

Morphology of neuropeptide Y immunopositive ganglia in the mouse pancreas

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SUMMARY

The current immunohistochemical study used the antibody against neuropeptide Y (NPY) to observe the morphology of the autonomic ganglia in the mouse pancreas. The results indicated that intrapancreatic ganglion cells stained positively for NPY. Two types of ganglia were observed and they included the endocrine-contact ganglia that made contact with the endocrine pancreas and the interstitial ganglia, which were located in the interstitial space. The interstitial ganglia showed intense NPY-immunostaining than the endocrine-contact ganglia and were also closely associated with the NPY-immunopositive nerve fibres and varicose nerve fibres compared to the endocrine-contact ganglia. The endocrine-contact ganglia were also stained positively against the NPY, but the intensity of staining was weaker compared to that of the interstitial ganglia. The ganglia were seen to have a direct contact with NPY-immunopositive cells of the endocrine pancreas. Endocrine-contact ganglia were associated with a few NPY-immunopositive varicose nerve fibres but were not in contact with NPY-immunopositive large nerve bundles. The current observation revealed that the interstitial ganglia of the mouse pancreas showed intense NPY-immunoreactivity compared to endocrine contact ganglia and that the interstitial ganglia are associated with numerous NPY-immunopositive nerve terminals. The physiological significance of this finding is open for future work.

INTRODUCTION

Neuropeptide Y (NPY) is a 36 amino acid peptide that is present in many tissues of the body and it works closely in association with the autonomic nervous system. To date a number of physiological functions performed by NPY have been identified and they include regulation of food intake and circadian rhythm, cardiac stimulation, vasoconstriction and the control of gut and its associated glands (le Roux and Bloom, 2005). In the pancreas NPY has been shown to play a role in the