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Efficacy of a Multi-herb Extraction CAP against Chronic Inflammatory Disease

GREAF

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Introduction:

The pathological and mechanisms of chronic inflammatory disease, such as eczema and atopic dermatitis (AD), is not fully researched. However, more and more researchers believe dysfunction in epidermal and immune barrier play key role in chronic inflammatory disease. The present work explored the possible mechanism of a multi-herb extraction CAP (*Citrus aurantium* tachibana Peel, *Artemisia Capillaris* and *Pueraria lobate* Root) against chronic inflammatory response targeting key cytokines and proteins in the initial, signal conduction and effective stage, and provided the potential strategy to development and evaluate skin care products focus on eczema and AD.

Materials & Methods:

➢ **Anti-inflammation test *in vitro*:**

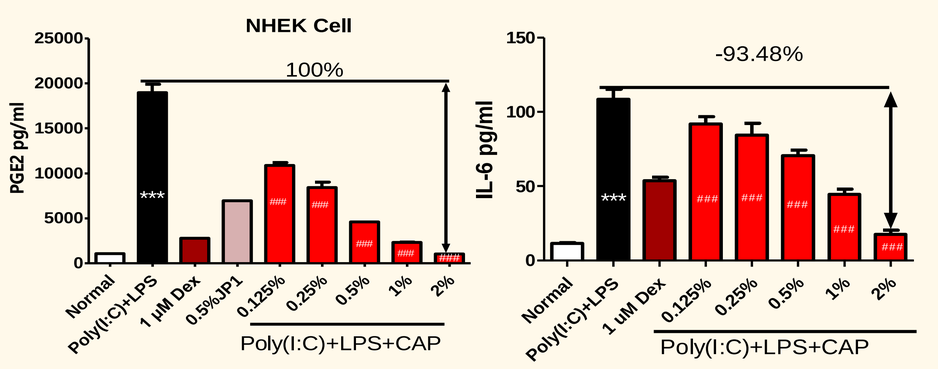
LPS and Poly I:C acted as exogenous stimulant to NHEK cells with or without CAP for 24 h. PMA was firstly used to treat THP-1 cells for 48 h to promote it differentiated to macrophages. And then, LPS as a exogenous stimulant was added to cells with or without CAP for 24 h. Mast cells were pre-treated with or without CAP for 16 h, then stimulated by compound 48/80 for 45 min to induce cell degranulation. Culture supernatant was harvested in all the experiments to detect the production of various cytokines by ELISA kit.

➢ **Skin irritation and inflammation test *in vivo*:**

After 15 minutes of 1.7 mg/ml histamine phosphate irritation, swelling and erythema were observed in the subject area (0 min, Before use). 5% and 10% CAP was applied to irritation area for another 30 min (after use). Case study was shown with photos before and after treatment.

Results & Discussion:

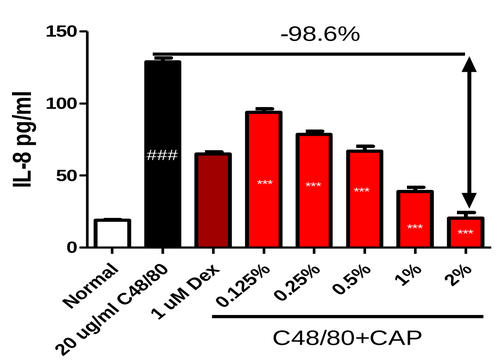
CAP affected initial cytokines on keratinocytes



CAP dose dependently inhibited the expression of PGE-2 and IL-6 stimulated with Ploy (I:C) and LPS for 24 h on NHEK cells, which indicated the initial inflammatory response.

Note: JP1 refers to competitor; ; *** P<0.001 compared to Normal; ### P<0.001 compared to Poly(I:C) + LPS.

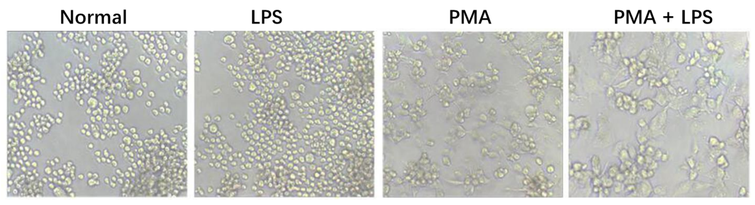
CAP inhibited IL-8 expression on mast cell



