# Allergic rhinitis, asthma, and atopic dermatitis

FX Medicine™ BioCeuticals

**ALLERGIC DISEASES** are among the fastest growing chronic conditions in Australia[1]

Around **1 in 7** Australians have an **ALLERGIC DISEASE**[2]

**PREVALENCE IN AUSTRALIANS:**

- Allergic rhinitis affects nearly 1 in 4[2]
- Just under 1.6 million suffer from atopic dermatitis[3]
- Around 11% have asthma[4]

It is predicted that by 2050 the prevalence of **ALLERGIC DISEASES** in Australia will increase by **70%**[5]

## NUTRITIONAL INHIBITION OF THE ALLERGIC RESPONSE[6-30]

**SENSITISATION**

An allergen is taken up by antigen-presenting cells, e.g. dendritic cells, and presented to naive T cells which then differentiate into Th2 cells. This results in the generation of an allergen-specific humoral response that is predominated by the production of IgE antibodies.

These IgE antibodies attach to mast cells and basophils thereby sensitising them to subsequent exposure. This process of binding of IgE to the receptors is hallmark of sensitisation.

**EARLY PHASE RESPONSE: TYPE 1 ALLERGIC REACTION**

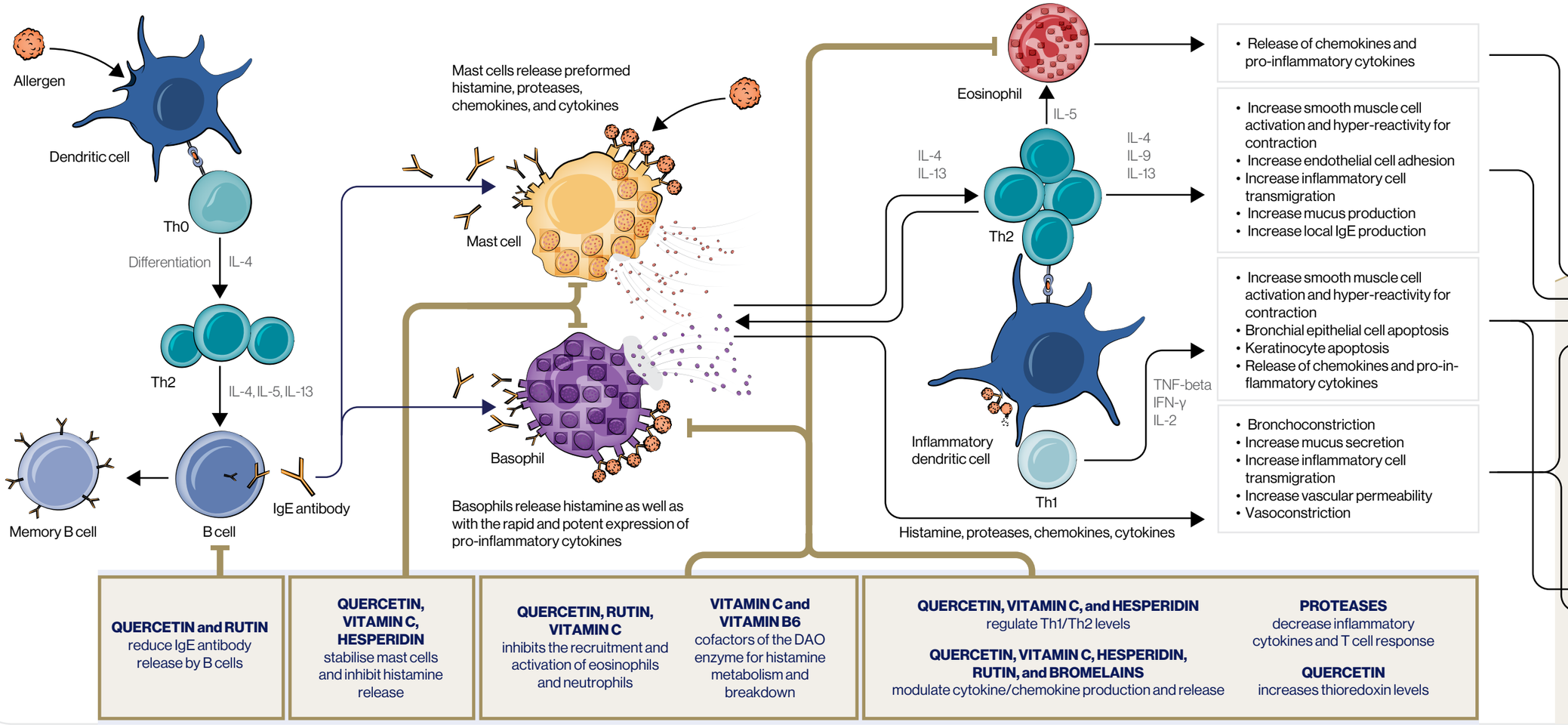
On subsequent re-exposure to the allergen, the allergic response is triggered: the allergen cross-links with the IgE on the surfaces of the mast cells or basophils, causing the cell to rapidly degranulate and release inflammatory mediators.

Much of the early phase allergic reaction can be attributed to the direct effects of histamine on surrounding tissues, e.g. swelling, itching, sneezing in allergic rhinitis, airway constriction in asthma, or pruritis in atopic dermatitis.

**LATE PHASE RESPONSE: ALLERGIC INFLAMMATION**

Chemokines released by mast cells and basophils promote the recruitment of inflammatory cells that contribute to the late allergic response, which is characterised by an influx of eosinophils and Th2 cells. There is now evidence that Th1-cell responses might also be responsible for some of the pathogenic features of allergy, and the model of unbalanced Th1/Th2 may be an oversimplification of the process.

Late phase responses are characterised by: an oedematous, red and slightly indurated swelling in the skin; sustained blockage in the airways; and further wheezing in the airways.




**QUERCETIN and RUTIN** reduce IgE antibody release by B cells

**QUERCETIN, VITAMIN C, HESPERIDIN** stabilise mast cells and inhibit histamine release

**QUERCETIN, RUTIN, VITAMIN C** inhibits the recruitment and activation of eosinophils and neutrophils

**VITAMIN C and VITAMIN B6** cofactors of the DAO enzyme for histamine metabolism and breakdown

**QUERCETIN, VITAMIN C, and HESPERIDIN** regulate Th1/Th2 levels

**QUERCETIN, VITAMIN C, HESPERIDIN, RUTIN, and BROMELAINS** modulate cytokine/chemokine production and release

**PROTEASES** decrease inflammatory cytokines and T cell response

**QUERCETIN** increases thioredoxin levels

**For further information contact BioCeuticals Naturopathic Advisory Team on 1300 650 455 or advisory@bioceuticals.com.au**

IL: interleukin; Th0: naive T cell; Th1: type 1 T helper cell; Th2: type 2 T helper cell; TNF: tumour necrosis factor; IFN-γ: interferon gamma; IgE: Immunoglobulin E; DAO: diamine oxidase