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Bupleurum chinense extract against nasal inflammation by inhibiting eosinophil and mast cell activation in OVA-induced allergic rhinitis mouse model

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Bupleurum chinense has been used as traditional herbal medicine for more than a thousand years. It has been found to have anti-inflammatory, anti-oxidant, hepato-protective, antipyretic, analgesic, anti-fibrotic and immunomodulatory effect. However, the effect of *B. chinense* on allergic rhinitis remains unclear. We clarified whether or not *Bupleurum chinense* extracts (BCE) could ameliorate inflammatory response in OVA-induced AR mice model. The oral administrations of BCE inhibited the accumulation of eosinophils in NALF (nasal lavage fluid) and nasal epithelium and their active production such as CCL24. BCE may also prevented allergic response *via* suppressing mast cells accumulation in nasal epithelium and serum histamine release simultaneously with inhibiting the serum anti-OVA IgE, IgG1 and elevating the anti-OVA IgG2a at BCE dose-dependent treatment. Accordingly, nasal epithelial swelling and goblet cells hyperplasia were clearly attenuated. In addition, BCE regulated the balance of Th1, Th2 and Treg-related cytokines that could prevent inflammatory cells activation such as eosinophils ans mast cells; briefly; down-regulated the expression of IL-4, IL-5, IL-13 in NALF and nasal tissue and up-regulated the secretion of IL-10, IL-12 and IFN-γ. These results suggest that BCE may have therapeutic potential for treating allergic rhinitis by preventing the accumulation and activation of the inflammatory cells such as eosinophils and mast cells.

Recent Publications

1. Sun H X (2006) Haemolytic activities and adjuvant effect of *Bupleurum chinense* saponins on the immune responses to ovalbumin in mice. Vaccine. 24(9):1324-1331.
2. Xie J Y, Di H Y, Li H, Cheng X Q, Zhang Y Y, Chen D F (2012) *Bupleurum chinense* DC polysaccharides attenuates lipopolysaccharide-induced acute lung injury in mice. Phytomedicine 19(2):130-137.
3. Ma Y, Bao Y, Wang S, Li T, Chang X, Yang G, Meng X (2016) Anti-inflammation effects and potential mechanism of saikosaponins by regulating nicotinate and nicotinamide metabolism and arachidonic acid metabolism. Inflammation. 39(4):1453-1461.
4. Wu S J, Tam K W, Tsai Y H, Chang C C, Chao J C (2010) Curcumin and saikosaponin a inhibit chemical-induced liver inflammation and fibrosis in rats. Am. J. Chin. Med. 38(1): 99-111.
5. Bui T T, Piao C H, Song C H, Shin H S, Chai O H (2017) *Bupleurum chinense* extract ameliorates an OVA-induced murine allergic asthma through the reduction of the Th2 and Th17 cytokines production by inactivation of NFkappaB pathway. Biomed Pharmacother 91:1085-1095.

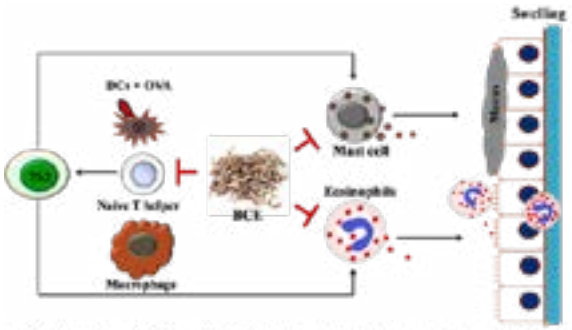

Figure 1: BCE ameliorated the allergic inflammation responses by inhibiting eosinophil and mast cell activation in an OVA-induced allergic rhinitis mouse model

Biography

Thi Tho Bui has his expertise in evaluation the herbal medicine as well as bioactive compounds for immunology-related deseases treatment.

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