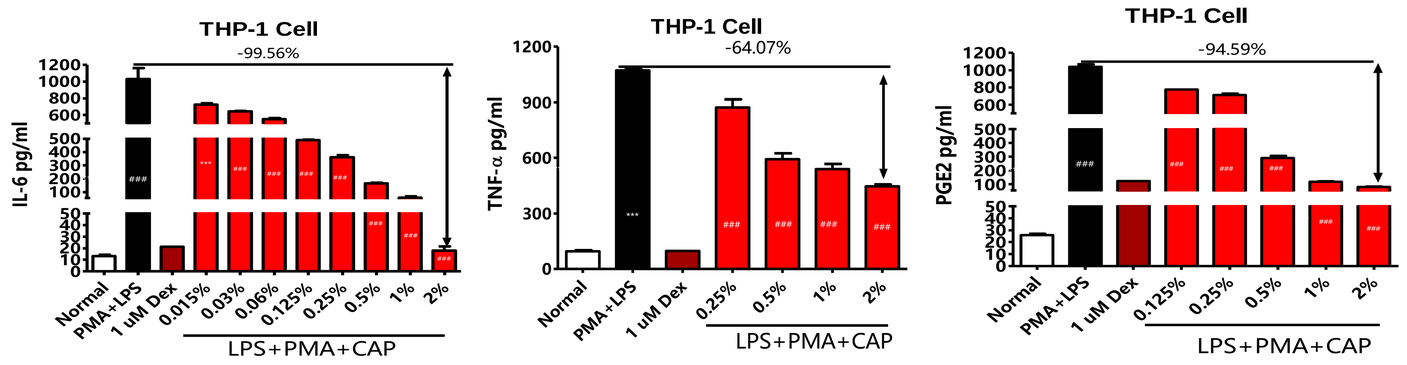
CAP significantly inhibited the over-expression of IL-8 after C48/80 treatment from 0.125% to 2%, which indicated cell degranulation in the effective stage of skin stimulus response and immunoreaction.

Note: *** P<0.001 compared with Normal; ### P<0.001 compared with C48/80.

CAP affected signal cytokines on monocytes



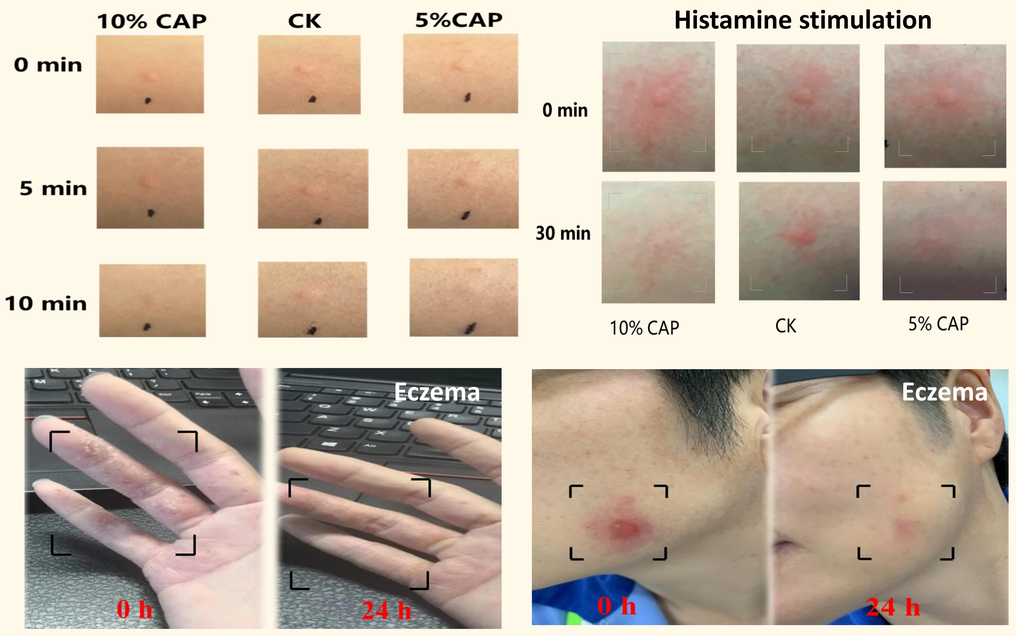
THP-1 monocytes were changed from spherical to irregular adherent macrophage-like after PMA treatment. It will be acted as a signal-amplified cells in skin inflammatory response.



CAP significantly decreased the over-expression of IL-6, TNF-α and PGE-2 from 0.125% to 2% after PMA and LPS stimulation. These cytokines aggravated inflammatory response as signal-conducting factors.

Note: *** P<0.001 compared to Normal; ### P<0.001 compared to PMA + LPS.

Case study in clinical



Four typical case report listed above when treated with CAP.

Conclusions:

CAP can relieves skin inflammatory response such as contact dermatitis, eczema and atopic dermatitis by targeting lots of cytokines in the initial, signal conduction and effective stage respectively. It can protect skin from inflammation with herb's natural and soft care.

References:

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[2] Saavedra J M, Boguniewicz M, Chamlin S, et al. Patterns of Clinical management of atopic dermatitis in infants and toddlers: a survey of three physician specialties in the United States[J]. Journal of Pediatrics, 2013, 163(6):1747-1753.