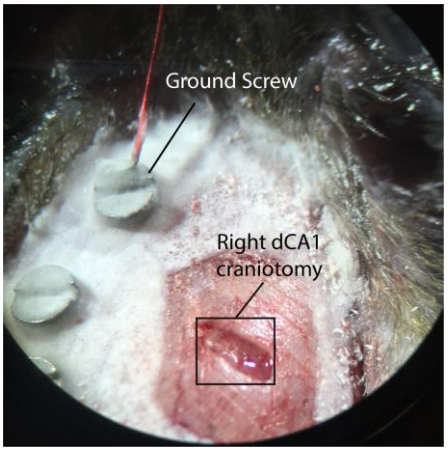
Surgical anesthesia is induced with isoflurane (4.5\%) and maintained between 1.25% and 2.0%, adjusted as necessary for appropriate depth of anesthesia. Prior to any other surgical procedure, mice are given a subcutaneous injection of carprofen at a concentration of 5mg/kg body weight.

Mice are placed in a stereotaxic frame and held in position with ear bars. Eyes are moistened with antibacterial ophthalmic ointment. A central incision is made on the skin of the head to expose the skull.

Skin and muscles are retracted with sterile surgical hemostats. The skull surface is cleaned with sterile cotton buds and saline. The incision aims to reveal both bregma and lambda to allow for sufficient space for the insertion of holding screws. A total of 3 stainless steel M0.8 screws are used to secure the drive (1 ground screen in frontal plate, 1 in parietal plate opposite to micro-drive, 1 in occipital plate).

For a dorsal CA1 implant craniotomy is made over the right cortex (top-left corner at AP: -1.20 mm; ML: 0.6 mm relative to bregma; bottom-right corner at AP: -2.30 mm; ML: 2.10 mm relative to bregma) using a 0.9 Burr drill. The dura is subsequently removed, exposing the brain.



The drive must be secured to a holding arm and slowly lowered into the brain. The silicon probe sticks out from the bottom array and its position must be already adjusted for the final implant depth (in this case approx. 2.1 mm). This is done to ensure a quick and neat penetration of the shaft into brain tissue. The silicon probe can always be adjusted subsequently.

The guide tube array is lowered ~0.5 mm above the brain surface and the craniotomy is filled with sterile Vaseline to protect the brain and the array from cement flowing in. The drive is cemented onto the skull using dental adhesive (Superbond C&B, Sun Medical, Japan). The ground wire is soldered to the EIB. Last, tetrodes are individually lowered into the brain (approx. 1mm) using the screw-spring mechanism.