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Postnatal changes in ghrelin mRNA expression and in ghrelin-producing cells in the rat stomach

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Ghrelin was recently isolated from the rat stomach as an endogenous ligand from the GH secretagogue receptor.

In this study, we therefore investigated the changes in the numbers of ghrelin-immunopositive (ghrelin-ip) and mRNA-expressing (ghrelin-ex) cells in the stomachs of 1- to 8-week-old male and female rats by Northern blot analysis, immunohistochemistry and in situ hybridization. Northern blot analysis showed that the level of weak ghrelin mRNA expression was low in the postnatal period but then increased in a dimorphic pattern, i.e. transient stagnation at 4 weeks in the male rats and at 5 weeks in the female rats. The number of ghrelin-ip and ghrelin-ex cells also increased after birth, and more numerous ghrelin cells were found in female rats than in male rats, and this finding was confirmed by Northern blot analysis. Ghrelin-ip and -ex cells first appeared in the glandular base of the fundic gland and then they were found in the glandular base and the glandular neck at 3 weeks of age, suggesting that the distribution of ghrelin cells is extended from the glandular base to the glandular neck during the neonatal development period.