F121

Acclimation of Lactate Dehydrogenase by Environmental Factors and Purification of LDH A4 Isozyme in Angelfish(*Pterophyllum eimekei*)

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The effect of acclimation over lactate dehydrogenase(LDH) activities and isozyme patterns from skeletal muscle, heart, liver, eye and brain were studied in *Pterophyllum eimekei* (Cichlidae) by measurement of enzyme activity and native-PAGE after each environmental factor was changed for 2 hours. Liver-specific and eye-specific *Ldh-C*genes were expressed in liver, eye and brain from aspecies. According to the change of temperature, the large difference in the level of LDH activity was observed in muscle and heart, and in the increase of DO, heart showed higher activity. In the variation of the activities of LDH isozymes, to the increase of DO, heart tissue showed the increase of B4 activity. Liver tissue regulated by the increase of C4 isozyme activity in the DO change, but by the subunit A and B in the temperature change. To the decrease of temperature and the increase of DO, the activity of eye-specific C4 isozymes and heterotetramers containing subunit C were decreased and that of A4 and B4 isozymes were increased in the eye and brain. Eye and brain tissue regulated by the increase of A4 and B4, and the decrease of activity of C4 andisozymes containing subunit C in the temperature and DO change. The change of DO has an effected on the eye-specific *Ldh-C*.

F122

Effect of Nonylphenol on Nitric Oxide through a Non-genomic Mechanism

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Biological actions nonylphenol (NP), an environmental chemical, have not been fully elucidated. We studied effect of NP on nitric oxide (NO) synthesis in the murine pituitary cell line, GH4C1. NP (1 / 100 uM) increased nitrite/nitrate, a stable metabolites of NO, levels in culture medium of GH4C1. However, Western blotting showed that the level of endothelial NO synthase protein was not increased by 16 h of treatment with NP (10 uM). ICI 182,780 (10 mM), an estrogen receptor (ER) antagonist, suppressed NP-induced NO synthesis while actinomycin D (1 mg/ml), a transcription inhibitor, or cycloheximide (40 mM), a protein synthesis inhibitor, exhibited no effect on NP-induced NO synthesis. These results indicate that NP stimulates NO synthesis through a non-genomic ER-mediated mechanism. Short-term effects of NP on NO synthesis were weak but similar to 17b-estradiol.

F123

Lipophorin Receptor in *Galleria mellonella*

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We have reported the high density lipophorin (HDLp) receptor of *Galleria mellonella*. Briefly, it had the molecular mass of 98 kDa under non-reducing conditions through both ligand- and immuno-blot analyses and wasa homologue of the LDL receptor superfamily especially the VLDL rceptor. It had two spliced variant forms, one is full length form and the other is truncated form devoid of 28 amino acid residues of *O*-linked sugar domain (Lee et al. (2003) *Arch. Insect Biochem. Physiol.* in press and Lee et al. (2003) *Insect Biochem. Mol. Biol.*33(8): 761-771). Adult fat body and ovary express the full length form of HDLp receptor different from that of larval fat body, which express the truncated form. In a previous study,we supposed the possibility that each forms of receptor would be specific for each developmental stage. To elucidate this hypothesis, we induced the low density lipophorin (LDLp) from the last instar larvae by the treatment of adipokinetic hormone (AKH) and binding activity of HDLp and LDLp to larval fat body and ovary was observed. Moreover, double labeling of lipophorin particles in both protein and lipid moiety with OG-488 (Oregon Green-488, green) and DiI (Dioctadecyl tetramethyl indocarbocyanine perchlorate, orange) respectively showed that lipophorin particles were taken up by receptor mediated endocytosis.

F124

Effect of Antiprogestin RU486 to Progesterone-induced Acrosome Reaction in Boar Spermatozoa

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The effects of progesterone on acrosome reaction and the effects of RU486 on progesterone-induced acrosome reaction in the capacitated boar spermatozoa have been investigated. Progesterone, a major steroid secreted by cumulus cells of oocyte, clearly induced acrosome reaction in dose-dependent manner in the capacitated boar spermatozoa even though it failed to show any similar effects in the non-capacitated spermatozoa. A potent antiprogestin RU486 significantly reduced the effects of progesterone on progesterone-induced acrosome reaction while it did not show anyinhibitory effects on acrosome reaction when treated alone. The inhibitory effects of RU486 were also shown to be dose-dependent. The results imply that in addition to the well-known inducer of acrosome reaction, zona pellucida, progesterone can also induce acrosome reaction through its specific receptor on spermatozoa only after spermatozoa underwent capacitation.