
Editorial

Histamine-Releasing Factor and TCTP

IgE-mediated activation of mast cells and basophils underlies allergic diseases such as asthma. Since Thueson et al. first described an activity from cultured peripheral blood mononuclear cells that induced the release of histamine from basophils [1], histamine-releasing activities have been studied for more than 30 years. In addition to several cytokines and chemokines with this activity, an unrelated protein termed histamine-releasing factor (HRF) was purified and molecularly cloned by Susan MacDonald and her colleagues in 1995 [2]. In this Mini Hot Topic, she describes her pioneering discoveries and others' findings on HRF functions and gives a historical perspective. HRF, also known as translationally controlled tumor protein (TCTP) and fortilin, is a highly conserved protein with both intracellular and extracellular functions [3]. Secreted HRF can stimulate histamine release and IL-4 and IL-13 production from IgE-sensitized basophils and mast cells. HRF-like activity is found in nasal, skin blister, and bronchoalveolar lavage fluids during the late-phase allergic reactions, which implicates HRF in allergic inflammation [4]. Kyunglim Lee and his associates nicely summarize recent developments on the non-classical pathway-mediated secretion of HRF. On the other hand, TCTP has been characterized as a major tumor protein. TCTP is down-regulated upon tumor reversion. In addition, TCTP has a wide range of intracellular functions, including cell cycle progression, proliferation, and survival of a variety of cell types. These functions are related to its ability to work as a guanine nucleotide exchange factor for Rheb, a Ras superfamily protein and to interact with translational elongation factors eEF1A and eEF1B β , antiapoptotic Bcl-2 family proteins, p53, tubulin, and Plk kinase. Ulrich-Axel Bommer elegantly covers recent findings on the molecular mechanisms of how TCTP performs its roles in the fundamental biological processes. Two colleagues and I review HRF-interacting molecules emphasizing recent observations on HRF-immunoglobulins interactions. Thus, this Mini Hot Topic covers most of the research area of HRF/TCTP in a timely manner.

CONFLICT OF INTEREST

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