

# Stress may make you itch

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Current research suggests that stress may activate immune cells in your skin, resulting in inflammatory skin disease. The related report by Joachim et al., "Stress-induced Neurogenic Inflammation in Murine Skin Skews Dendritic Cells towards Maturation and Migration: Key role of ICAM-1/LFA-1 interactions," appears in the November issue of *The American Journal of Pathology*.

Skin provides the first level of defense to infection, serving not only as a physical barrier, but also as a site for white blood cells to attack invading bacteria and viruses. The immune cells in skin can over-react, however, resulting in inflammatory skin diseases such as atopic dermatitis and psoriasis.

Stress can trigger an outbreak in patients suffering from inflammatory skin conditions. This cross talk between stress perception, which involves the brain, and the skin is mediated through the "brain-skin connection". Yet, little is known about the means by which stress aggravates skin diseases.

Researchers led by Dr. Petra Arck of Charité, University of Medicine Berlin and McMaster University in Canada, hypothesized that stress could exacerbate skin disease by increasing the number of immune cells in the skin. To test this hypothesis, they exposed mice to sound stress. Dr. Arck's group found that this stress challenge resulted in higher numbers of mature white blood cells in the skin. Furthermore, blocking the function of two proteins that attract immune cells to the skin, LFA-1 and ICAM-1, prevented the stress-induced increase in white blood cells

in the skin.

Taken together, these data suggest that stress activates immune cells, which in turn are central in initiating and perpetuating skin diseases. Fostered by the present observation, the goal of future studies in Dr. Arck's group is to prevent stress-triggered outbreaks of skin diseases by recognizing individuals at risk and identifying immune cells suitable to be targeted in therapeutic interventions.

Source: American Journal of Pathology

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