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# Production of a biologically active recombinant teleostean growth hormone in *E. coli* cells

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**Abstract**

We have isolated and characterized several recombinant lambda phage clones carrying growth hormone (GH) cDNA of striped bass (*Morone saxatilis*). Nucleotide sequence and the predicted amino acid sequence of sbGH was determined from a recombinant clone carrying the longest cDNA insert. The sbGH cDNA encodes a pre-hormone of 204 amino acid residues. Comparison of the predicted amino acid sequence of sbGH with those of other vertebrates revealed different degrees of sequence identity: approximately 98% with European sea bass; 90% with bluefin tuna; bonito and red seabream; 71% with winter flounder; 64% with salmonids; 55% with carp; and 38% with human. Expression of the mature sbGH cDNA (without the signal peptide sequence) in *E. coli* cells under regulation of the lambda phage PL promoter produced a polypeptide of 20 kDa. Following renaturation, this recombinant hormone was shown to be biologically active in a radioreceptor competition binding assay and in the induction of hepatic insulin-like growth factor I (IGF-I) mRNA synthesis in vivo.

*Keywords:* Striped bass; Growth hormone; Expression in *E. coli*; Renaturation; Competitive receptor binding assay; IGF-I induction