

Techniques for chronic implants in mice

Dario Campagner, Branco group, Sainsbury Wellcome Centre for Neural Circuits and Behaviour, 2019 Neuropixels course



Summary

- Probe preparation
- Probe implantation
- Recording
- Re-using the probe

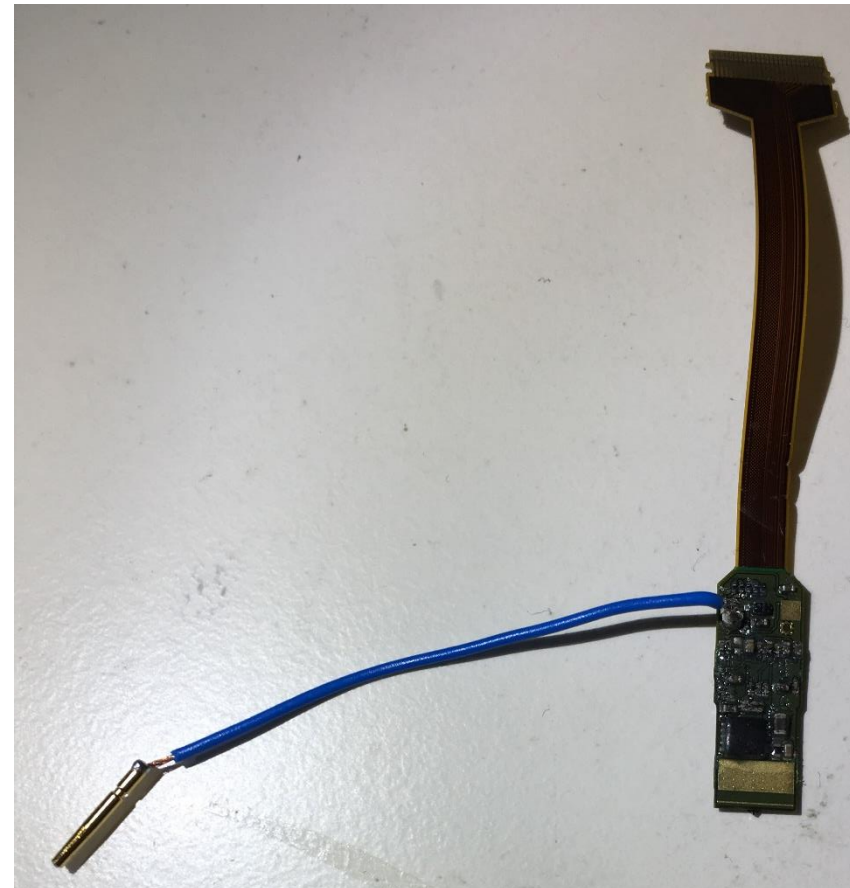
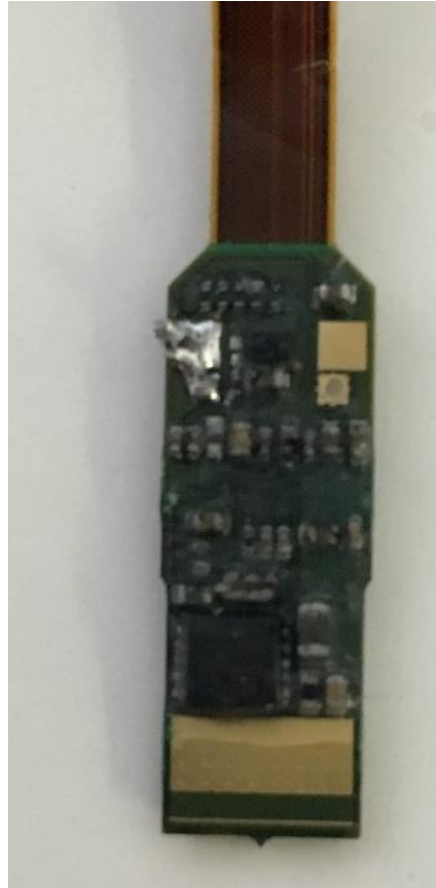
Chronically implanted mouse | 2hs after surgery



Probe preparation | ground wire

GROUND WIRE:

FLEXI-E, BLUE, 0.10MM; Jacket
Material:PVC; Jacket Colour:Blue;
Wire Gauge:27AWG; Conductor
Area CSA:0.1mm
Supplier: ONECALL



