Peripheral neurons projecting to genital smooth musculature in the female pig: experimental study by retrograde transport and immunohistochemistry

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Key words: Immunohistochemistry, retrograde tracing, peripheral neurons, genital smooth musculature, pig

SUMMARY

Peripheral autonomic and sensitive neurons projecting to the genital smooth musculature were studied by means of retrograde tracing and single-labelling immunofluorescence techniques. The presence and the distribution of immunoreactivities to cathecolamine- (Tyrosine Hydroxylase (TH)), acetylcholine- (Choline Acetyl Transferase (ChAT)) or nitric oxide-synthesizing (neuronal Nitric Oxide Synthase (nNOS)) enzymes and to some biologically active peptides (Calcitonine Gene-Related Peptide (CGRP), Leu-Enkephaline (LENK), Neuropeptide Y (NPY), Substance P (SP) and Vasoactive Intestinal Peptide (VIP)) were studied. The fluorescent retrograde tracer Fast Blue (FB) was injected into the left retractor clitoridis muscle, a representative model of female genital smooth musculature, of 4 sexually immature sows. After a 7 day survival period, the ipsilateral paravertebral ganglion (PG S1), the caudal mesenteric ganglion (CMG) and the dorsal root ganglion (DRG S3) were collected. In PG S1, TH and NPY were the most frequently present substances, while there was scarce immunoreactivity (IR) for the other antisera. In CMG, in addition to NPY- and TH-IR, VIP-, LENK-, nNOS- and ChAT-IR were also present quite frequently. In DRG S3, CGRP resulted to be the most frequently present neurotransmitter, followed by VIP, nNOS, NPY, LENK, TH and SP.