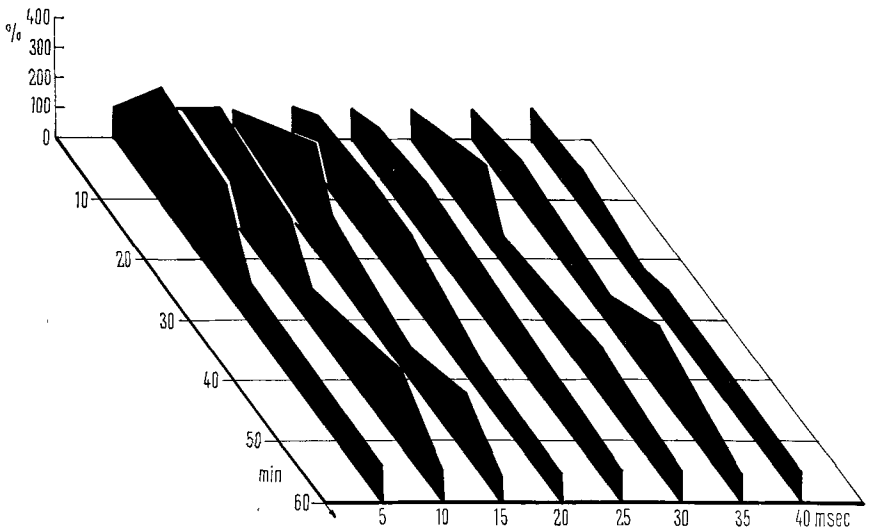

Fig. 2. Die Wirkung von Vasopressin (0,1 μE/ml) auf die Intervallverteilung des efferenten Cercalnerven.

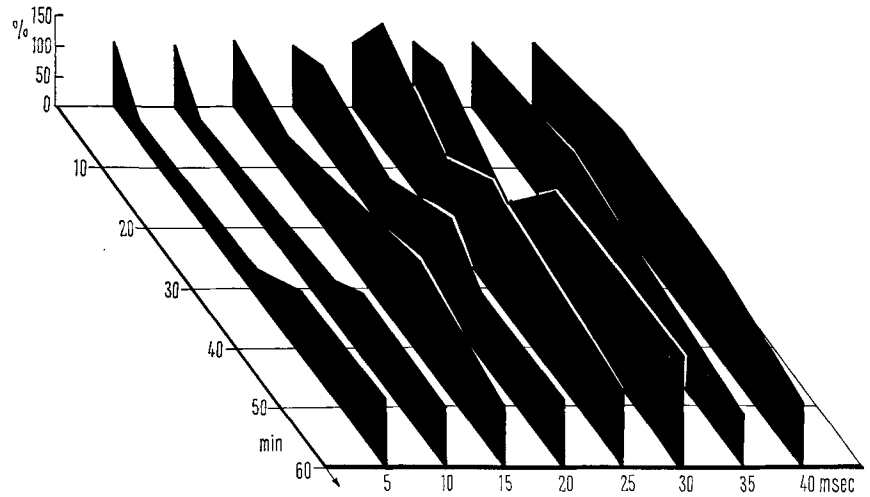

Fig. 3. Die Wirkung von Oxytocin (0,1 μE/ml) auf die Intervallverteilung des efferenten Cercalnerven.

lässigkeit von Neuronen beziehungsweise Rezeptoren in spezifischer Weise verändern[3]. Ausserdem spricht die Einflussnahme der oben genannten Neurohormone auf die Cercusrezeptoren für eine hormonale Verstellbarkeit der Empfindlichkeit dieser Rezeptoren.

Die vorgelegten Befunde stärken die Ansicht von der funktionell zentralbedeutsamen Stellung der Neurohormone, die auch über zentralnervöse, motorische und sensorische Strukturen die Gesamtreaktionslage eines Organismus mitbestimmen.

Summary. Vasopressin and oxytocin are antagonistically effective substances with inverse dependence on concentration in the nervous system of insects. These results emphasize the central importance of neurohormonal control of general response in the nervous system.

H. SCHULZ

Institut für Physiologie
der Medizinischen Akademie Magdeburg
DDR 301 Magdeburg (DDR), 10. Dezember 1969.

Aldosterone: Effect on Incorporation of Leucine into the Trichloroacetic Acid Precipitable Fraction of Rabbit Renal Cortical Tissue

Several lines of evidence indicate that the sodium saving effect of aldosterone may be mediated by a protein synthesizing system[1-4]. In order to obtain further evidence relating to this hypothesis, studies were performed to assess the effect of aldosterone on tissue incorporation of leucine in incubated rabbit kidney cortex slices.

Male domestic rabbits weighing 2–3 kg were anesthetized with sodium pentobarbital (30 mg/kg), administered via the lateral ear vein. Kidneys were rapidly removed and kept chilled at 4 °C before and during slicing with a Briggs-Stadie microtome. Slices of approximately 100 mg were weighed to the nearest 0.1 mg on a torsion balance. Control and experimental slices were taken from the same kidneys. In preliminary studies, incubation was carried out in ROBINSON's[5] phosphate buffer (pH 7.4). As counts recovered from tissue incubated in this medium

were low, and as hormonal effect was observed only in the earliest incubation period, future incubations were carried out in a medium made of ROBINSON's buffer 96 parts: pooled rabbit serum 4 parts. This addition approximately doubled recoverable radioactivity and was used in all the studies herein reported.