Probe preparation | epoxilation



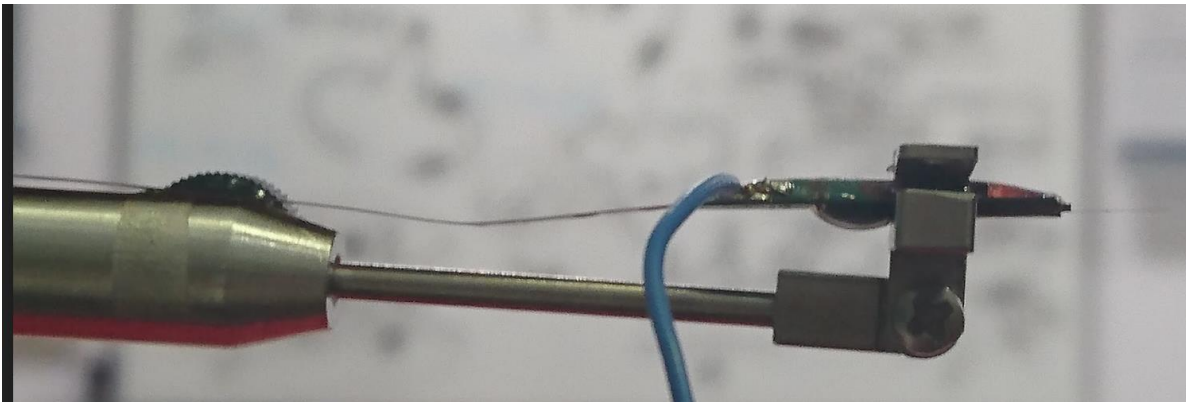
Probe preparation | mounting



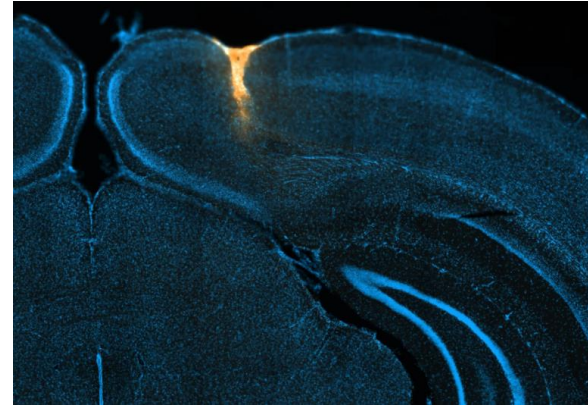
IST-CM_Kit, IST-CM and IST-Adpt



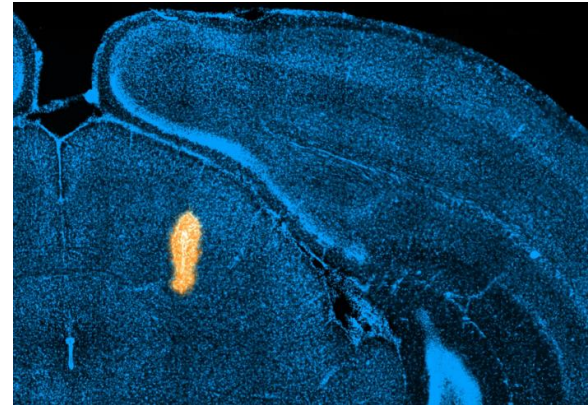
Probe preparation | mounting



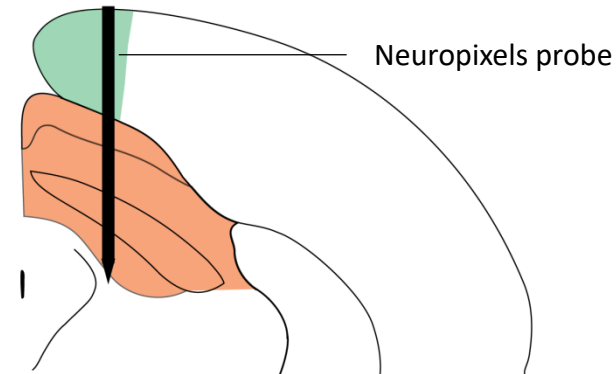
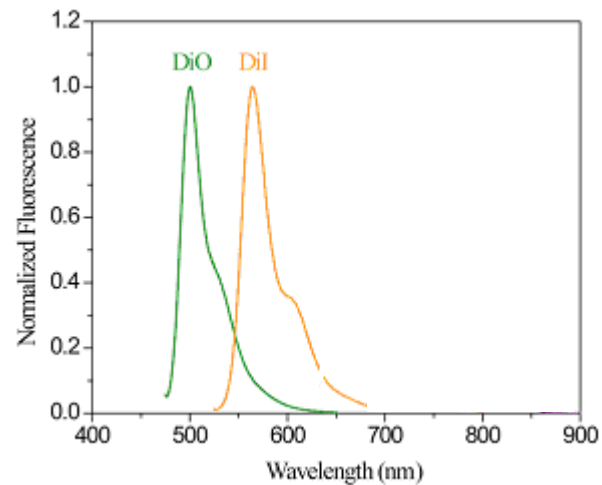
Probe preparation | Shank staining with DiI or DiO



