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Author(s)	SASAHARA, Ikuko
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pig.

10. These results indicate that porcine adrenal chromaffin cells possess μ , δ and κ opioid receptors. It is suggested the activation of

opioid receptors inhibits N-type voltage-dependent calcium channels mainly via pertussis toxin sensitive G-proteins.

Catecholamine and ATP metabolites released from perfused adrenal glands of guinea-pig

Ikuko SASAHARA

*Laboratory of Pharmacology,
Department of Biomedical Sciences,
School of Veterinary Medicine,
Hokkaido University, Sapporo 060-0818, Japan*

1. I investigated relationship between catecholamine and ATP metabolites released from perfused guinea-pig adrenal glands.

Adenine nucleotide and adenosine were measured with HPLC after conversion of these purine compounds to eteno-derivatives.

2. In HPLC analysis, ATP, ADP, AMP and adenosine were increased linearly with increasing their concentrations. The detection limits were 10-30nM.

3. The effluent from the adrenal glands contained a small amount of ADP under the resting condition. There is no relationship between the amounts of ADP and catecholamine in the effluent.

4. KCl and acetylcholine caused the release of catecholamines and ATP metabolites in dose-dependent manners. The molar ratio of catecholamine to ATP metabolites appearing in the effluent (CA/AM) was about 10 for both stimuli.

5. Veratridine and sustained application of 40mM KCl for 30 min caused long-lasting secretion of catecholamine and ATP metabolites.

The time course of secretion of catecholamine was somewhat different from that of ATP metabolites. When the amounts of ATP and ADP were subtracted from those of ATP metabolites, the time course of release of ATP metabolites (AMP and adenosine) was consistent with that of catecholamine. The CA/AMP plus adenosine was about 12 for both stimuli.

6. These results suggest that the time course of ATP secretion from the adrenal gland is consistent with that of catecholamine secretion. The molar ratio (10) of catecholamine to ATP metabolites appearing in the adrenal effluent was significantly different from those found in chromaffin vesicles (4). The released ATP seems to be significantly metabolized in the blood vessels of the perfused guinea-pig adrenal glands.