

Catecholamine release from isolated sensory neurons of cat petrosal ganglia in tissue culture

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The petrosal ganglion (PG) is entirely constituted by the perikarya of primary sensory neurons, part of which innervates the carotid body via the carotid sinus nerve (CSN). Application of acetylcholine (ACh) or nicotine (Nic) as well as adenosine 5'-triphosphate (ATP) to the PG in vitro increases the frequency of CSN discharges, an effect that is modified by the concomitant application of dopamine (DA). Since a population of PG neurons expresses tyrosine hydroxylase, and DA is released from the cat carotid body in response to electrical stimulation of C-fibers in the CSN, it is possible that DA may be released from the perikarya of PG neurons. Therefore, we studied whether ACh or Nic, ATP and high KCl could induce DA release from PG neurons in culture. Petrosal ganglia were excised from pentobarbitone-anesthetized adult cats, dissociated and their neurons maintained in culture for 7-21 days. Catecholamine release was measured by amperometry via carbon-fiber microelectrodes.

In response