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GSTA IS A MAJOR GLUTATHIONE S-TRANSFERASE RESPONSIBLE FOR  
4-HYDROXYNONENAL CONJUGATION IN LARGEMOUTH BASS LIVER

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We have previously shown that largemouth bass (*Micropterus salmoides*) has a remarkable ability to conjugate 4-hydroxy-2-nonenal (4HNE), a mutagenic and cytotoxic  $\alpha$ ,  $\beta$ -unsaturated aldehyde produced during the peroxidation of lipids. In addition, we had previously isolated a glutathione S-transferase cDNA (bass *GSTA*) whose recombinant protein is highly active in 4HNE conjugation and structurally similar to plaice *GSTA* (*Pleuronectes platessa*). In the present study, we have characterized the expression of the bass *GSTA* protein in bass liver. HPLC-GST subunit analysis revealed the presence of at least two major GST isoforms in bass liver, with the first peak (peak one) constituting 80% of the total bass liver GST protein. LC-MS and electrospray ionization analysis of the two isolated GST subunits yielded molecular weights of 26,396 kDa (peak one) and 25,515 kDa (peak two). Endo-proteinase Lys-C digestion and Edman degradation protein sequencing of peak one demonstrated that this major GST isoform was encoded by *GSTA*. Isolation of approximately 1 kb of the bass *GSTA* promoter revealed the presence of several putative response elements that may confer inducibility to endogenous and environmental chemicals. Analysis of genomic DNA fragments isolated by nested PCR indicated the presence of a GST gene cluster in bass liver that is similar to that characterized by Leaver *et al.* in plaice. Collectively, our data indicates the presence of a major GST in bass liver involved in the protection against oxidative stress. Furthermore, this GST is part of a gene cluster that may be conserved in aquatic species. Supported by NIH P42 ES-07375.