Capsaicin-induced bladder hyperactivity

Model’s advantages:

- Capsaicin is a selective excitotoxin of C-fiber primary afferent neurons.
- Acts through the stimulation of a vanilloid receptor (VR1).
- Release of tachykinins and other mediators at both the peripheral and spinal cord level.
- Useful for quick investigation of the effect of drugs known to act on C-fiber afferents.

Species: rat, guinea pig

Pathophysiological features:

- Cystometrogram displays:
  - decrease in the intercontraction interval.
  - decrease in the pressure threshold for eliciting contractions.
- Increase C-Fos positive cells in the spinal cord (L6 level).

![Figure 1: Representative cystometrograms showing the effect of capsaicin-induced bladder hyperactivity in anesthetized female rat. Arrows indicate the voiding contractions. (Pelvipharm, internal data)](image)

Summarized methodology:

The bladder is perfused with continuous capsaicin (30 µM) at a rate of 50 µl/min while intravesical and blood pressure are monitored concomitantly.

Related Pelvipharm bibliography:


NB: Pelvipharm will gladly study the feasibility to fit this experimental model in order to meet its client’s needs.

Links to applicable experimental skills:

- Administration routes / regimen
- Plasma / urine / tissue collection
- In vivo experiments – anesthetized animals
  - Urodynamic evaluation (anesthetized)
  - Bladder blood flow
  - Neural firing recording
- Biochemistry (Plasma / Urine / Tissue)
  - Spectrophotometric assays
  - Protein expression and activity
- Histology
  - Histomorphology
  - Histomorphometry
  - Oxidative fluorescence
- Immunohistology / Confocal microscopy
  - Protein expression – immunohistochemistry / immunofluorescence
  - Confocal microscopy