Lung function

Olfactory sensory neurons (OSNs) presence in the inferior human turbinates: preliminary observations

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Olfactory sensory epithelium (OSE) turbinates coverage is of a crucial interest in neurophysiology and clinical practice. Since neuroanatomy of the OSE in animal models has been extensively investigated, conversely, in humans remains shadowy known. By looking at the fact that in animal models three turbinates are covered by OSE extending the receptorial surface in the nostril limited space; and support different receptors classes in four specialized regions that bind compounds with different volatile degree we investigated the occurrence of olfactory sensory neurons (OSNs) in the human inferior turbinate by histological and cytological investigations.

Histological 2 mm^2 of the entire living mucosa thickness (N=10, mean age 24±4) and nasal cytological scraping (N=10, mean 22.5±3.5) specimens were collected from healthy volunteers. Histological samples were fixed in 10% phosphate-buffered formalin and dehydrated through ascending alcohols and xylene, embedded in paraffin, dewaxed and sliced at 4 µm thick for haematoxylin-eosin staining. Cytological samples were fresh stained.

By looking at the inferior turbinate mucosa tissue architecture and single isolated cells suggest the presence of bipolar neurons with a ciliated knob and axon which resemble OSNs. These preliminary data suggest further investigation in order to confirm the OSNs discovery in the inferior turbinate.