Putative integration cite between taste and olfaction imformation in the blowfly, *Phormia regina*

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Not only taste but also olfaction is closely related to feeding behavior and food preference in animals. For nectar-sucking insects like *Phormia regina*, odor imformation is important in the distinction between food and poison. Fly have two olfactory systems, antennae (main olfactory organ) and maxillary palps (accessory olfactory organ). There are a few researches that have reported the difference between function of two olfactory systems. Maxillary palps exist on proboscis and are exposed to the air when fly is feeding. Therefore, maxillary palps could work as the olfactory organ to accept food odor. Maxillary palps are spatially far from antennae.

We found that the 1-octen-3-ol odor inputed only via maxillary palps promoted appetite to sucrose in *Phormia regina*. We observed the distribution of olfactory sensilla on the maxillary palps, and we investigated the spatial projection regions of afferent nerves from olfactory sensilla on the maxillary palp as well as that of the single taste sensilla neurons from labellum. As a result, we show that gustatory nerves from labella taste sensillum and olfactory nerves from maxillary palp project into SEG and they appear neighboring each other.