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学位論文の題名	<p>(-)Epigallocatechin gallate amplifies interleukin-1-stimulated interleukin-6 synthesis in osteoblast-like MC3T3-E1 cells (骨芽細胞においてカテキンは interleukin-1(IL-1)による IL-6 産生を促進的に制御している)</p> <p>Biochimie. Vol. 95 : P.1933-1938, 2013</p>
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Abstract

Polyphenolic compounds in foods possess anti-oxidative, anti-inflammatory and anti-tumor effects. It is currently recognized that green tea contains many polyphenols including catechins, and ingestion of green tea prevents elderly people from age-related bone loss and bone fracture. (-)-Epigallocatechin gallate (EGCG), the most abundant catechin and a major bioactive component in green tea, possesses various beneficial properties for human health. In our previous study, interleukin-1 (IL-1) stimulates the IL-6 synthesis through p44/p42 mitogen-activated protein (MAP) kinase and p38 MAP kinase pathways in osteoblast-like MC3T3-E1 cells, and AMP-activated protein kinase (AMPK) negatively regulates the IL-1-stimulated IL-6 synthesis through the inhibitor of κ B (I κ B)/nuclear factor- κ B (NF- κ B) pathway. In the present we investigated study, the effect of EGCG on the IL-1-induced IL-6 release in osteoblast-like MC3T3-E1 cells. EGCG markedly enhanced the IL-1-induced IL-6 release and the mRNA levels of IL-6 stimulated by IL-1. The phosphorylation of I κ B and NF- κ B induced by IL-1 were suppressed by EGCG. However, EGCG hardly affected the IL-1-induced phosphorylation of p44/p42 MAP kinase, p38 MAP kinase and AMPK. These findings strongly suggest that EGCG amplifies IL-1-stimulated IL-6 synthesis through inhibiting the AMPK-I κ B/NF- κ B pathway at the point between AMPK and I κ B/NF- κ B in osteoblasts.