neuronal variability, a large-scale GAL4 screen was conducted to identify drivers that label identifiable single or the same types of olfactory interneurons. The screen ended with a GAL4 line labeling patchy LNs. Remarkably, patchy LNs have stochastic innervation patterns, while all patchy LNs collectively tile the *Drosophila* antennal lobe. Certain biological constrains limit the stochasticity of patchy LNs: the sphericity and size of glomeruli are the external (environmental) constrains and neural activity is the intrinsic constraint. How patchy LNs may collaboratively integrate the olfactory information across glomeruli will be discussed. In addition, different types of interneuron variability will also be further discussed.

P048 From olfaction to oviposition: A global antennal-lobe network is associated with oviposition behavior in the female moth

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As in other organisms, insects possess neural circuits linked to perception of odorants that induce opposing behaviors, such as attraction and repulsion. We recently identified three fatty acid methyl esters (FAMEs) emitted from eggs of the moth *Helicoverpa armigera* which effectively deter oviposition. These FAMEs (methyl oleate, methyl palmitate, and methyl stearate) are detected by the female-specific olfactory receptor HarmOR56, located on the antennae alongside many other receptors tuned to plant volatiles. During oviposition, females encounter both attractive plant volatiles and repellent FAMEs simultaneously. However, the question of how inputs from these odor categories interact within the antennal lobe (AL), the primary olfactory center, remains unanswered. Here, we investigated the response patterns of various neuron populations in the female AL to selected odor cues (FAMES and linalool). First, calcium imaging of uniglomerular projection neuron (PN) populations revealed odor-specific responses during odor exposure. Subsequent intracellular recordings combined with inotropic staining procured high-resolution data not only from PNs but also from other neuron types within the AL network, totally including eight neuron types: olfactory sensory neurons, AL PNs confined to one of five different tracts, local interneurons, and centrifugal neurons. We found distinct response patterns across neuron types. Generally, attractive odors elicited responses in a relatively restricted number of neuron types, while repellent cues evoked responses in almost all neuron types. Our findings suggest that the repellent cues engage a broader network within the AL compared to attractive cues.

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P049 Real-world observational data on olfactory dysfunction from the smell and taste clinic of UZ Leuven (Belgium) from 2021-2024

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Background: The COVID-19 pandemic led to a surge in olfactory dysfunction (OD), prompting the need for specialized care pathways. This study explores the prevalence, characteristics, and clinical implications of OD in patients at the Smell & Taste Clinic, University Hospitals Leuven (UZL).