

CAF/18/05 Defining a specific IL-22-mediated pathway in regulating eczema

Eczema is a debilitating condition of which there are several sub-types each with varying immunological abnormalities, including atopic eczema, allergic contact dermatitis (ACD), and acute and chronic eczema. Effective treatment requires a better understanding of these abnormalities.

Objectives and outcomes:

Does Prostaglandin E₂/IL22 pathway vary with eczema subtype?

Interleukin 22 (IL22), a protein produced by immune cells (T cells), is closely linked to eczema development. IL22 is stimulated by the inflammatory chemical, Prostaglandin E₂ (PGE₂), to cause allergic contact dermatitis (ACD) in mice. To establish if this occurs in human eczema I will take blood samples and skin biopsies from eczema and psoriasis (shares some immune abnormalities with chronic eczema) patients and from controls.

What is the sequence of events of activation of the PGE₂/IL22 pathway?

I will produce irritant and allergic eczemas in human volunteers, measuring PGE₂ and IL22 at various time points. Repeating the experiment, I will create two groups, one pre-treated for one week with a nonspecific prostaglandin inhibitor (aspirin) and the second with a placebo control.

Benefits

Understanding this pathway in eczema subtypes would help development of safer disease specific treatments while reducing costs to the health services.