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Identification and implication of neuropeptides expressed in honeybee, *Apis mellifera* and *Apis cerana*

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In honeybees, nutrient sensors affect the ability to perceive chemosensory, change behavior, social behavior and labor division. Signals detected by nutrition sensors are affected by neuropeptides during sensory communication. Currently, 35 neuropeptides are identified in honeybee but some of them did not defined yet. Royal jelly, which is given to larvae from housework nursing bees is important in terms of protein supply. These neuropeptides may have siginificatnt roles in developing tissues and social behaviors in honey bees. Here we identified one of the gustatory receptors tha showed differential expression patterns during caste development in honeybees. Thus, we here delved into the potential interaction of this Gr with neuropeptides using differentially Expressed Gene (DEG) analysis approach in hypopharyngeal grand where honeybees produce royal jelly. DEG analysis shows 7 neuropeptides are down regulated and 13 neuropeptides are up regulated in honey bees. Especially, insulin-like peptidel (ILP1), ILP2, which play a role for insulin-signaling pathway were down regulated. Our study indicates that chemosensory receptor not only detect nutrient in peripheral organ such as proboscis and antennae, but this also is likely involved in growth and development with neuropeptides.

Key words: AmGr10, Hypopharyngeal gland, RNA interference, DEG analysis, Insulin signaling pathway.

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