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Inflammation enhances exocytotic release of secretory granules in serous cells of the trachea in specific pathogen free rats

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The epithelium of the trachea of specific pathogen free rats is characterized by the presence of numerous serous cells with secretory granules containing calcitonin gene related peptide, instead of goblet cells with mucin granules. Few studies investigate the secretory activity of serous cells. The present study investigated whether a high dose of histamine administered intravenously, an important mediator of mast cells in pathogenesis of asthma, could increase serous cell secretion that was associated with tracheal mucosal inflammation and edema formation and whether pretreatment with mepyramine, a H1 receptor inhibitor, could inhibit serous cell secretion. Transmission and scanning electron microscopy showed that histamine application resulted in an increase in the number of actively secreting serous cells as evidenced by exocytotic figures and plasma membrane invaginations. Mepyramine, but not atropine, significantly inhibited the histamine induced acute inflammation and serous cell degranulation. The present study concluded that histamine induced plasma leakage, mucosal edema and serous cell exocytosis mediated through H1 receptors in the trachea of specific pathogen free rats.

Biography

Hung-Tu Huang has completed his PhD from Kaohsiung Medical University and Postdoctoral study in the cardiovascular research institute, University of California San Francisco. He has been a Professor and Chairman in Department of Biological Sciences, National Sun Yat-Sen University. Currently, he is a Professor of Anatomy, School of Medicine in Kaohsiung Medical University. He has published more than 50 papers in reputed journals and served as Reviewer of several journals.

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