Fig. 1
Leakage detected with CDV without CM

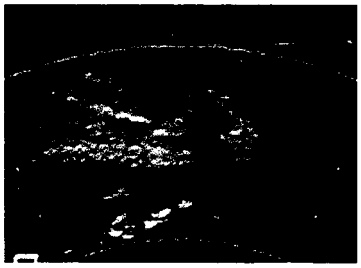


Fig. 2
Leakage detected with CDV with CM

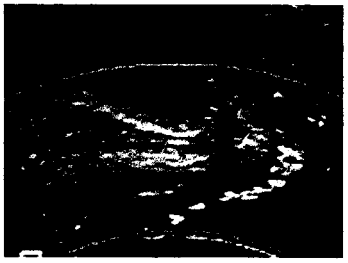
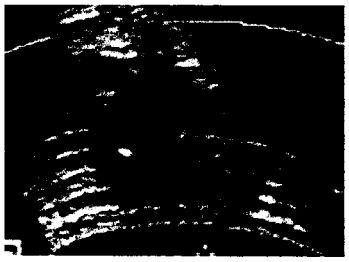


Fig. 3
Minimal leakage detected with CDV with CM



References
1. Neurourol Urodyn 18 (1999):309-310
2. Neurourol Urodyn 18 (1999):317-318

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Title (type in CAPITAL LETTERS, leave one blank line before the text):

SENSORY FIBERS IMMUNOREACTIVE TO THE VANILLOID RECEPTOR PROTEIN: DISTRIBUTION IN THE RAT URINARY BLADDER

Aims of study: Capsaicin sensitive primary afferents innervating the urinary bladder encode chemical, mechanical [1] and thermal (cold) stimuli) [2]. Recently it was shown that capsaicin sensitivity was due to the expression of a membrane protein, the so called vanilloid receptor or VR-1[3]. This receptor seems to work as a sensory transducer, activated by heat and protons. The distribution of capsaicin sensitive fibers in the bladder wall has been investigated until now by indirect methods such as immunoreactive stainings against SP[4] or CGRP[5]. The availability of an antibody against the vanilloid receptor provides now a direct method to stain capsaicin sensitive primary afferents. In this study we report the distribution of VR-1 immunoreactive fibers in the bladder wall of the rat at light and electron microscope level.

Methods: Adult Wistar rats were used. For light microscopic studies four animals were anaesthetized with

chloral hydrate and their bladders removed and fixed for 4 hours by immersion in 4% paraformaldehyde and 0.2% picric acid in 0.1 M phosphate buffer, pH 7.2. After washing in buffer the bladders were cryoprotected overnight in 30% sucrose in phosphate buffer and sectioned transversely at 40 µm. Free-floating sections were immunoreacted with an antibody against the VR-1 protein (kind gift from Novartis) using the ABC-HRP method. For ultrastructural analysis the bladders of two animals were fixed for one hour in 5% acrolein in 0.1 M phosphate buffer, pH 7.2, cut in 2 mm transverse slices and post-fixed for one hour in 5% acrolein and 0.5% glutaraldehyde in 0.1 M phosphate buffer, pH 7.2. After cryoprotection in 15% sucrose the slices were cut in a cryostat at 40 µm which were immunoreacted for the VR-1 protein as above, post-fixed with osmium tetroxide and embedded in Epon. Ultrathin sections were stained with uranyl acetate and lead citrate and observed in a Jeol electron microscope.

Results: Two distinct plexuses were evident at the light microscope. In the muscular layer numerous thin varicose fibers ran parallel to the smooth muscle fibers intimately apposed to their outer surface. Frequently, varicosities seemed to impinge on the surface of the muscle fibers. In the mucosa the majority of the immunoreactive fibers formed a loose network in close proximity to the basal cells of the transitional epithelium. Some immunoreactive fibers penetrated the epithelial layer. In the deep lamina propria VR-1-IR fibers were scarce, mostly grouped around blood vessels. No VR-1 immunoreactivity was found in epithelial or muscle cells. Under the electron microscope VR-1 immunoreactivity was found over the cell membrane and cytoplasm of unmyelinated axons and varicosities. The unmyelinated fibers were either isolated or ran together with non-immunoreactive axons in small nerve bundles. Varicosities were smooth shaped round or oval profiles in close proximity with the basement membrane of the epithelium or apposed to the membrane of muscle cells.

Conclusions: The occurrence of a large number of VR-1-IR fibers underneath the epithelium is consistent with the presumptive role of the VR-1 receptor in the transduction of chemical and thermal stimuli. Furthermore, the close proximity between VR1-IR fibers and smooth muscle cells suggests that in the bladder VR-1 may also transduce mechanical stimuli.

References: 1- J. Urol 1989; 142:150-154. 2- J Urol 1995; 154: 1825-1829. 3- Nature, 1997; 389:816-824. 4-Neuroscience, 1983; 10:861-868. 5- Neuroscience, 1986; 18: 727-747.

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Title (type in CAPITAL LETTERS, leave one blank line before the text):

IN VIVO MYOGRAPHIC STUDY IN THE PIG: URETHRA AND BLADDER RESPONSES TO PELVIC AND PUDENDAL NERVE STIMULATION

Background

An in vitro myographic model is a commonly used technique for early testing of drugs for treatment of urge incontinence.

Aims of Study

The aim of our study was to test an in vivo myographic model of the lower urinary tract in the pig. Responses to pelvic and pudendal nerve stimulation was assessed by collecting data from both the bladder and the urethra.