

## **Tachykinins and tachykinin receptors in the mouse bladder**

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It has previously been reported that of the mammalian tachykinins (TKs) neurokinin A (NKA) is able to induce contractile activity in the mouse bladder. Our aim was to investigate the presence of TKs in the mouse bladder using immunohistochemical techniques and to characterise the TK receptor type involved in mediating TK contractile activity. Urinary bladder was obtained from oestrogen-treated (20 µg/kg s.c.) female BalbC mice which had been humanely killed. Immunohistochemical studies (n=4) indicated the presence of both substance P (SP)-like and NKA-like immunoreactivity throughout the bladder. Isolated organ bath studies were carried out using strips of bladder set up vertically to record contractile force produced. Cumulative log concentration response curves (LCRCs) were constructed to SP, NKA, neurokinin B (NKB), the newly discovered hemokinin-1 (HK-1), the NK<sub>1</sub> receptor-selective agonist [Sar<sup>9</sup>Met(O<sub>2</sub>)<sup>11</sup>]SP, the NK<sub>2</sub> receptor-selective agonist [Lys<sup>5</sup>MeLeu<sup>9</sup>Nle<sup>10</sup>]NKA(4-10) and the NK<sub>3</sub> receptor-selective agonist [MePhe<sup>7</sup>]NKB. In the presence of phosphoramidon (10 µM) and captopril (10 µM) NKA was the most potent of the mammalian TKs, while SP and NKB produced responses only at high concentrations and HK-1 was inactive (n=4). The effects of both SP and NKA were reduced in the presence of the NK<sub>2</sub> receptor antagonist SR 48968 (10 nM; n=6). Of the receptor-selective agonists only the NK<sub>2</sub> selective [Lys<sup>5</sup>MeLeu<sup>9</sup>Nle<sup>10</sup>]NKA(4-10) produced a response (n=4). These results are consistent with activation of an NK<sub>2</sub> receptor. Taken together, these findings suggest a role for TKs in mediating bladder contractility in the female mouse.

(1) Nsa Allogho S et al (1997) *Can. J. Physiol. Pharmacol.*, 75, 552-557