Probe insertion site

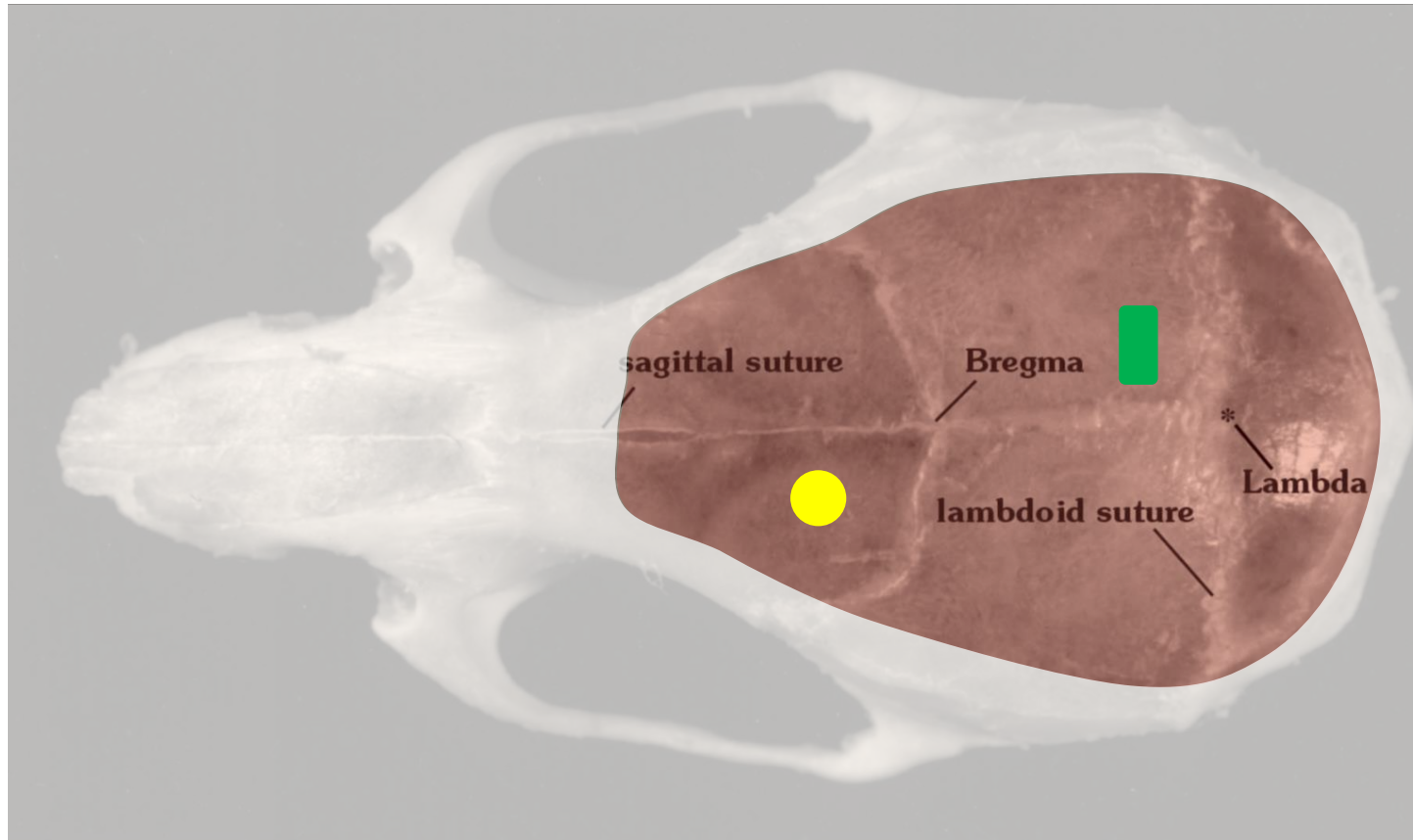


Probe tip

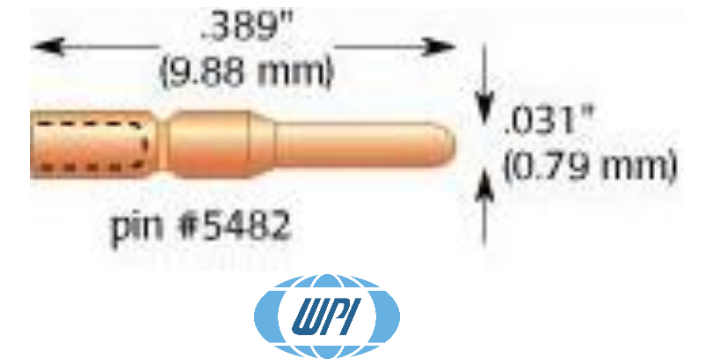


- Neuropixels probe
- Retrosplenial cortex
- Superior colliculus

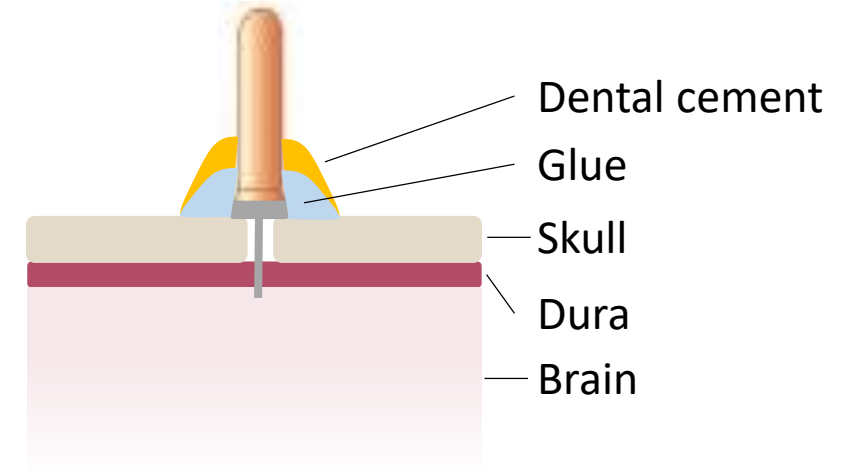
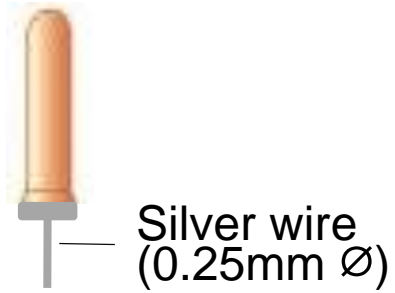
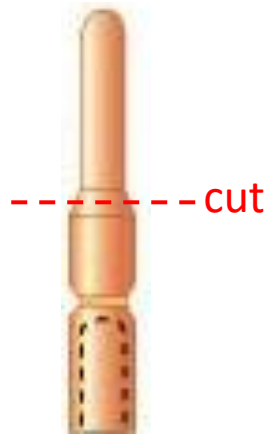
Probe implantation | ground pin



Exposed skull Neuropixels probe Ground pin



Probe implantation | ground pin



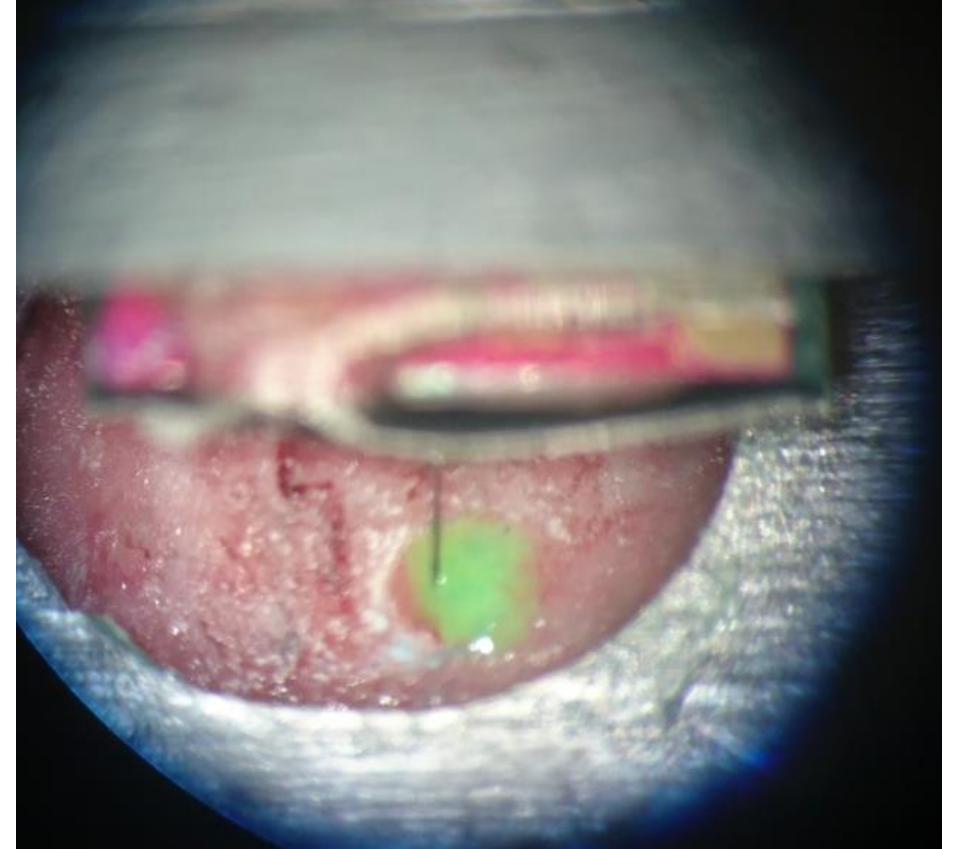
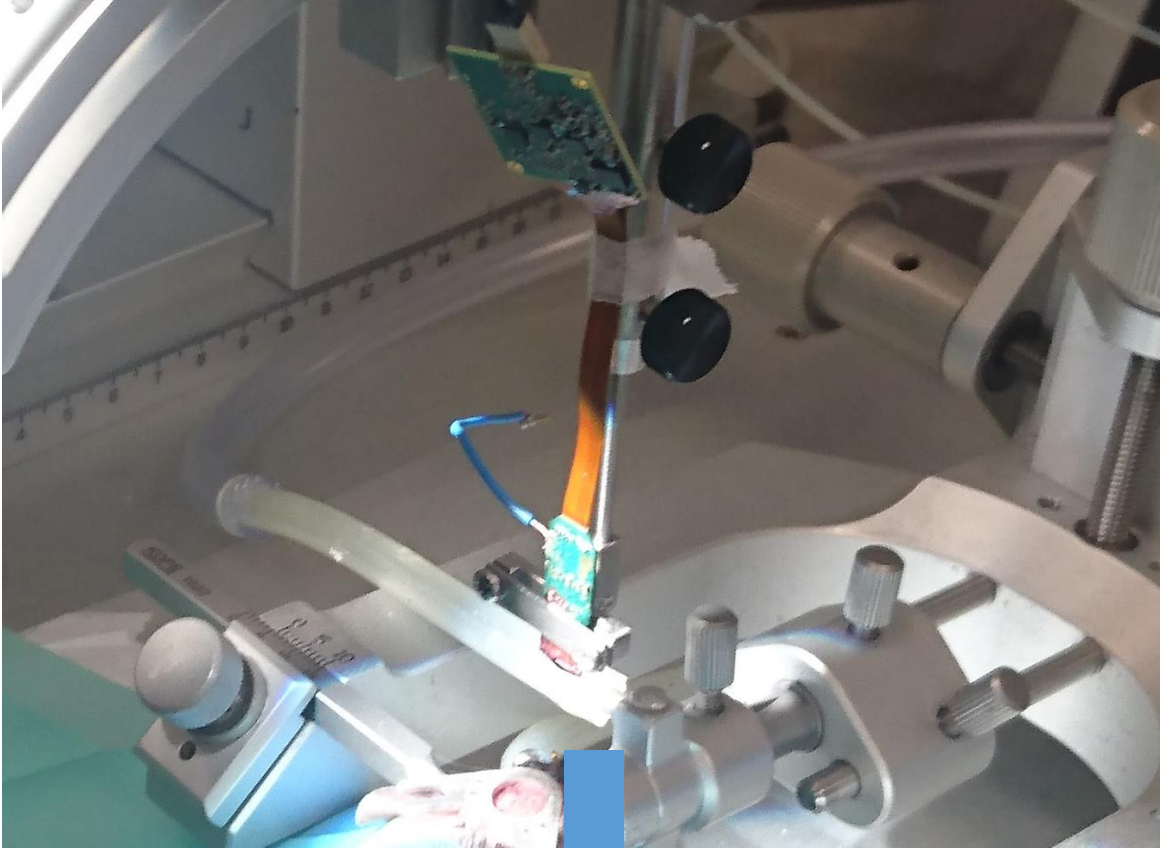
Dental cement



