urology/nephrology

# CHRONIC PELVIC PAIN AND INFLAMMATION INDUCED BY CARRAGEENAN

## A MODEL FOR CHRONIC PROSTATITIS / CHRONIC PELVIC PAIN SYNDROME (CP/CPPS)

### Model

Inflammatory chronic prostatitis / chronic pelvic pain syndrome (CP/CPPS) is characterized by an abacterial inflammation of the prostate associated with pelvic pain. It is the most common type of prostatitis in human.
Inflammatory CP/CPPS is induced by intraprostatic injection of carrageenan, a seaweed polysaccharide which is widely used to induce inflammatory pain in animal models.

### Specie

Rat

### Interest

- This model is characterized by allodynia (decreased nociceptive threshold in response to innocuous von Frey forces) and hyperalgesia (increased nociceptive scores in response to noxious von Frey forces).
- Visceral pain is evaluated by non invasive technique allowing real-time and repeated monitoring of animal response over time (from D1 to D7 in this model).
- This model is validated by clinically relevant compounds: a non-steroidal anti-inflammatory drugs (ibuprofen) and an opioid receptor agonist (morphine).

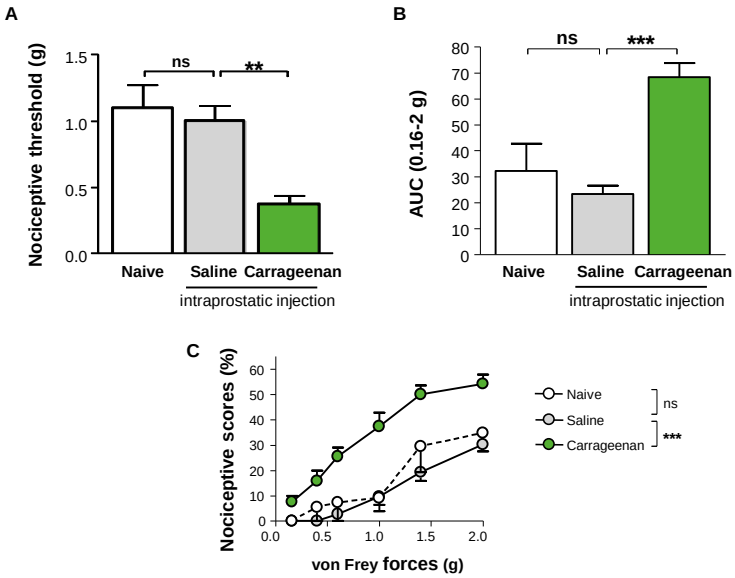
### Model Description

- Carrageenan is injected in both right and left ventral lobes of the prostate.
- The pelvic sensitivity to mechanical stimuli is assessed using 8 von Frey filaments that are applied to the scrotum area.
- Tested compounds can be administered via various routes (*i.v., i.p., s.c., p.o.*).

### Evaluated parameters

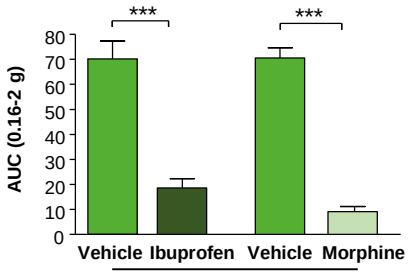
- Nociceptive threshold (g)
- Nociceptive scores (%)
- Area under the curve (AUC) by plotting nociceptive scores against von Frey force
- Prostate ventral lobe weight
- Prostate can be collected for histological, molecular or biomarkers analysis

### Carrageenan induces pelvic pain



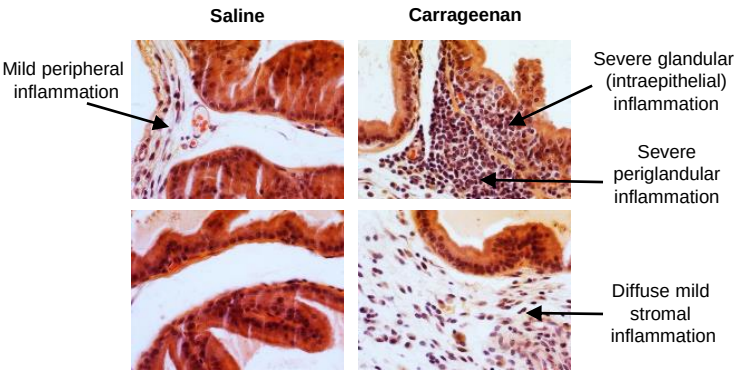

Effects on nociceptive threshold (A), AUC (B) and nociceptive scores (C) in naïve (non injected), saline- and carrageenan-injected groups, at D3.
ns P>0.05, ** P<0.01, *** P<0.001 (n=6-16/group)

### Ibuprofen and Morphine reverse carrageenan-induced pelvic pain




*** P<0.001
(n=4-7/group)

### Carrageenan induces prostate inflammation




Representative pictures of Hematoxylin–Eosin (HE) staining at D7 (magnification 40X).

Carrageenan induces strong peripheral and diffuse stromal pattern of inflammation. Periglandular and rare intraepithelial inflammation is also observed. Saline induces only weak stromal infiltration and no glandular inflammation is observed.