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Construction of genomic library and molecular cloning of the growth hormone gene from Mud loach(*Misgunus mizolepis*)

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The Mud loach(*Misgunus mizolepis*) is not only a representative freshwater fish in Korea, but also widely distributed in North Korea, China, Japan, and Russia. As an initial effort to acquire useful genetic resources, we have constructed genomic library and then attempted the molecular cloning of gene coding for growth hormone (GH). Genomic library(1.5 X10^6pfu/μg) was constructed by the insertion of partially Sau3A1-digested genomic DNA into the BamH1-cut λ Gem-11 vector. Four positive genomic clones for GH gene were isolated by screening of genomic library (5 X10^5pfu) with PCR-amplified genomic fragment. Genomic structure of GH gene was analyzed by dideoxy sequencing method and by NIH BLAST program. Mud loach GH gene is 2.0 Kb long and consists of 5 exons and 4 introns. The sequence predicts a polypeptide of 210 amino acid including a putative signal peptide. The arrangement of exons and introns is identical to the GH genes of silver carp and common carp, but quite different from the GH genes of tilapia and salmonids. Similarly, Mud loach GH gene shares a high homology at the nucleotide and amino acid levels with those of silver carp (86,6% nt, 91.4% aa) and of common carp (85.1% nt, 89.9% aa).

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Characterization of *mb2191*, Which Is Expressed Preferentially in the Mushroom Bodies of *Drosophila* Brain

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The mushroom body is one of *Drosophila* brain subdivisions. Several lines of evidence suggested that the olfactory learning/memory is mediated by the mushroom body neurons. To isolate the genes preferential expressed in the mushroom body neurons, we screened enhancer detection lines carrying *p(lArB)*. From the screen over than 2,000 lines, we isolated several mushroom body-enhancer detection lines. One of them, *mb2191*, showed behavioral defect in the courtship conditioning. To characterize the gene, we isolated the genomic DNA fragment nearby the inserted P(lArB) by plasmid rescue. Using the DNA fragment as a probe, we isolated two genomic DNA clones from Canton-S *Drosophila* genomic library. The gene structure of *mb2191* will be presented.