

**Molecular Cloning and Expression Analysis of Growth Hormone Gene from
Acipenser baerii (Acipenseriformes)**

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Abstract

The Siberian sturgeon is the primitive fish inhabiting major Siberian river basins. The *Acipenser baerii* has a fast growth rate starting in embryos and early larval development stages. This is attributed to the action of growth hormone. This study was aimed to obtaining the growth hormone coding sequence of *Acipenser baerii* and studying of growth hormone mRNA transcripts expression through the larval development stages pituitary and extra pituitary tissues. The cDNA was obtained by RT-PCR, cloned and sequenced. The *Acipenser baerii* growth hormone gene cDNA consists open reading frame 645 bp encodes of a 214 aa, which represent the precursor composed of 24 aa signal peptide followed by a 190 aa mature peptide. The

bootstrap analysis data showed 100% bootstrap confidence for monophyletic clade, order Acipenseriformes with order Anguilliformes and Amiiformes. The growth hormone gene mRNA transcripts were detected in brain, spleen and development stages of larvae. Abundance of growth hormone gene mRNA transcripts was significantly highest in brain rather than spleen. The ontogenetic profile of growth hormone gene mRNA transcripts was also detected at first occurrence of advance hatching stages and 4 dph (days post hatching), 9 dph stages. In conclusion, this study has demonstrated that growth hormone gene expression is modulated in brain, spleen. Consequently, that the mRNA expression levels of growth hormone gene transcripts were low during the development stages compared with 9 dph. Expression was significantly increasing trend related to the late larval time point when larvae started to exogenous feeding. The growth hormone transcripts increased in spleen may be associated with the immune response of *Acipenser baerii*. These data suggested that the GH gene may play an important role during embryogenesis in fish. The better understanding of Siberian sturgeon larval physiology will facilitate the culture of larvae and juvenile consequently may allow replenishing of stocks and aquaculture.

Key words- *Acipenser baerii*. Growth hormone, cloning, bootstrap, mRNA