

Primary structure of a novel gonadotropin-releasing hormone in the brain of a teleost, Pejerrey.

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The neuropeptide GnRH is the major regulator of reproduction in vertebrates acting as a first signal from the hypothalamus to pituitary gonadotropes. Three GnRH molecular variants were detected in the brain of a fish, pejerrey (*Odontesthes bonariensis*), using chromatographic and immunological methods. The present study shows that one form is identical to chicken GnRH-II (sequence analysis and mass spectrometry) and the second one is immunologically and chromatographically similar to salmon GnRH. The third form was proven to be a novel form of GnRH by isolating the peptide from the brain and determining its primary structure by chemical sequencing and mass spectrometry. The sequence of the novel pejerrey GnRH is pGlu-His-Trp-Ser-Phe-Gly-Leu-Ser-Pro-Gly-NH₂, which is different from the known forms of the vertebrate and protochordate GnRH family. The new form of GnRH is biologically active in releasing gonadotropin and GH from pituitary cells in an in vitro assay.