

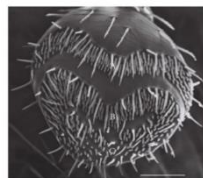
We are looking for an electrophysiologist and a molecular biologist (PhD student)

For a chemical ecology project aimed at understanding the relationship between bark beetles and its hosts in forest ecosystem

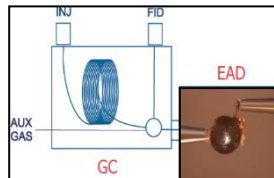
(<https://extemit.fld.czu.cz/en/>)



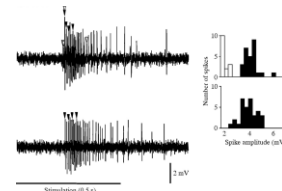
Bark beetle *Ips typographus*



Antenna



GC-EAD



ORNs spike activities

The sense of smell provides many ecological information to bark beetles. Olfaction is important in mate finding as well as in host selection. Volatile molecules are detected by unique olfactory receptor neurons (ORN) located in tiny hollow cuticular hairs on insect antennal surface. There are many types of ORNs. Each ORN type responds to a set of volatiles. The response spectra of different ORNs are unique, but overlapping. To understand the molecular basis for olfactory discrimination in insects, it is necessary to identify all ligands for all ORNs. Several methods are available for this research:

- 1) **GC-EAD** - gas chromatography with electrophysiological detection of activity from the whole insect olfactory organ (antenna)
- 2) **GC-ESG** - gas chromatography with electrophysiological detection of activity from individual olfactory sensory hairs (sensilla)
- 3) **Functional analysis of individual ORN** expressed in heterologous express systems

Those interested in the position will be a member of newly created international team and will participate on:

- 1) **Ligand search** for *Ips typographus* ORNs
- 2) **Development of method for expression** of *I. typographus* ORNs in “empty neuron drosophila system”
- 3) **Functional analyses of ORNs** expressed in “empty neuron drosophila system”

More information about the whole project <https://extemit.fld.czu.cz/en/>:

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