

Pudendal motoneuron reflex discharges (PMRD) in anaesthetised rat

Objective:

To induce the expulsion reflex in anaesthetised rat. In this model, neural activity on the motor branch of the pudendal nerve is recorded in response to electrical stimulation of the dorsal nerves of the penis. The pudendal nerve and the dorsal nerve of the penis represent, respectively, the efferent and afferent limbs of the expulsion reflex loop (figure 1).

Summarized methodology:

Rats are anaesthetised with urethane, a stimulating electrode is placed on the left and right dorsal nerves of the penis (DNP) at the penile crus and a recording electrode is positioned on the motor branch of the pudendal nerve. Electrical stimulation of the DNP consists of pulses 0.1 ms in duration, with an intensity set between 50 and 175 µA, at 2.5 times the reflex threshold. Sixty successive pulses are delivered bilaterally to the DNP and, after exclusion of artifact signals, the average evoked responses recorded in the motor branch of pudendal nerve are obtained (figure 2). Analysis of the recordings is performed a posteriori using custom-written routines in Elphy software (Sadoc, CNRS, Gif-sur-Yvette, France).

Endpoints:

- Latency of the PMRD response
- Amplitude of PMRD response

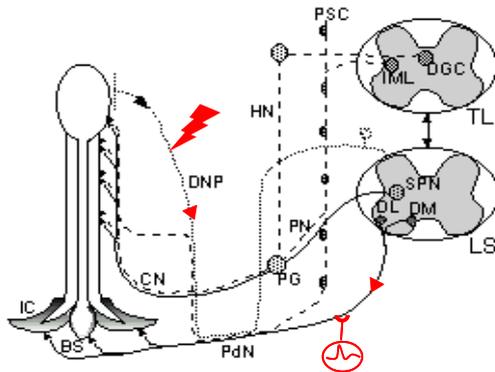


Figure 1: Schematic view of the experiment. Electrical stimulations are applied to dorsal nerves of the penis (DNP) and reflex discharges are recorded at the level of the motor branch of the pudendal nerve (PdN) innervating bulbospongiosus (BS) and ischiocavernosus (IC) muscles.

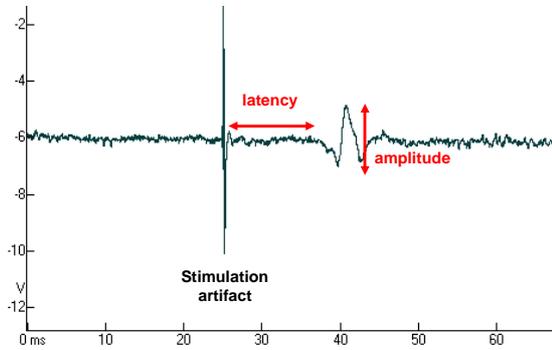


Figure 2: Example of PMRD recorded following bilateral electrical stimulation of DNP in anaesthetised rat (Pelvipharm, internal data).

Related Pelvipharm bibliography:

- Clément, P. et al. *Eur Urol* (2007) : 51:825-832
- Giuliano, F. et al. *J Urol* (2007) : 177:386-389

Links to applicable therapeutic areas / targeted disorders:

- Sexual pharmacology

* Ejaculatory Disorders