in other situations, clinically the approach is often looked on with great skepticism. Surprisingly, the novices matched the images correctly and ultimately assigned the correct dermatologic diagnosis with a high degree of accuracy (75–94%), supporting future exploration of this matching approach for computer diagnosis development. ***See page 2509***

Risky Business

Previously, psoriasis was thought to affect only skin; however, this chronic inflammatory disease has been linked to other diseases. The risk of stroke in psoriasis patients was determined in a broadly representative, population-based cohort from the General Practice Research Database in the United Kingdom. After adjusting for major risk factors, patients with severe psoriasis were found to have a 44% increased risk of stroke, a serious comorbidity. These findings support other recent studies indicating that psoriasis is an independent risk factor for both cardiovascular disease and cerebrovascular disease. ***See page 2411***

Standardizing Pemphigus Assessment

A validated scoring system is necessary to rate disease activity, especially during large multicenter therapy trials for pemphigus. Rosenbach and colleagues determined that the new measurement instrument—the Pemphigus Disease Area Index (PDAI)—was the most reproducible of the instruments tested. In addition, the PDAI allowed physicians to capture the extent of skin and mucosal lesions in cases of mild or moderate pemphigus vulgaris and pemphigus foliaceus, suggesting that this index may be a useful outcome measure for future treatment trials. ***See page 2404***

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