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The existence of kisspeptin-like peptides and effects on ovarian development and maturation in the giant freshwater prawn, *Macrobrachium rosenbergii*

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We demonstrated for the first time the existence and distribution of kisspeptin-like peptides (Kiss-l) and their receptors in the central nervous system (CNS) of the giant freshwater prawn, *Macrobrachium rosenbergii*, and these peptides could induce the oogonial proliferation, ovarian maturation and spawning. Using immunohistochemistry, kisspeptin1-like-signal (Kiss1-l signal) was detected in the neurons of clusters 6, 11 and 14/15 and also in olfactory neuropil (ON). Kisspeptin2-like-signal (Kiss2-l signal) was observed in clusters 6, 9, 10, 16 and 17 as well as in the anterior and posterior median protocerebral neuropils (AMPN/PMPN), ON, central body (CB) and protocerebral bridge (PB) and olfactory globular tract (OGT). In the subesophageal (SEG) and thoracic ganglia (TG), both Kiss1-l and Kiss2-l signals were detected in some neurons of dorsolateral cluster (DLC), ventromedial cluster (VMC) and also in fibers of associated neuropils. In abdominal ganglia (AG), Kiss1-l signal was detected in some neuronal clusters, whereas Kiss2-l signal was detected only in fibers of the AG. Functional bioassays demonstrated that both Kiss1- and Kiss2-treated prawns showed significantly shortened ovarian cycle (16±1.63 and 22.86±1.07 days) compared with the control (36±2 days). Moreover, both Kisses significantly increased the numbers of oogonial proliferation and spawned eggs, while the percentages of fertilized eggs in all treated groups were not significantly different from the control. These findings suggest that Kisses are highly conserved peptides that may also exist in the prawns and control their oogonial proliferation and ovarian maturation.

Biography

Tipsuda Thongbuakaew has completed her PhD from Mahidol University. She is a Lecturer at Walailak University. She has published three papers in reputed international journals.

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