

[P-19]**Inhibitory Effect of Melittin, a Major Component of Bee Venom,
on the Vascular Smooth Muscle Cell Proliferation**

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Atherosclerosis, a disease of the large arteries, is the most prevalent disease of our time and its thrombotic complications are responsible for an exceedingly high number of deaths and disabilities. In westernized societies, it is the underlying cause of about 50% of all deaths. Abnormal proliferation of vascular smooth muscle cells (VSMCs) plays an important role in the development and progression of proliferative cardiovascular diseases, including hypertension and atherosclerosis. Bee venom (BV) has been used for the treatment of inflammatory diseases such as rheumatoid arthritis and relief of pain in Oriental medicine. Bee venom is known to be a very complex mixture of active peptides, enzymes, and amines. The major components of bee venom are histamine, catecholamines, polyamines, melittin, and phospholipase A2. Melittin, the main component of bee venom is a strong basic polypeptide with molecular weight of 2850 kDa and a known amino acid sequence consisting of 26 amino acids. The several studies have demonstrated that the biological and pharmacological activities of BV and melittin such as anti-rheumatoid arthritis, anti-inflammatory, anti-cancer. However, so far, the effects of BV and melittin on VSMCs proliferation have not been elucidated. In this study, we therefore investigated the inhibitory properties of BV and melittin on cultured rat aortic VSMCs proliferation. BV(0.4~1.0 $\mu\text{g/ml}$) and melittin(0.4~1.0 $\mu\text{g/ml}$) significantly inhibited the 5% FBS-induced DNA synthesis of VSMCs proliferation in a concentration-dependent manner without cytotoxicity. Consistent with the inhibition of cell proliferation, melittin significantly inhibited the ERK1/2 phosphorylation. Further study to identify the inhibitory mechanism of melittin is in progress.

Keyword : bee venom, melittin, vascular smooth muscle cell, atherosclerosis