system of teleosts could be demonstrated only for the fast protein-components. However, colchicine is able to depress the effectivity of ethidium-bromide, a blocker of mitochondrial RNA-synthesis. This finding is discussed in connection with the possibility that axonal mitochondria are associated with the neurotubules.

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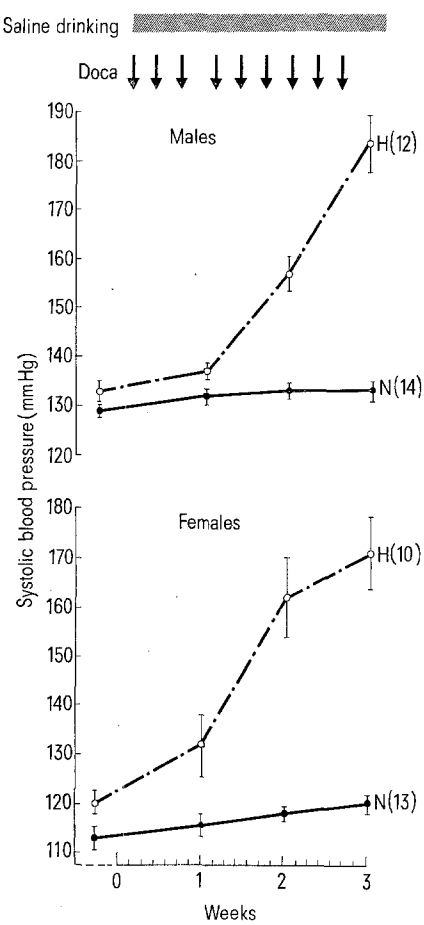
Separation of Two Strains of Rats with Inbred Dissimilar Sensitivity to Doca-Salt Hypertension

The development of hypertensive strains of animals has provided an important experimental tool for the study of hypertension. In 1958, SMIRK and HALL[1] described a colony of Otago rats with inherited hypertension. DAHL et al.[2] evolved from a stock of Sprague-Dawley rats, 2 strains of animals which differed markedly in their susceptibility to salt-induced hypertension. They were designated as 'sensitive' (S) and 'resistant' (R), according to their blood pressure response to dietary salt. Subsequently, OKAMOTO and AOKI[3] derived from Wistar rats a strain of spontaneous hypertensive or SH rats, that has been extensively investigated in recent years.



Blood pressure changes incuded by Doca-salt in rats with dissimilar susceptibility to hypertension. The rats, members of the 6th generation (S_6) were 2 months old at 0 weeks. H, hypertensive strain (Δ). N, normotensive strain (●). Values are average ± S.E. The number of animals is shown in parentheses.

During the past years, through selective breeding, we have developed an additional colony of hypertensive rats. The response to Doca-salt was the criterion for selecting the hypertensive strain. Concomitantly a second colony was separated whose blood pressure is practically unchanged by Doca-salt. We have used the sympols H for hypertensive and N for normotensive, to designate the 2 new strains derived from the Hebrew University, 'Sabra' rats.

Material and methods. 25 male and an equal number of female rats, aged 2 months, were taken at random to constitute the pool from which the parental generation (P) was chosen. The schedule used in this and subsequent breedings is presented in Table I. The total amount of Doca[4] administered to each rat was 22.5 mg over a period of 3 weeks. Systolic B. P. was measured by a modification of the microphonic method of FRIEDMANN and FREED[5].

Table I. Schedule for selection of breeder rats

Day 1.	Pre-treatment B.P. followed by left nephrectomy.
Days 5–27.	Doca-salt regimen: 0.9% NaCl as drinking fluid; Doca in oil, 2.5 mg/rat s.c. on alternate days 3 × /week.
Day 28.	Post-treatment B.P. Selection of siblings with highest B.P. in the H strain and with lowest B.P. in the N strain for mating.

Table II. Blood pressure of normotensive (N) and hypertensive (H) rats, before and after Doca-salt

	Group	No. of rats	Systolic B.P. ± S.D.	
			Before	After
Males	N	19	127 ± 5.8[a]	134 ± 6.6[a]
	H	22	137 ± 8.4	186 ± 19
Females	N	20	111 ± 7.5[a]	120 ± 6.5[a]
	H	21	121 ± 7.6	170 ± 19

[a] $p < 0.01$.

