

Molecular Characterization of Stanniocalcin in turbot (*Scophthalmus maximus*)

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Stanniocalcin (STC) is an anti-hypercalcemic hormone that is produced by the corpuscles of Stannius (CS) in teleost. The hormone is a homodimeric glycoprotein involved in calcium and phosphate regulation in both teleost fish and mammals. In the present study, we have characterized full-length cDNA and protein of STC from the CS in turbot (*Scophthalmus maximus*) and examined its expression pattern in various tissues. The turbot STC cDNA (1246 nucleotides) encoded a preprohormone of 248 amino acids (aa) with a signal peptide of 18 aa and a pro-sequence peptide of 14 aa followed by mature protein of 216 aa. The deduced aa sequence of the turbot STC showed the highest sequence identity (86.3%) with European flounder STC among those of fish and mammalian species. Moderate sequence identities were observed between clupeiforms (chum salmon and rainbow trout), cypriniforms (zebrafish), ancient fishes (gar and bowfin), and human (43.7–66.9%), whereas the sequences between the turbot STC and STC2 molecules of zebrafish and human showed lower identities (23.8–25.4%). In a transfection experiment using 293T cells, the turbot STC was revealed to be a homodimeric protein (24kDa). RT-PCR analysis revealed that the turbot STC gene is expressed in the CS, pituitary, brain, kidney, liver, heart, muscle, and gonad. Next, we investigated the effect of salinities on expression of STC mRNA in the gill, kidney, intestine, and CS in the olive flounder (*Paralichthys olivaceus*). The STC mRNA levels in the examined all tissues decreased depending on freshwater ratio. The present studies suggest that STC is a ubiquitous molecule and its expression is down-regulated by lower salinity in euryhaline fish species.