

## Mast cell degranulation: A target for bioactive natural products

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### Abstract

Mast cells are well known for their involvement in allergic, anaphylactic reactions and variety of inflammatory diseases. Many plants show anti-allergic activity by inhibiting histamine release from mast cells. Degranulation of mast cells can be prevented by various mechanisms. As histamine is one of the important mediators for asthma, plant extracts that could prevent degranulation of mast cells may be effective in the treatment of asthma. Extract that can stabilize mast cells can inhibit mast cell-derived allergic inflammation by inhibiting release of phorbol 12-myristate 13-acetate (PMA), TNF- $\alpha$ , IL-6, IL-8 and related mediators of inflammation. Therefore, natural products that could prevent degranulation of mast cells can be effective in the treatment inflammatory diseases, such as asthma, atopic dermatitis, and allergic inflammation.

**Keywords:** Mast cell, allergic inflammation, inflammatory diseases, asthma, plant extracts.

### Introduction

Mast cells are cells found throughout the body as part of our immune system. Mast cells appear to induce a rapid inflammatory response to outside invaders, such as germs and viruses. Mast cells play a large role in allergic responses, as they release the chemical known as histamine. For the majority of this time their function was linked almost exclusively to allergy and allergic disease with few other roles in health and disease. Mast cells play critical roles in both innate and adaptive immunity, including immune tolerance. MCs can aid in maintaining a healthy physiology by secreting mediators that promote wound healing and homeostasis as well as interacting with neurons. Major developments have been made in understanding MC function in defense against pathogens, in recognition of pathogens as well as direct effector functions.