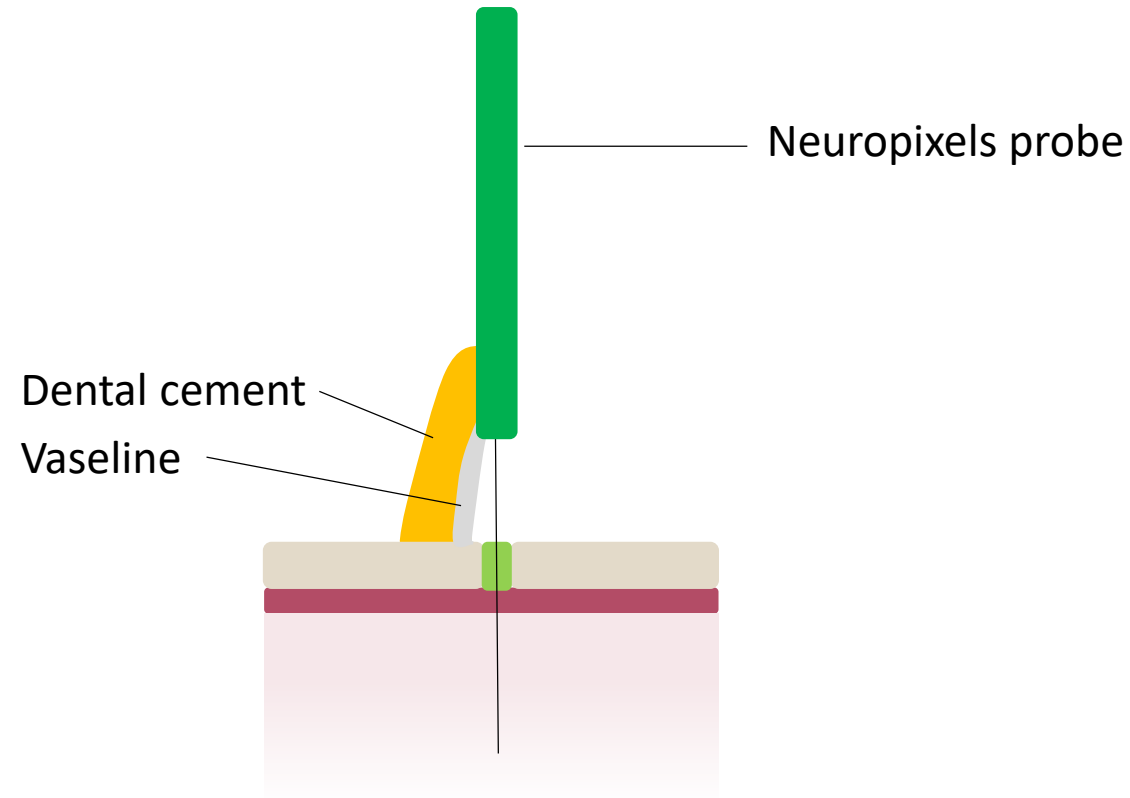
Glue



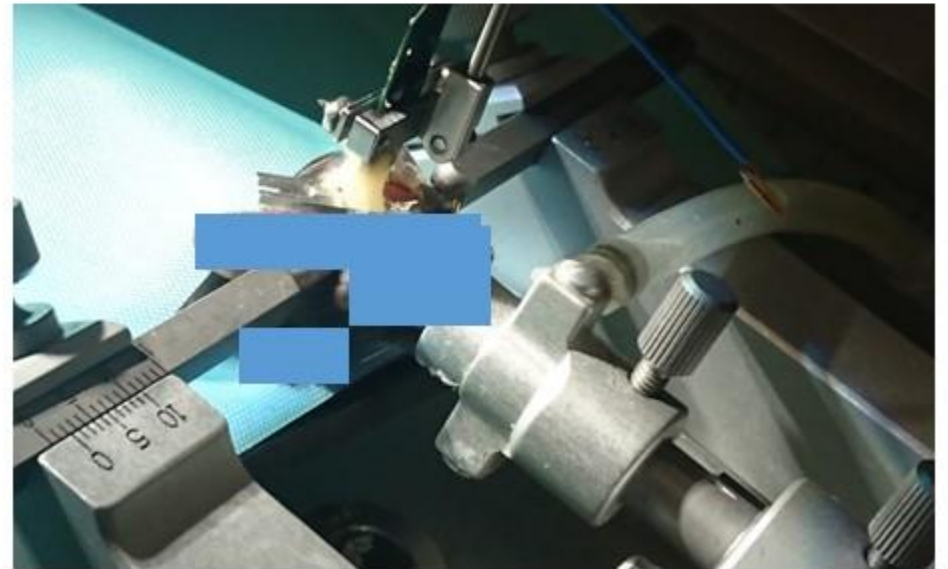
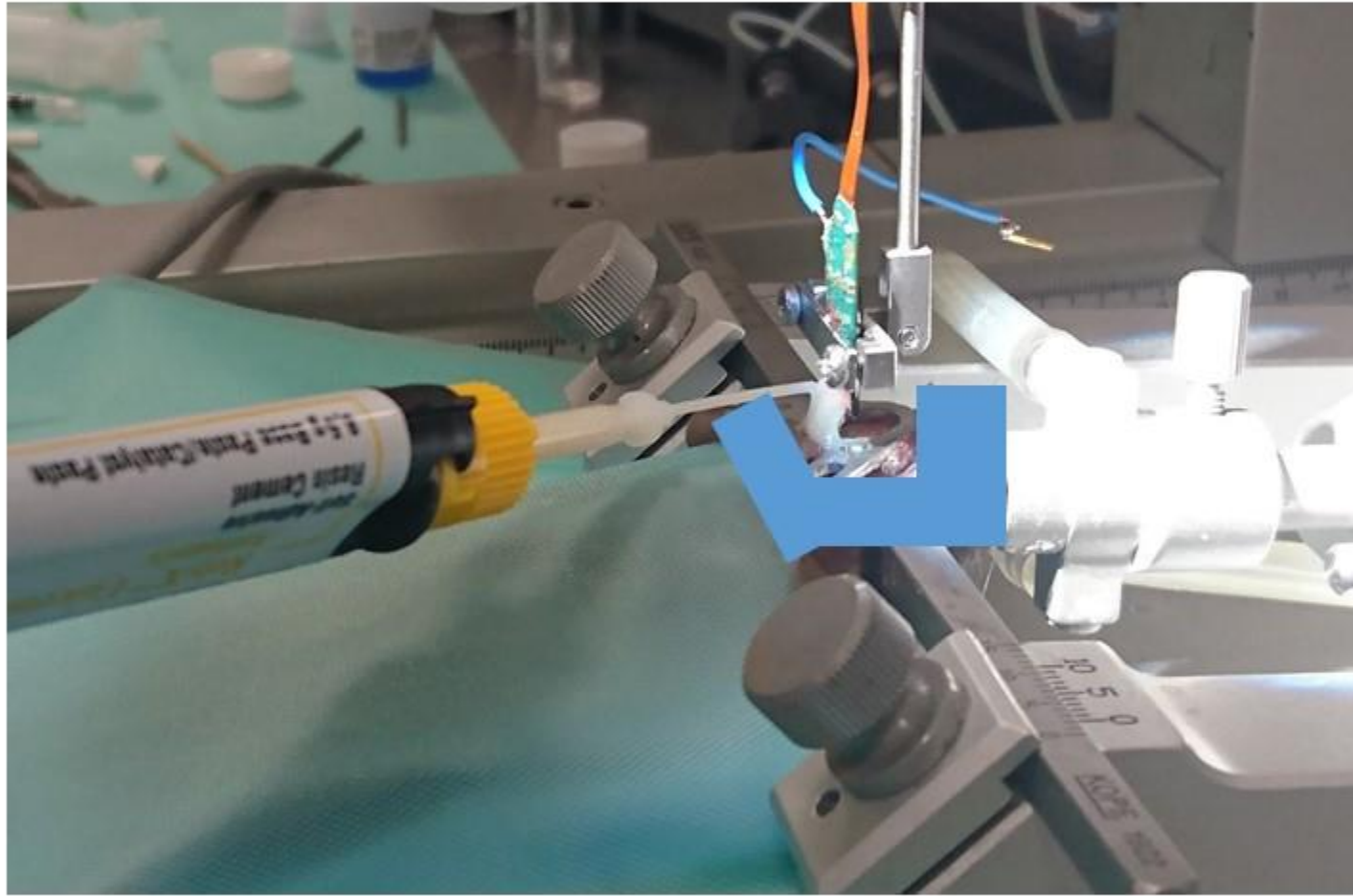
Probe implantation | craniotomy and penetration



