



## **Glicoprotein Alpha Characterization of The Amazonian Fish (*Arapaima gigas*)**

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In Brazil, the total fish production in aquaculture has increased from 700.000 tons in 1996 to one million in 2010. *Arapaima gigas*, however, the largest freshwater fish in the world, usually found in the hydrographical bays of the Amazonas, São Francisco and Northeastern rivers, is not listed among the twenty most cultivated species. This giant fish, achieving more than 2m and 100kg, is considered one of the most important in these regions, being largely used for human consumption. However, its natural supplies are being threatened and *A. gigas* is classified as an overexploited fish by IBAMA. Its commercial breeding is still incipient, due to insufficient technology for maintaining this species in captivity. Despite its importance in Latin America, *A. gigas* has been the object of very little scientific investigation: besides some studies on gonadal development, gonadotrophins and other hormones involved in the hypothalamus-pituitary axis have never been cloned.

For these reasons, starting from *A. gigas* pituitaries, we cloned and sequenced the gene of the common  $\alpha$ -subunit, being in the process of sequencing also  $\beta$ -LH and  $\beta$ -FSH subunits. The  $\alpha$ -subunit sequence has been then compared to those of 40 different species of fish and a phylogenetic tree was constructed. No other  $\alpha$ -subunit sequence has ever been described for the order of osteoglossiformes and not even for the superorder of osteoglossomorpha. Our final goal, however, is the synthesis in CHO cells, purification and characterization of these two hormones, useful for fertility studies concerning this important and endangered species.

**Word Keys:** *Arapaima gigas*, Glycoprotein Alpha, Pituitary

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