E119 Expression and Enzyme Activity of Casein Kinase II During the Differentiation of Chick Limb Bud Mesenchymal Cells *in vitro*

Ji-Hyun Kim[1], Hae-Kyung Choi[1], Young-Seuk Bae[1], Shin-Sung Kang[2], and Young-Sup Lee[1]
Dept. of Biochem[1]. and Biol[2]., Kyungpook National University

Chondrogenesis is an essential event in development of the vertebrate embryonic limb. Like many other developmental processes, it is regulated by the signaling pathways involving many protein kinases. Casein kinase II (CKII), a family of related serine/threonine protein kinases, appears to play an important role in the proliferation and differentiation of a variety of cell types. This study examined the expression and activity of CKII during the differentiation of chick limb bud mesenchymal cells. When CKII expression was examined by Western blotting, the protein amounts were constant both in the nucleus and cytoplasm throughout 4 days of the culture periods. The steady state level of CKII activity, determined by using synthetic peptide substrate, was also observed during the chondrogenesis in culture. Substrate protein for CKII was investigated by using cultured mesenchymal cell extracts and in vitro phosphorylation. Addition of the purified CKII to the cell extract induced remarkable phosphorylation of a 60-kDa protein which was exclusively located in cytosolic part. The level of phosphorylation of the 60-kDa protein by CKII was not changed during 4 days of culture. These results suggest that CKII may be involved in the differentiation of chick limb bud mesenchymal cells.

E120 Effect of Temperature on Lactate Dehydrogenase Activity in the Fish (버들치; *Moroco oxycephalus*).

Jun Hyung Chung* and Wook-Bin Im
Department of Biology, Chonnam National University

Lactate dehydrogenase(LDH) activity was determined in skeletal muscle of the fish adapted to various water temperatures. LDH activity was almost a mirror image of water temperature: the activity is high in winter and low in summer. LDH isozyme pattern also varied: LDH-H_4 and LDH-MH_3 isozymes increased in winter and decreased in summer, whereas LDH-M_3H isozyme was opposed to those. When the fish, collected in spring (water temp.: 14℃), were acclimated at 20℃ similar to summer water temperature, LDH activity increased 16% for 2 days then decreased gradually to the level of summer samples. In contrast, when the summer fish (water temp.: 20℃), were acclimated at 6.5℃, LDH activity decreased to 40% on the following day then gradually increased.

These data demonstrate that LDH activity is regulated by temperature change and LDH-H is a form adapted to low temperature whereas LDH-M is to high temperature.