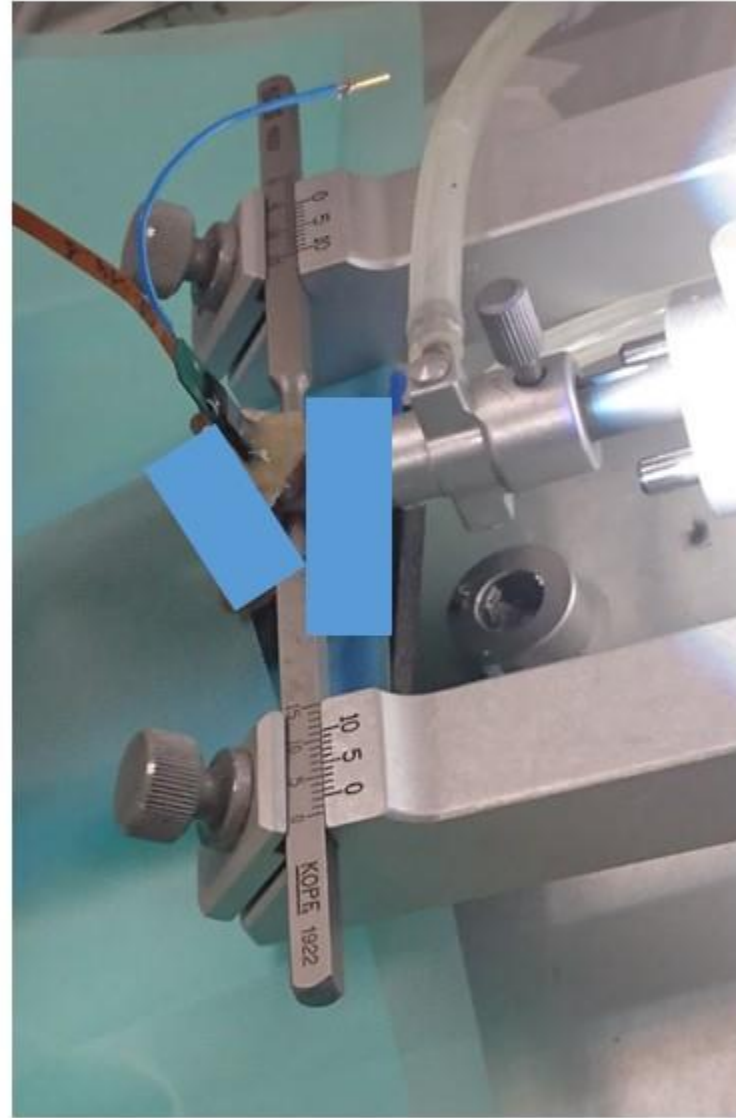
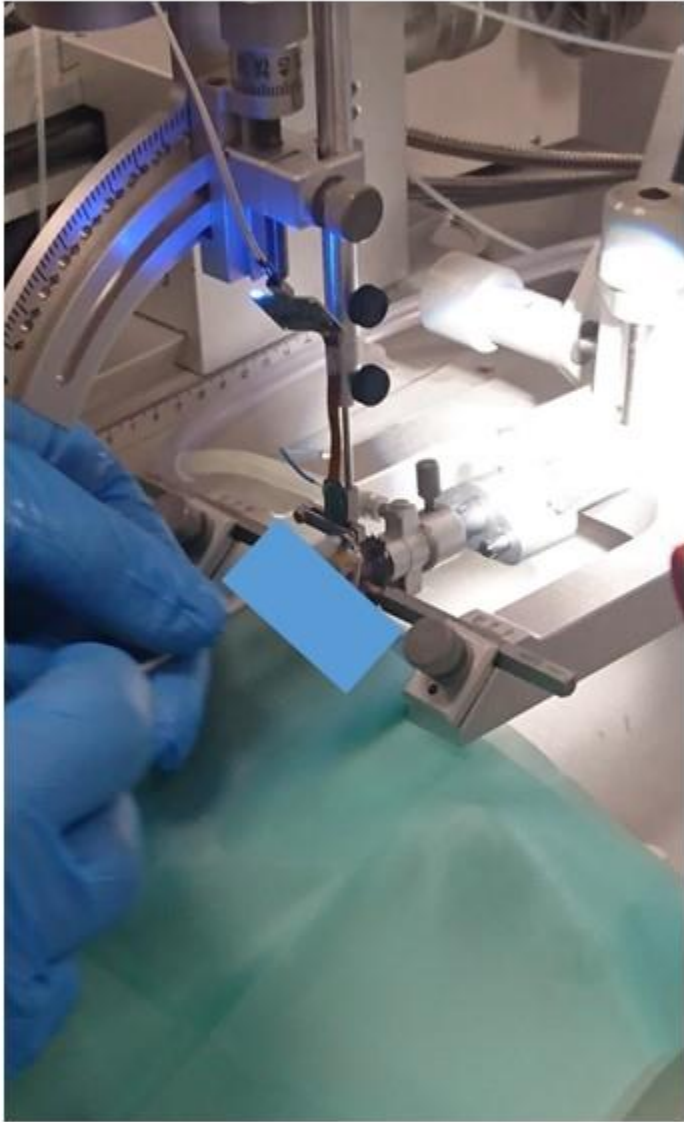
Probe implantation | Shank protection with Vaseline



