Laser microdissection of the olfactory system

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The olfactory system is unique in how it performs neurogenesis and axonal regeneration throughout life of the adult organism. This makes it a highly interesting part of the organism to investigate and explore neuroregenerative principles, which may prove to be relevant for neuroregenerative therapy in general in the central or peripheral nervous system.
Neurogenesis takes place in the olfactory epithelium and axonal outgrowth from newborn neurons takes place throughout the olfactory pathway, but can be sampled easiest from the olfactory nerve layer in the central nervous system.
The olfactory nerve layer is a large, contiguous area, but the olfactory epithelium is a very long and very thin layer of cells. Both areas can be sampled by laser microdissection, but the processing of the tissue in order to do so may interfere with maintaining the quality of RNA or morphology.
We are currently setting up a laser microdissection protocol to isolate high quality RNA while maintaining the histology of the olfactory mucosa for microarray purposes.

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