Incubation was carried out in 25 ml capped flasks containing 5 ml of incubation medium. Flasks were gassed with O_2 at zero time and each 30 min thereafter. Hormone and/or antibiotic was included in the medium as indicated in the Table. After 30 min of preincubation, 0.2 μc of D-L-leucine-1-^{14}C of a specific activity of 5.24 mc/m*M* (New England Nuclear Corp.) was added to each flask. Incubation was at 37 ± 0.5 °C with shaking at 100 cycles/min. At the end of each incubation period, 5 ml of 10% trichloracetic acid (TCA) was added to the medium. Washing was repeated with TCA until the supernatant showed only background activity. The precipitate was digested in 0.4*N* NaOH for 12 h at 50 °C. Aliquots of 0.5 ml of the digest were counted, with background subtracted, in a Packard Model 3003 liquid scintillation counter in 15 ml of scintillation mixture. Quenching was determined to be insignificant in this system.

Significance of the difference between control and experimental means was examined by Student's *t*-test. *P*-values were taken from standard tables, with significance assigned at the level of $P < 0.05$.

Effect of aldosterone and actinomycin D on tissue incorporation of ^{14}C leucine

In medium	Cpm/mg wet tissue Control	Expl. medium	Expl. medium (% of control ± S.E.M.)	Incubation time (min)
Aldo[a] (12)[b]	24.5	45.8	187 ± 23.6[c]	30
Aldo (12)	43.9	57.9	132 ± 6.6[c]	60
Aldo (8)	56.2	91.0	162 ± 14.1[c]	90
Act D[c] (10)	12.0	10.1	83 ± 12.5	30
Act D (12)	22.7	16.8	74 ± 4.6[c]	60
Act D (8)	26.0	17.7	68 ± 5.1[c]	90
Aldo, Act D[d] (12)	45.8	29.3	64 ± 6.8[c]	30
Aldo, Act D (12)	57.9	49.8	86 ± 3.6[c]	60
Aldo, Act D (8)	91.0	58.8	64 ± 3.9[c]	90

[a] Aldo indicates experimental medium contained 4 μg/ml of D-aldosterone, control medium contained no hormone or antibiotic. [b] Numbers in parentheses indicate number of tissue samples in experimental groups, incubated in association with an equal number of control samples. [c] Act D indicates experimental medium contained 20 μg/ml of actinomycin D, control medium contained no hormone or antibiotic. [d] Aldo, Act D indicates experimental medium contained 4 μg/ml of D-aldosterone plus 20 μg/ml of actinomycin D, control medium contained 4 μg/ml of D-aldosterone. [e] Indicates a *p*-value less than 0.05.

The results show a significant increase in recoverable radioactivity in those tissue samples incubated in the presence of aldosterone. Actinomycin D, when included in the incubation medium with aldosterone, blocked the aldosterone stimulated increase in recoverable radioactivity. Actinomycin D also depressed recoverable radioactivity when administered alone among the 60 and 90 min samples.

In a small number of samples (4 incubated 30 min, 8 incubated 60 min, and 2 incubated 90 min), the inclusion of 50 μg/ml of puromycin in the medium containing aldosterone uniformly reduced recovered radioactivity to approximately $^1/_3$ of control levels. The enhancement of recoverable radioactivity in the tissue exposed to aldosterone suggests that the hormone is capable of stimulating a protein synthetic function in renal cortical tissue. This effect was blocked by inclusion of actinomycin D in the aldosterone containing medium.

As actinomycin D exerted some inhibitory influence on recoverable radioactivity in samples not exposed to exogenous aldosterone, the specificity of its inhibitory action may be questioned. Still, as endogenous aldosterone was not excluded from the system, it is possible that the effect of actinomycin D was specific for an aldosterone stimulated fraction of incorporation. The results are equivocal in this regard. That the majority of the recovered radioactivity did come from protein synthesized during incubation is suggested by the severe depression of recoverable radioactivity seen in those tissue samples incubated in the presence of puromycin[6].

Résumé. L'inclusion de D-aldostérone dans le milieu d'incubation a provoqué une accumulation élevée de l'acide amino-leucine dans la fraction protéique des tranches d'écorce du rein du lapin. Cette élévation a été arrêtée par des antibiotiques (actinomycine D et puromycine).

P. G. SIMONE and S. SOLOMON

Department of Physiology, University of New Mexico, School of Medicine, Albuquerque (New Mexico 87106, USA), 15 September 1969.

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In vivo Perfusion of Human Lung Tissue with 7α-^{3}H-Dehydroepiandrosterone ^{35}S-Sulfate. Metabolism of Steroid Conjugates. IV.

It appears to be well established that non-endocrine tissue also participates in the general metabolism of steroid hormones[1–5]. In continuation of previous experiments on the metabolism of steroid conjugates[6–9], the in vivo perfusion of human lung tissue with dehydroepiandrosterone (DHEA) sulphate was attempted.

In a 61-year-old male patient, undergoing a lobectomy due to a tumour in the upper lobe of his left lung, 5.05 μg 7α-^{3}H-DHEA ^{35}S-sulfate with 10.2×10^6 cpm ^{3}H and 2.37×10^6 cpm ^{35}S (^{3}H/^{35}S = 4.30) in physiological saline were continuously infused for 10 min into the branch of the pulmonic artery, leading to the lower lobe of the left