

CHOLINESTERASE ACTIVITY
(μ L CO₂ EVOLVED IN 20 MIN)

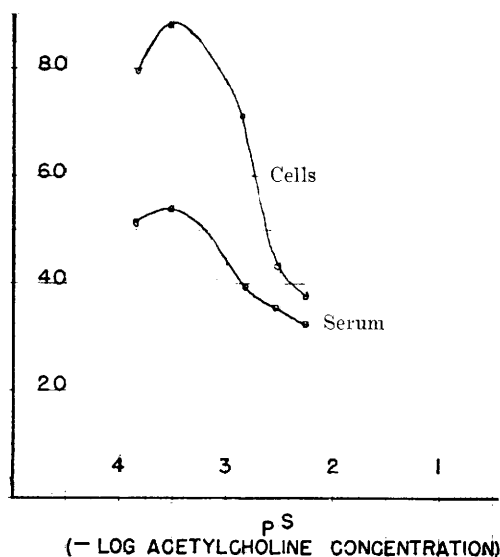


FIG. 1.
Activity-pS curves for rabbit serum and erythrocytes.

Ferrarai(8) has shown that pontocaine inactivates the non-specific cholinesterase but not the specific cholinesterase. Since the results in Table II indicate no inhibition by pontocaine of acetylcholine hydrolysis by

8. Ferrarai, W., *J. Suisse de Med.*, 1948, v78, 282.

rabbit serum, we must conclude that the enzyme hydrolyzing acetylcholine in the rabbit is not the same one hydrolyzing it in human serum.

Evidence that the serum enzyme in the rabbit is the true type of cholinesterase is seen in Fig. 1. The activity-pS curve here is the bell-shaped curve characteristic for the specific or true cholinesterase and acetylcholine.(9) This may further be seen from the curve for the rabbit erythrocytes also presented, the erythrocytes of most mammalian species having the true cholinesterase.

Conclusions. Rabbit serum, contrary to previous observations, contains only one enzyme which hydrolyzes acetylcholine, and this one has the characteristics of a true cholinesterase. In addition, there is present in rabbit serum an enzyme which hydrolyzes only benzoylcholine, and which, since it does not hydrolyze acetylcholine significantly, should not be labeled a cholinesterase. This enzyme may be similar to the "benzoylcholinesterase" described by Sawyer(10) as being present in guinea pig liver and kidney.

9. Augustinsson, K.-B., *Acta Physiol. Scand.*, 1948, v15, Supplement 52.

10. Sawyer, C. H., *Science*, 1945, v101, 385.

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Renal Hyperemia Induced in Man by a New Phthalazine Derivative. (17591)

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Pyrogen is the only substance which has been reported to increase significantly the renal blood flow in man. However, according to Goldring and Chasis,(1) it is not suitable for therapeutic purposes. Aminophylline seems to be effective only in patients with cardiac failure.(2) No treatment which will relieve renal ischemia has yet been found.

1. Goldring, W., and Chasis, H., *Hypertension and Hypertensive Disease*, The Commonwealth Fund, New York, 1944.

According to Meier *et al.*,(3) Compound 5968 (hydrazino-phthalazine hydrochloride), supplied by Ciba, produces in animals a sustained fall in blood pressure. In man, we found that hypotension did not occur regularly following the subcutaneous injection of 10 mg. However, when measurements of renal plasma flow were performed, using the

2. Weston, R. E., Escher, D. J. W., Goldat, S., Leiner, G., and Leiter, L., *Fed. Proc.*, 1948, v7, 31.

3. Meier, R., *et al.*, *Experientia*, in press.

TABLE I.
Changes in Renal Hemodynamics of Human Subjects Induced by Subcutaneous Injections of 5968 (Ciba).

Diagnosis	Dose (mg)	Before*				After†				Change in $C_{PAH}‡$
		C_{PAH}	C_T	F.F.	B.P.	C_{PAH}	C_T	F.F.	B.P.	
Ess. hypertension	20	429	128	.30	200/115	593	116	.20	175/70	+38
" "	12	432	86	.20	180/100	628	108	.17	180/100	+45
" "	10	405	71	.17	170/80	555	74	.13	160/55	+36
" "	10	315	84	.27	160/90	530	104	.20	160/80	+68
" "	10	352	118	.34	160/80	469	126	.28	135/65	+33
" "	8	606	98	.16	140/95	850	79	.09	130/90	+40
Chronic nephritis	10	182	32	.18	175/85	233	35	.15	130/70	+28
" "	8	822	125	.15	145/75	950	114	.12	145/17	+16
Normal	9	730	140	.19	125/75	911	169	.19	115/75	+25
" "	9	628	104	.17	110/60	884	129	.15	110/50	+41
" "	9	733	149	.20	130/95	1167	143	.12	130/80	+59
" "	8	720	153	.21	125/80	892	173	.19	125/65	+24

* Each value represents average of 3 control periods.

† Maximal changes observed after injection.

C_{PAH} : Sodium para-aminohippurate plasma clearance (cc/min.).

C_T : Sodium thiosulphate plasma clearance (cc/min.).

F.F.: Filtration fraction.

B.P.: Blood pressure (mm of mercury).

Ess. Hypertension: Essential hypertension.

‡ Expressed as per cent of control value.

clearance technic,(1) it became evident that renal hyperemia could be elicited in nearly every subject. A similar effect has also been demonstrated in cats by thermostromuhr measurements.(3)

Our data, presented in Table I, demonstrate that this drug can cause increase in renal plasma flow in man varying from 16 to 68%, averaging 38.6%. The glomerular filtration rate, as reflected by the clearance of thio-sulphate, is not consistently affected. The filtration fraction is always decreased. In some cases, urine volumes are markedly increased. Blood pressure shows a definite

reduction only in some hypertensive patients. Therefore, the influence of the drug upon the kidney is somewhat similar to that of pyrogenic substances. The responses obtained are moderately prolonged, lasting 1 to 2 hours or more. Toxic manifestations are relatively unimportant. Moderate tachycardia may be observed in some cases. Effects of the drug upon cardiac output are being investigated.

From these results, it can be concluded that the drug 5968 (Ciba) is a renal vasodilator in man.

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Effect of Thiazine, Oxazine and Phenazine Dyes on Normal and Heparinized Rabbit Plasma.* (17592)

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The recent work of Allen and Jacobson(1)

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1. Allen, J. G., and Jacobson, L. O., *Science*, 1947, v105, 388.

showing the usefulness of Toluidine Blue as a heparin inactivator in x-irradiation damage has revived interest in the field of synthetic heparin inactivators. Haley and Stolarsky(2)

2. Haley, T. J., and Stolarsky, F., *J. Am. Pharm. Assn., Sci. Ed.*, in press.