

E123 Identification of Melatonin Receptor in Golden Hamster and Effects of Melatonin on GnRH Release in GT1-1 Cells

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Melatonin is a pineal hormone that mediates circadian rhythm and sexual activities in seasonal breeding animals. Melatonin receptor was recently cloned in several animal species including human. But nothing has been known about it in the golden hamster (*Mesocricetus auratus*). By using reverse transcription polymerase chain reaction (RT-PCR) method, a portion of the melatonin receptor gene (347 nucleotides) was for the first time identified in several organs of golden hamster. The nucleotide sequence analysis of melatonin receptor of golden hamster shows a homology of 96%, 92%, 89%, 84%, 80%, and 74 % with striped hairy-footed hamster, house mouse, Norway rat, human, sheep, and chicken, respectively. The amino acid sequence deduced displays a homology of 98%, 92%, 92%, 87%, 83%, and 82 % with the same order of animals mentioned above. Melatonin receptors were strongly detected in hypothalamus, pituitary containing pars tuberalis, blood, spleen, and adrenal gland. Melatonin receptor identified in the GT1-1 cells, which release gonadotropin-releasing hormone (GnRH), was identical to the reported mouse melatonin receptor. Melatonin at the highest concentration used (1000nM) was able to increase the secretion of GnRH from the GT1-1 cells. The inability of melatonin on the GnRH release at physiological level supports the hypothesis that melatonin may indirectly affect the secretion of GnRH in the control of reproduction.

E124 Acclimation of lactate dehydrogenase in freshwater fish to acute environmental variations

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After each environmental factor(Temperature, pH and DO) was acutely changed, the effect of acclimation over lactate dehydrogenase(LDH) activities and isozyme patterns from different tissues of *Coreoperca herzi*, *Pseudogobio esocinus* and *Silurus asotus* was studied. LDH activities appear to be higher in fish acclimated to 10°C than 20°C but acclimation temperature had no significant effect on the LDH activity of the heart in *Pseudogobio esocinus* and *Silurus asotus*. According to the variation of pH and DO level, the large difference in the level of LDH activity was observed in most tissues, but the restoration of LDH activities were detected in skeletal muscle, heart and brain in the response to temperature change. The relative activity of subunit A was increased than subunit B to the increase of temperature. The level of relative activity in homotetrameric isozymes was higher than that of heterotetramers in most tissues. The activities of liver-specific C₄ isozyme were increased and that of heterotetramers containing subunit C and LDH A₄ isozymes were decreased about these environmental factors. To the increase of temperature, the activity of eye-specific C₄ isozymes and heterotetramers containing subunit C were increased and that of LDH A₄ isozymes were decreased, but that was not coincident with the changes of pH and DO. As a results, the change of LDH activity in the response to the variation of environmental factors might be the acclimation process to the control of metabolism with the surroundings.