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Effects of intraamygdaloid microinjections of RFRP-1 on liquid food intake of rats

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RFRP-1 is a member of the RF-amide peptide family. Since some members of the RFamide family (NPFF, NPVF, NPAF) are associated with satiety in rodents, we hypothesized that RFRP-1 may also affect satiety. It is well known, that the amygdala plays an important role in the regulation of food intake and body weight. RFRP-1-positive nerve cells were detected in the rat hypothalamus and RFRP-1 immunoreactive fibers were identified in the central amygdaloid nucleus (CeA) by immunohistochemical analyses. RFRP analogues bind with relatively high affinity to the NPFF1 and NPFF2 receptors. RFRP-1 has potent activity for NPFF-1 that is expressed in the CeA. To evaluate the role of RFRP-1 in appetite regulation, rats were microinjected by different doses of RFRP-1 and their food intake were quantified over a 60 min period. Liquid food intake of male wistar rats was measured after bilateral intraamygdalar administration of RFRP-1 (25, 50, 100 ng /side, RFRP-1 dissolved in 0.15 M sterile NaCl/0.4 µl, respectively). The 50 ng dose of RFRP-1 microinjections resulted in significant decrease in food intake. The 25 and 100 ng had no effect. Action of 50 ng (37.8 pmol) RFRP-1 was eliminated by 20ng (41.4 pmol) NPFF-R antagonist (RF-9) pretreatment. Our results are the first reporting that RFRP-1 injected to CeA resulted in a decrease of liquid food consumption. This is a receptor-linked effect because it was eliminated by a NPFF- R selective antagonist.

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