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Animals with the highest blood pressure were mated, as well as those with the lowest levels, to obtain the first generation (S_1). Beginning from S_1 and throughout the 5 subsequent generations, selective inbreeding was continued using brother-sister mating. Statistical analysis was made by Student's *t*-test.

Results and conclusions. The systolic blood pressure of 82 rats belonging to S_6 is shown in Table II. The first set of measurements obtained in intact animals, before treatment, were significantly higher in the hypertensive (H) than in the normotensive (N) rats. Further comparison of males with females within each strain showed the B.P. of males to be significantly higher than in females. Similar sex-related differences in blood pressure were previously reported in rats with inherited hypertension[5,6]. The second set of measurements were obtained in uninephrectomized rats, 4 weeks after the initial determination and 2 days after the last injection of Doca. It is evident that a marked degree of hypertension had developed in the H strain while the N rats remained normotensive. In 49 rats, changes in B.P. were recorded at weekly intervals. As illustrated in the Figure, the H rats showed an impressive rise in B.P. at the end of the 2nd week and a further increment in the 3rd week. A moderate elevation in B.P. was also noted in the N strain, the final reading did not, however, exceed normal values.

The results are in complete agreement with the work of DAHL[2], though our breeding stock and the induction of hypertension were different. While an inherited susceptibility to hypertension was demonstrated by several workers in rats[1-3] and rabbits[7], immunity to hypertension as observed in the N colony was previously reported only by DAHL. Inherited resistance to the effects of Doca-salt may explain the failure of some rats to become hypertensive when treated with Doca, irrespective of their salt consumption[8]. It may also give a clue to one or more genetic controlled mechanisms causing hypertension. Recent studies suggest a genetic difference in adrenal biosynthetic pathways between hypertensive prone (S) and resistant (R) rats[9]. The availability of N and H rats offers new opportunities for correlating gene controlled differences with susceptibility or resistance to hypertension[10,11].

Résumé. La réponse au régime Doca-sel (D.S.) a été utilisée comme critère de sélection pour séparer, par croisement consanguin, deux colonies de rats manifestant une susceptibilité bien différente à l'hypertension artérielle. Les résultats obtenus dans la 6ème génération de nos colonies normotensive et hypertensive font l'objet de ce raport. Le rôle des facteurs héréditaires dans la susceptibilité ou la résistance à l'hypertension du type D.S. est démontrée.

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Changes in Activity and Hormonal Sensitivity of Brain Adenyl Cyclase Following Chronic Ethanol Administration

Adenosine 3′,5′-monophosphate (cyclic AMP) has been established as an intracellular mediator of the action of a number of amines and polypeptide hormones[1,2] and may well play an important role in the function of the central nervous system[3]. Previous studies in our laboratory have indicated that biochemical changes observed in the brain, following chronic ethanol administration, may involve in alteration of the function of endocrine system[4,5]. In this study, we have examined the effect of acute and chronic ethanol administration on the cyclic AMP formation in mouse cerebral cortex.

Methods. Swiss albino female mice weighing 25–28 g were treated chronically with ethanol by providing only a liquid diet for 2 weeks as previously described[4-6]. The average daily dose of ethanol was 26–33 mg/g body weight. Acutely treated mice received 4 g/kg body weight of ethanol intraperitoneally as a 20% (w/v) solution in saline. Control mice were injected with an equivalent amount of isocaloric sucrose-saline solution.

Adenyl cyclase activity in a homogenate of cerebral cortex prepared in 0.32 *M* sucrose was measured by the chromatographic separation of cyclic ^{3}H-AMP formed from ^{3}H-ATP as described by KRISHNA et al.[7]. In preliminary experiments, the measurement of UV-absorption at 260 nm following the chromatographic separation of ATP, ADP, cyclic AMP, adenine and 5′-AMP on Dowex 50 ion-exchange columns[7] was employed and confirmed that the cyclic AMP fraction taken in this experimental procedure contains only cyclic AMP. The basic incubation medium contained *tris*-HCl (pH 7.3): 40 m*M*, $MgSO_4$: 3.3 m*M*, theophylline: 10 m*M*, *tris* ATP: 2 m*M* (including 0.125 m*M* of ^{3}H-ATP (S.A.; 7.93 C/mmole) and 1-2 mg protein of enzyme preparation. Incubations were carried out for 7 min at 30 °C and terminated, after the addition of 10 µmoles of carrier cyclic AMP, by immersion in a boiling bath for 2 min. In each experiment the recovery of the carrier cyclic AMP was determined spectrophotometrically and used to correct the experimental value

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