

Co-administration of NaHCO₃ and NH₄Cl to reduce inflammation

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Technology description

Current state of the art

There are a number of anti-inflammatory drugs currently available on the market such as non-steroidal anti-inflammatory drugs (NSAIDS), corticosteroids, and disease modifying anti-rheumatic drugs (DMARDS).

Problems with current state of art

Chronic use of non-steroidal anti-inflammatory drugs ("NSAIDS"), which inhibit the synthesis of prostaglandins and thromboxanes, results in numerous undesirable side effects including an increased risk of stomach ulcers and heart attacks. Chronic use of corticosteroids, which also inhibit inflammation and regulate a large range of physiological processes including carbohydrate metabolism, behavior, and electrolytes, lead to serious side effects. DMARDS disrupt a range of immune signaling system pathways including key proinflammatory cytokines TNF-alpha, IL-1beta, and/or enzymes involved in the production of immune cells, resulting in down-regulation of the immune system and an increased risk of infection and malignancy and often must be administered by injection only.

Advantages

This invention teaches the ingestion of a cocktail of an alkaline salt and a metabolic acid inducer to reduce inflammation. For example, oral NaHCO₃ shifts macrophage polarization from a predominantly inflammatory phenotype to a regulatory phenotype in the spleen and kidneys of rats and in the blood of humans while the addition of a metabolic-produced acid, NH₄CL, balances systemic pH for reduced side effects compared to current treatments.

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