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# Induction of final oocyte maturation in Cyprinidae fish by hypothalamic factors: a review

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Gonadotropin-releasing hormone in Cyprinidae as in other Vertebrates functions as a brain signal which stimulates the secretion of luteinizing hormone from the pituitary gland. Two forms of gonadotropin-releasing hormone have been identified in cyprinids, chicken gonadotropin-releasing hormone II and salmon gonadotropin-releasing hormone. Hypohysiotropic functions are fulfilled mainly by salmon gonadotropin-releasing hormone. The only known factor having an inhibitory effect on LH secretion in the family Cyprinidae is dopamine. Most cyprinids reared under controlled conditions exhibit signs of reproductive dysfunction, which is manifested in the failure to undergo final oocyte maturation and ovulation. In captivity a disruption of endogenous gonadotropin-releasing hormone stimulation occurs and sequentially that of luteinizing hormone, which is indispensible for the final phases of gametogenesis. In addition to methods based on the application of exogenous gonadotropins, the usage of a method functioning on the basis of hypothalamic control of final oocyte maturation and ovulation has become popular recently. The replacement of natural gonadotropin-releasing hormones with chemically synthesized gonadotropin-releasing hormone analogues characterized by amino acid substitutions at positions sensitive to enzymatic degradation has resulted in a centuple increase in the effectiveness of luteinizing hormone secretion induction. Combining gonadotropin-releasing hormone analogues with Dopamine inhibitory factors have made it possible to develop an extremely effective agent, which is necessary for the successful artificial reproduction of cyprinids.

**Keywords:**

reproductive dysfunction; ovulation; luteinizing hormone; gonadotropin-releasing hormone; gonadotropin; dopamine; dopamine antagonist; cyprinids

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