

Secretion of adrenaline and noradrenaline from the perfused cat adrenal gland

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Cat adrenal glands were perfused with Locke solution and the release of adrenaline (A) and noradrenaline (NA) was measured under different conditions of stimulation and inhibition. The addition of nicotine (10^{-6}M) to the perfusion medium for 2 min periods elicited a mean catecholamine output of $5.57 \pm 0.64 \mu\text{g/min}$ and $69.3 \pm 3.3\%$ was NA. Equipotent concentrations of pilocarpine (10^{-3}M), histamine (10^{-3}M) and potassium (17 mM) released a predominance of A (70–80%). Acetylcholine released approximately equal quantities of A and NA. Tetracaine inhibited preferentially the NA-dominant secretion induced by nicotine (Table 1). Only in high concentrations which block calcium flux (Rubin, Feinstein, Jaanus & Paimre, 1967) did tetracaine depress the catecholamine secretion elicited by pilocarpine (Table 1) and other agents which released a predominance of A. Tetracaine was not as effective against acetylcholine as it was against nicotine (Table 1). These results and those obtained from previous studies (Jaanus, Miele & Rubin, 1967; Rubin, Cohen, Harman & Roer, 1968) provide further evidence for the existence in the cat of two types of medullary chromaffin cells, which contain either A or NA and possess pharmacologically distinguishable characteristics.

TABLE 1
Catecholamine
output $\mu\text{g/min} \pm \text{S.E.}$
(no. of expts)

		NA (%)	ED 50 tetracaine
Nicotine ($1.2 \times 10^{-6}\text{M}$)	5.57 ± 0.64 (17)	69.3 ± 3.3	$2.9 \times 10^{-6}\text{M}$ (4)
Pilocarpine (10^{-3}M)	2.05 ± 0.14 (13)	25.8 ± 2.9	$3.4 \times 10^{-4}\text{M}$ (3)
Acetylcholine ($6 \times 10^{-6}\text{M}$)	4.86 ± 0.44 (20)	54.4 ± 0.53	$4.6 \times 10^{-5}\text{M}$ (5)

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Non-specific inhibitory effects of morphine-like drugs on transmission in the superior cervical ganglion and guinea-pig isolated ileum

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It has been shown on many occasions that morphine-like compounds inhibit the responses of certain autonomic effectors to stimulation of their nerves at low frequencies. The inhibitory effect of morphine ($\text{ID}_{50} = 0.07 \mu\text{M}$) on the responses of the longitudinal muscle of the guinea-pig isolated ileum to coaxial electrical stimulation is antagonized by naloxone (N-allylnoroxymorphone); a dose ratio of 2 is