GESINAS - ImmunoTools Award 2014

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Psoriasis Natural Remedies: Generation of Innovative Anti-inflammatory Compounds.

Psoriasis is a chronic, inflammatory skin disorder characterized by thick, scaly plaques and itchiness. Its cause is not yet known, but it is probably due to a combination of an abnormal immune system response and a defect in the skin cells themselves. Controlling the signs and symptoms typically requires lifelong therapy. People with psoriasis commonly go through periods of embarrassment, frustration, and depression about their condition. Because psoriasis affects exposed skin, it is a highly visible disease. While scientists still do not fully know what causes psoriasis, research has significantly advanced our understanding. Researchers now believe that psoriasis is an immune-mediated condition. This means the condition is caused by faulty signals in the body's immune system. It is believed that psoriasis develops when the immune system tells the body to over-react and accelerate the growth of skin cells. Psoriasis can be inherited. Researchers have identified genes that cause psoriasis. These genes determine how a person's immune system reacts. These genes can cause psoriasis. Research indicates that a "trigger" is needed. Stress, skin injuries, a strep infection, certain medications, and sunburn are some of the known potential triggers. Unfortunately, none of the available treatments for psoriasis is a cure. Treatment can often control the disease for long periods, but the disease can come back when treatment stops. The various treatment methods include topical therapy, phototherapy and systemic therapy.

Quercetin is found naturally in certain fruits and vegetables, and a quercetin extract supplement can help to reduce inflammation in the body and thereby decrease the itching and inflammation that is commonly associated with psoriasis. A recent study provides a molecular mechanism involving ROS-dependent p53 ubiquitination by which quercetin enhances arsenic compound–induced apoptosis in human keratinocytes. These observations may offer a rationale for the use of quercetin to

improve the clinical efficacy of arsenics in treating human skin diseases such as psoriasis.

Quercetin has been confirmed to have anti-inflammatory properties and to inhibit the pro-inflammatory cytokines production at the gene expression level, in particular reducing the Tumor Necrosis Factor–alpha (TNF-α) release. Because of the critical role of TNF-α in mediating tumorigenesis and inflammation, agents that can suppress TNF-α activity have enormous potential for therapy in TNF-α-linked diseases. To this end, flavonoids and phenolic compounds have been reported to be beneficial in lowering inflammation and oxidative stress as well as to have a positive effect in cancer and chronic inflammatory diseases, such as autoimmune diseseas, through their suppression of TNF-α synthesis and systemic release.

Regulators of TNF-α release in the body are currently a focus of interest as this particular compound has been linked to the incidence of such diseases as Crohns, Alzheimers, Rheumatoid Arthritis, Psoriasis and Ankylosing Spondylitis. Indeed, antibodies raised against TNF-α are now commercially available under prescription and are proving beneficial for many patients, albeit with a high cost of treatment to the health system and society.

Actually the molecular mechanisms involved in the anti-inflammatory effect of quercetin in psoriasis have not yet been studied. Than, having in mind in vivo beneficial effects of quercetin in different animal models of immuno-inflammatory diseases such as experimental autoimmune encephalomyelitis and adjuvant arthritis, on the one side, and its in vitro suppressive effect on production of TNF-α on the other side, the objective of this project is to investigate the effects of quercetin on human keratinocytes from psoriatic plaques, investigating the regulation of pro-inflammatory cytokines release. The focus of the project will be identify whether treatment with quercetin is able to induce significant modulations in transcription factor for cytokine mRNA and chemokines and immunomodulatory cytokines release correlated with clinical features. cDNA microarray analysis will be performed to investigate the pattern of cytokines expression from psoriatic keratinocytes and to evaluate the effect of quercetin treatment to identify novel therapeutic strategies in order to diminish the major adverse events like pruritus, burning, local skin irritation and erythema.

The Multicolour combinations of antibodies and the human ELISA-set for TNF-alpha from ImmunoTools will elucidate the specificity of the molecular mechanism involved in chronic inflammatory processes characterizing psoriasis. This study will be extended to investigate a large group of autoimmune diseases patients to accurately investigate the patient-to-patient variability in the psoriasis features to identify an individually tailored therapy.

Regards my engagement in social projects, frequently I work on projects for charity events to raise funds for rare diseases research and addressed to buy vaccines to countries with the greatest needs.

GESINAS ImmunoTools AWARD for

Raffaella De Lucro includes 33 reagents

Multicolour combinations anti-human:
CD3 FITC / CD4 PE
CD3 FITC / CD8 PE
CD4 FITC / CD8 PE
CD4 FITC / CD3 PE / CD8 PerCP
CD3 FITC / CD4 PE / CD45 PerCP
CD3 FITC / CD8 PE / CD45 PerCP
CD4 FITC / CD8 PE / CD45 PerCP
CD3 FITC / CD4 PE / CD45 PE-Dy647
CD3 FITC / CD8 PE / CD45 PE-Dy647
CD4 FITC / CD8 PE / CD45 PE-Dy647
CD3 FITC / CD4 PE / CD19 APC

human TNFa ELISA-set for 96 wells (3 reagents)

DETAILS more AWARDS