formation and remodeling are an important turning point in that they can act like estrogen by binding on estrogen receptors on target cell surface. We, therefore, believed that isoflavones may be applied in estrogen deficiency disease such as osteoporosis in terms of estrogen replacement therapy (ERT). As commonly known, osteoporosis is one of hormonal deficiency diseases, especially in menopausal women. When estrogen is no more produced in the body itself, a remarkable bone remodeling is occurred, and the events are regulated by growth factors in osteoblast lineage. In the present study, we investigated the effect of isoflavones (Isocal) extracted from Sophorae Fructus on growth factors, IGF-I and TGF-β related with bone formation in vitro. From the study, we found that the active control (PIII) effectively enhanced the level of nitric oxide, growth factors, and finally inhibited osteoclastogenesis. The most efficient concentration was observed at 10^{-8}% for three to five days, whereas comparative control (soybean isoflavone) was not effective in lower concentration. In conclusion, the product which contained enriched glucosodic isoflavone and nutrient supplements such as shark cartilage and calcium can be used for treatment of osteoporosis by its role of enhancing the production of IGF-I and TGF-β, and nitric oxide produced through ecNOS may play a role in inhibiting bone resorption.

[PC1-1] [2003-10-10 09:00 - 13:00 / Grand Ballroom Pre-function]

Cooper ions and hypochlorite are mainly responsible for oxidative inactivation of paraoxon-hydrolyzing activity in human high density lipoprotein

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Paraoxonase, an antioxidant enzyme, exclusively located on HDL is well known for both hydrolysis of organophosphate and prevention against LDL oxidation. It have been reported that PON1 decrease its activity under oxidative stress and that PON1 activity is lower in subject with higher vulnerability to organophosphate poisoning. The aim of our study is to examine the effect of oxidative system on paraoxon-hydrolyzing activity and to elucidate the plausible mechanisms responsible for the decline of HDL-asscociated PON1activity in vivo system. Of various oxidative systems, Ascorbate/Cu^{2+} was found to be the most potent in inactivating the paraoxon-hydrolyzing activity of purified PON1 as well as HDL-associated PON1. The inactivation of PON1 is protected by catalase but not other hydroxyl scavengers, supporting the important role of Cu^{2+} in catalyzing oxidative inactivation. In addition, several lipids including oleic acid and phosphotidyl dioleoyl glycerol also expressed partial protection. Noteworthy, Cu^{2+} cause HDL-associated PON1, but not purified PON, inactivation in a concentration- dependent manner, indicating that there may be an reducing component on HDL which facilitate the inactivation of Cu^{2+}. Separately, PON1 both purified and HDL-associated form was also observed to be susceptible to HOCl. It is of interest that while susceptibility to hypochlorite (<1 mM) was similar between purified PON1 and HDL-asscoicated PON1 the inactivation by hypochlorite at higher concentration seemed to be interfered by the membrance. Moreover, Ascorbate/Cu^{2+} in concert with HOCl exhibited the cooperative effect in inactivating HDL-associated PON1 (maximum 73%). On the basis of these result, it is suggested that metal-catalysed oxidation and HOCl-generating system is likely to be responsible for the reduction of HDL-associated PON1 activity under oxidative stress.

[PC1-2] [2003-10-10 09:00 - 13:00 / Grand Ballroom Pre-function]

EROGOTHIONEINE RESCUES PC12 CELLS FROM BETA-AMYLOID-INDUCED APOPTOTIC DEATH

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beta-Amyloid (Aβ) peptide is the major component of senile plaques and considered to have a causal role in the development and progression of Alzheimer's disease. There has been compelling evidence supporting that Aβ-induced cytotoxicity is mediated through oxidative and/or nitrosative stress. Recently, considerable attention has been focused on dietary manipulation of oxidative and/or nitrosative damage. L-Ergothioneine (EGT) is a low-molecular weight naturally occurring thiol compound of dietary origin which exists in milimolar concentrations in