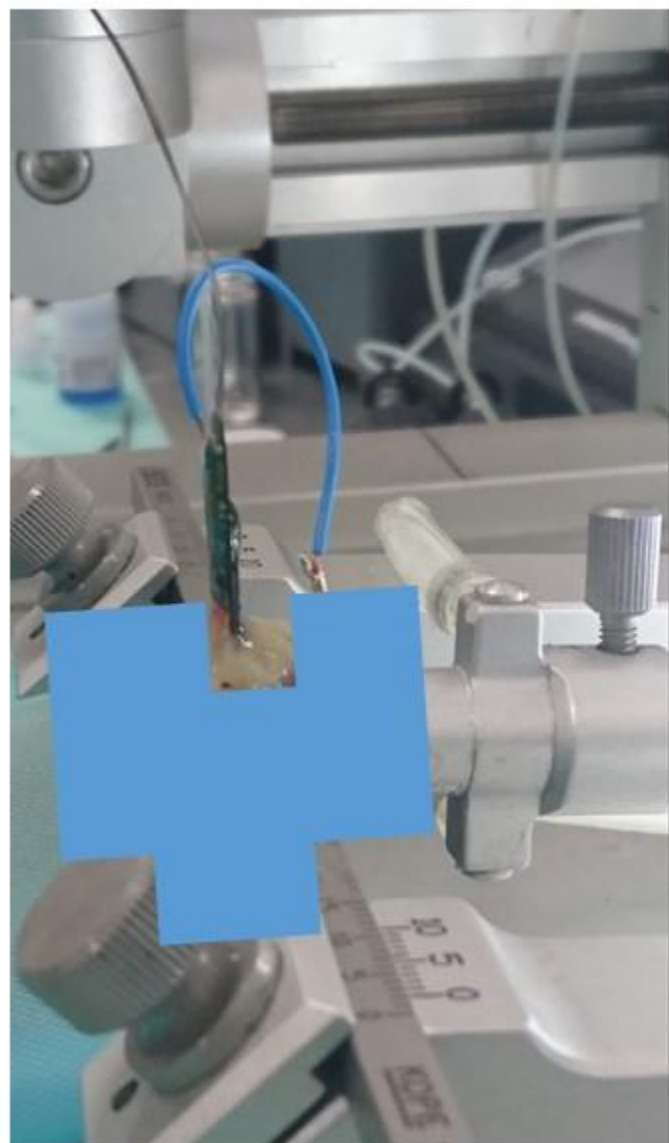
Probe implantation | Fixation to the skull



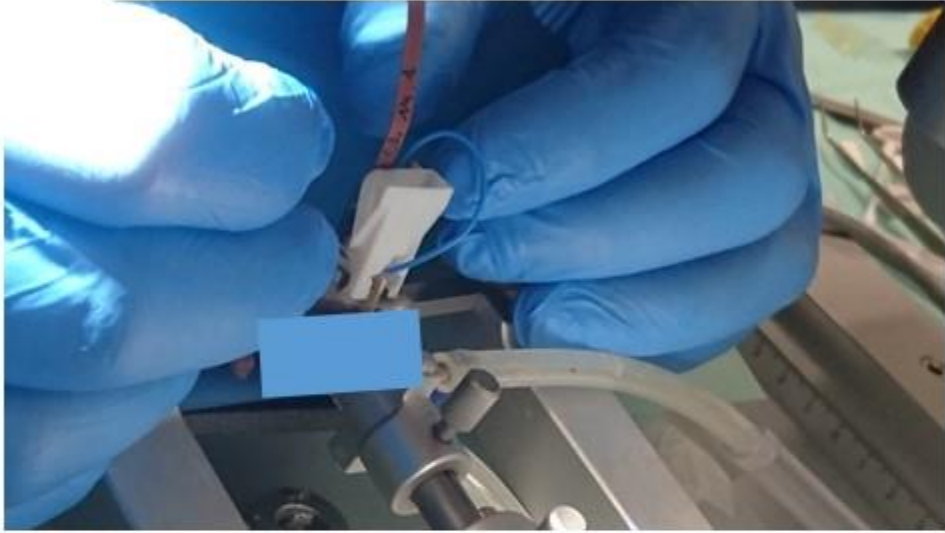
Probe implantation | Removing the probe holder



