

**Effects of Soy Isoflavone or Estrogen on NO and PGE<sub>2</sub> Production. -Possible Involvement of Cyclooxygenase-2 (COX-2) System-**

Jang-In Shin\*, Ock Jin Park. Dept of Food and Nutrition, Hannam University, Korea

Plant derived isoflavones are currently receiving much attention because of their phytoestrogenic activities and cardioprotective effects. The mechanism through which isoflavones may exert these effects seems to depend partly on their mixed estrogen agonist-antagonist properties. Cardiac endothelial cells regulate myocardial contractility and coronary vascular tone. Nitric oxide(NO) plays a crucial role in the regulation of vascular tone in the endothelial cells. Also, it has been recognized that there is a molecular cross-talk between NO and prostaglandins(PGs) that may regulate tissue homeostasis and contribute to patho-physiological processes. In the present study, using male spontaneously hypertensive rats (SHRs) the possible inter-relation between NO production and PGE<sub>2</sub> formation was investigated. Feeding isoflavones resulted in increased concentrations of plasma NO, which were accompanied by significant decreases in tail systolic blood pressure compared to the control rats. Also, there was an elevation of PGE<sub>2</sub> in isoflavone fed animals. The molecular mechanism of the up-regulation of PGE<sub>2</sub> was examined by western blot analysis of COX-2 expression and the signal transduction pathways of COX-2 regulation. *In vivo* system, COX-2 up-regulation did not appear to be related to ERK expression. Estrogen feeding also increased the plasma NO concentrations in ovariectomized female rats. The up-regulation of COX-2 was accompanied by the stimulations of JNK expression.