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A Derivative of L-allo Threonine Alleviates Asthmatic Symptoms in vitro and in vivo

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Abstract : Asthma is a chronic airway inflammatory disease characterized by the infiltration of inflammatory cells and tissue remodeling. In this study, we examined the anti-asthmatic activity of a derivative of L-allo threonine by in vitro and in vivo anti-asthmatic assays. Ovalbumin (OVA)-induced C57BL/6 mice were used to analyze lung inflammation and cytokine expressions for exhibiting anti-atopic activity of the derivative. LX519290, a derivative of L-allo threonine, induced an increased IFN-γ and a decreased IL-10 mRNA level. This compound exhibited potent anti-asthmatic activity by decreasing immune cell infiltration in the lung, and IL-4 and IL-13 cytokine levels in the serum of OVA-induced mice. These results indicated that chronic airway injury was decreased by LX519290. We also assessed that LX519290 inhibits infiltration of immune cell, mucus release and cytokine expression in an in vivo model. Our results collectively suggest that the L-allo threonine is effective in alleviating asthmatic symptoms by treating inflammatory factors in the lung.

Keywords : asthma, L -allo threonine, LX519290, mice
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