Probe implantation | Connection of ground pin

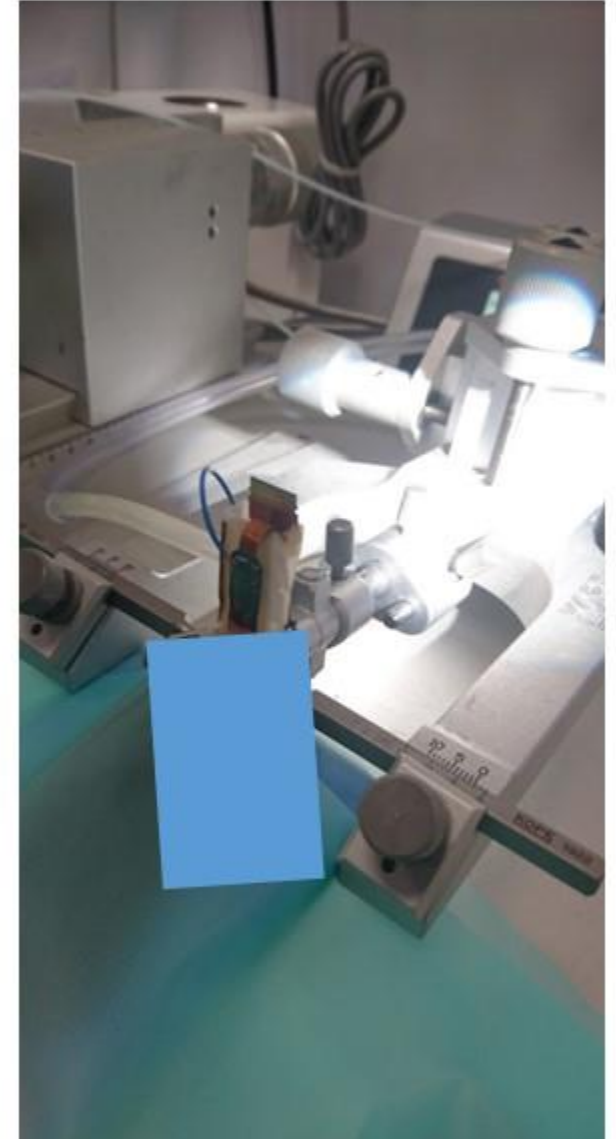
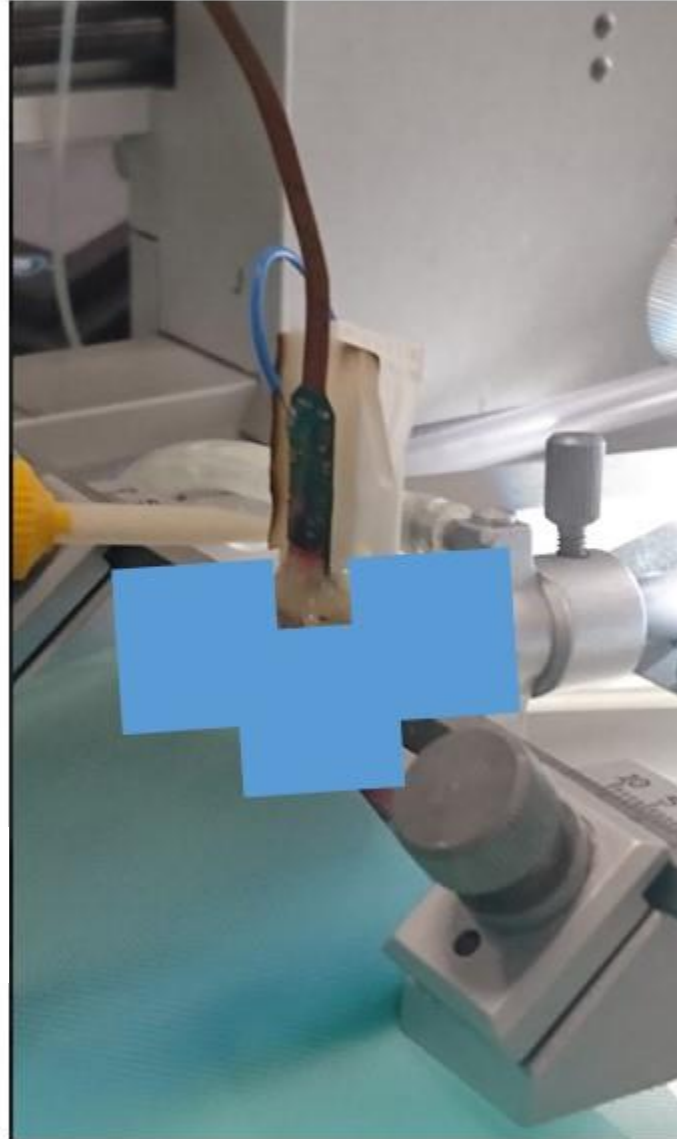


Probe implantation | Protection box

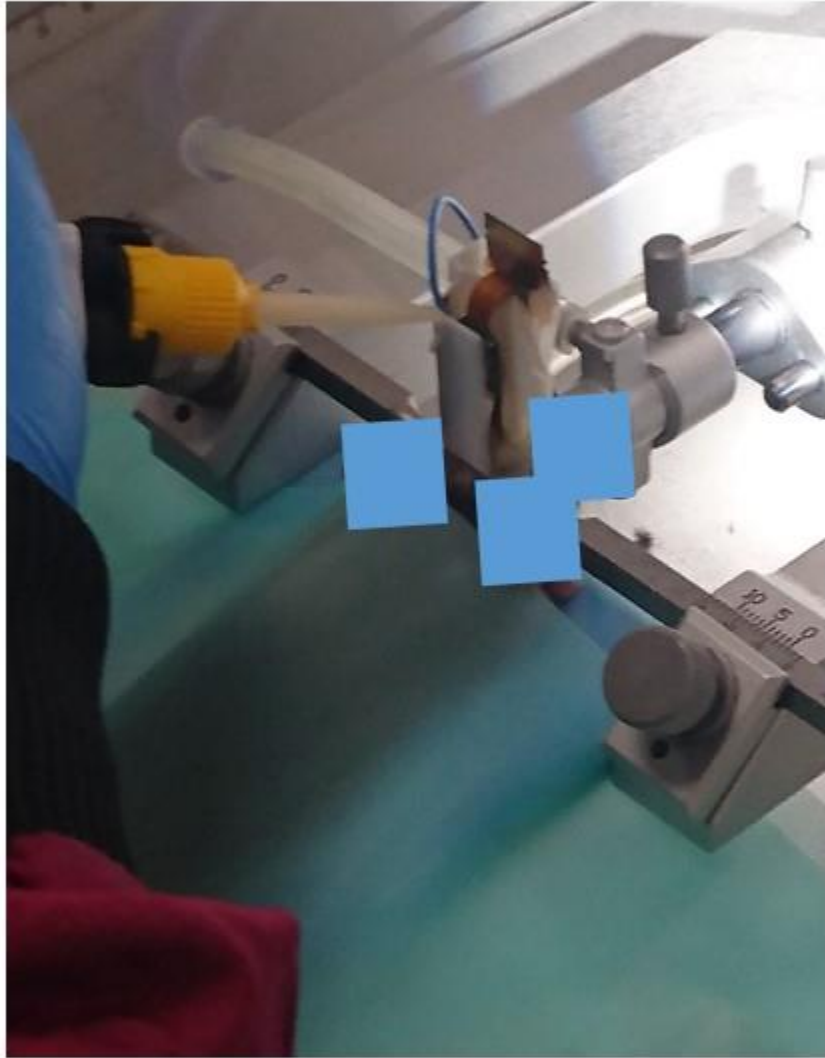


3D printed box from cortexlab website:

