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Kiss1 expressed in the amygdala in rodents

Kiss1 is expressed outside the hypothalamus in the amygdala in rodents, a recent study reveals.

Kisspeptin—a neuropeptide encoded by the *Kiss1* gene—is a major regulator of puberty and fertility. *Kiss1* expression in the brain has been found in two discrete areas of the hypothalamus and each hypothalamic population has different functions in the regulation of reproduction. However, “by chance, during one of our previous studies in rodents, we noticed a third novel population of *Kiss1*-expressing neurons in the amygdala region,” says senior researcher Alexander Kauffman of the University of California San Diego.

The investigators used radiolabeled *in situ* hybridization to localize the expression of *Kiss1* in the amygdala of the brains of mice and rats and find out whether *Kiss1* expression in the amygdala was regulated by sex steroids. In both species, *Kiss1* was expressed in the

medial amygdala and was more highly expressed in males than females. The *Kiss1* neurons in the medial amygdala were regulated by circulating levels of sex steroids in both males and females, which seemed to occur by an estrogen-receptor-dependent pathway.

“Our new findings suggest that kisspeptin signaling in the brain may also be arising from extra-hypothalamic regions, such as the amygdala, though this needs to be verified for humans as we have now shown for rodents. Drugs and manipulations targeting *Kiss1* neurons will have to consider possible actions in the amygdala in addition to previously known hypothalamic regions,” concludes Kauffman.

Carol Wilson

Original article Kim, J. *et al.* Regulation of *Kiss1* expression by sex steroids in the amygdala of the rat and mouse. *Endocrinology* doi:10.1210/en.2010-1498