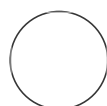# Magnetic resonance imaging (MRI)

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ABSTRACT

Magnetic resonance imaging (MRI) of mouse brain

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OPEN ACCESS

Protocol status: Working
We use this protocol and it's working

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1 Prepare the equipment: 7T Bruker BioSpec 70/30USR scanner (Bruker BioSpin GmbH, Ettlingen, Germany) equipped with a mini-imaging gradient set (400mT/m) and using a 72-mm inner diameter linear volume coil as a transmitter and a dedicated mouse brain surface coil as a receiver.

2 Prepare the software: Acquire and process all MRI data on a Linux computer using Paravision 5.1 software (Bruker BioSpin GmbH, Karlsruhe,Germany)(RRID:SCR_001964, http://www.bruker.com/service/support-upgrades/software-downloads/mri.html).

3 Anesthetize the animals (1.5-2% isoflurane in 1 L/min oxygen for maintenance) and place them into an animal bed with bite-bar and ear-bars for optimal head immobilization.

4 Control the respiration rate (50-100 bpm) and core body temperature (37 ± 1°C) with an animal monitoring and control system (SA Instruments, Stony Brook, NT).

5 Acquire high resolution T1-weighted spin-echo images in the axial plane with and without fat saturation pulses.

6 Acquire two slice packages of 7 contiguous slices each containing the SNpc and LC regions and using the following parameter: TE=7 ms; TR= 500 ms; NA=56; FOV=1.92×1.92 cm2; MTX=128×128; ST= 0.25 mm; thus, resulting in a spatial resolution of 150×150×250 µm3; Acqt= 1h per image.