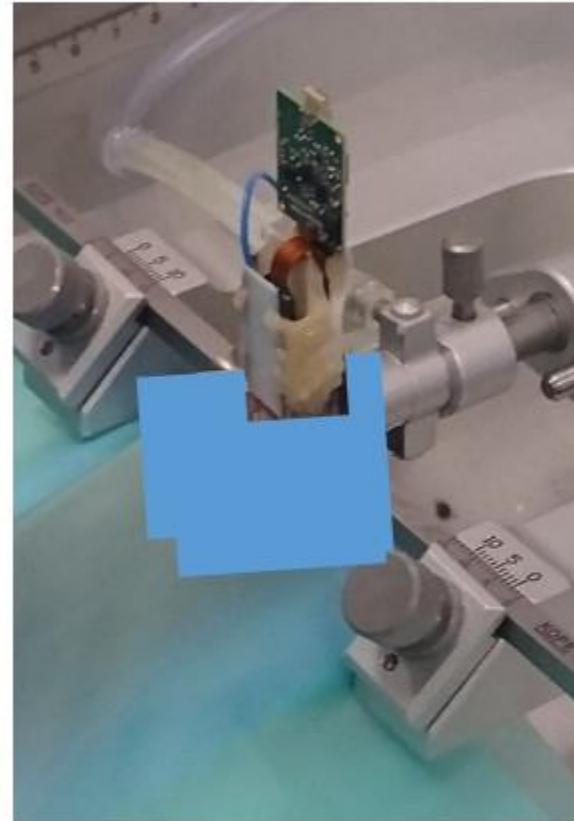
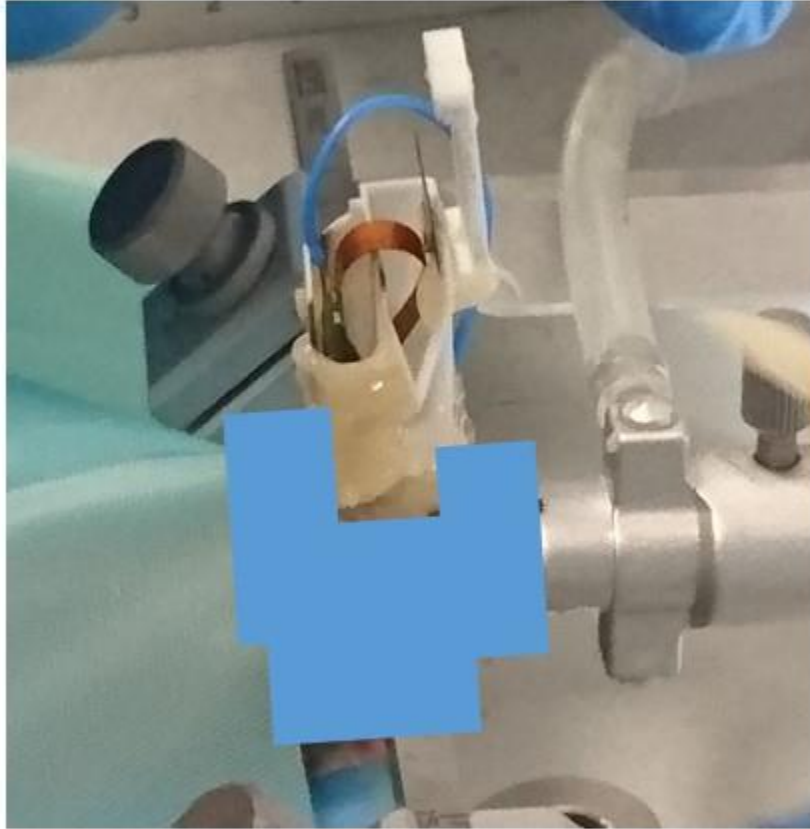
http://data.cortexlab.net/phase3Files/probeCover400um_v2.stl



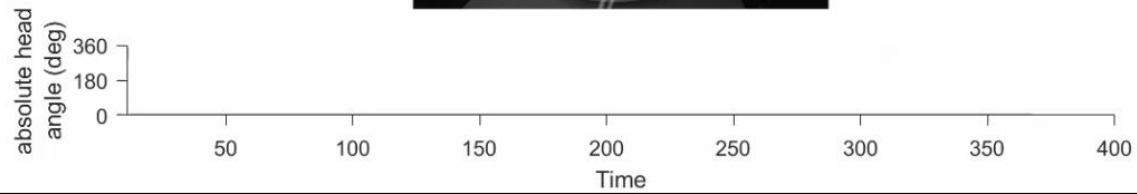
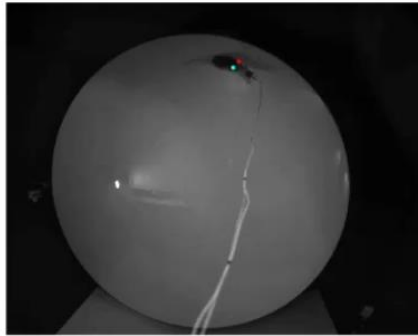
Probe implantation | Protection box



Probe implantation | Head-stage holder



Recording



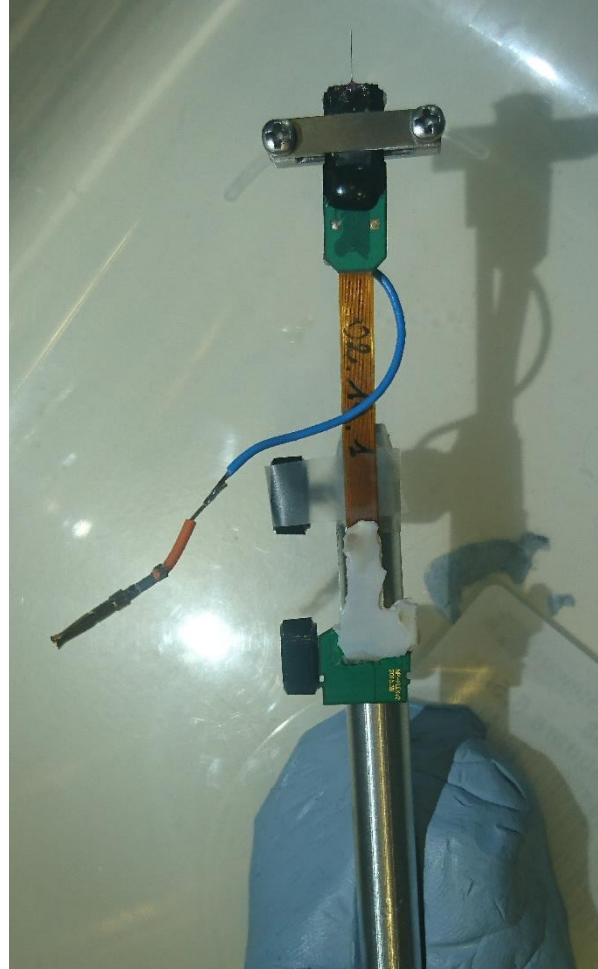
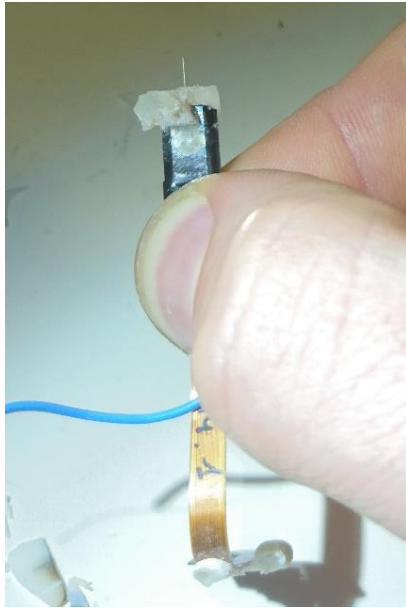
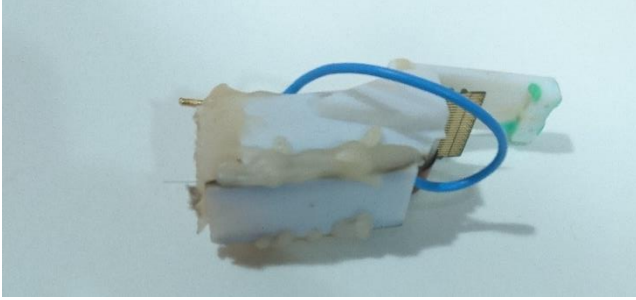
Rotary joint
Doric, AHRJ-OE_PT_AH_12_HDMI



Epoxilated head-stage

DeepLabCut,
Mathis et al. 2018

Re-using the probe



Wash the probe with:

- Tergazyme
- Isopropanol
- Distilled water

