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## Antihistamine Activity of Whole Blood.

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Although the rôle of histamine in anaphylaxis is still disputed, the resemblance between symptoms in fatal anaphylaxis and histamine shock has been pointed out by Dale and Laidlaw[1] and histamine-like substance in anaphylaxis has been demonstrated in guinea pig by Bartosch[2] and in dog by Gebauer-Fuelnegg and Dragstedt.[3] In the present study an attempt has been made to compare the histamine destroying power (histaminase[4]) of whole blood of guinea pig, rabbit, dog and man, and to see if any correlation may be made between the humoral destruction of histamine of these species and their relative susceptibility to histamine.

Freshly drawn blood samples were defibrinated by shaking with glass beads for 5 to 10 minutes. Varying amounts of blood were mixed with 1 cc. normal saline containing 1 mg. histamine acid phosphate (ergamine) and saline was added to make volume of the samples uniform in each experiment. After adding a few drops of toluene, the mixture was incubated at 37°C., for 24 hours. At the end of incubation the histamine content in the mixture was determined by Dale's blood pressure method (Burn[5]) in atropinized and doubly vagotomized cats under luminal anesthesia. Control blood samples (without addition of histamine solution), blood samples heated to 70°C. for 10 minutes before addition of histamine solution, and standard histamine solution (without addition of blood) were also incubated for 24 hours at 37°C. before the test.

No control blood samples (without addition of histamine) showed any depressor effect on the cat, and no heated blood samples any histamine destruction activity. From the blood of 22 guinea pigs, 10 rabbits, 3 dogs, and 3 men, the following results were obtained. The rabbit blood showed maximum histamine destruction at 5 cc., dog at 10 cc. On the other hand, guinea pig blood showed no de-

[1] Dale, H. H., and Laidlaw, P. P., *J. Physiol.*, 1919, **52**, 355.

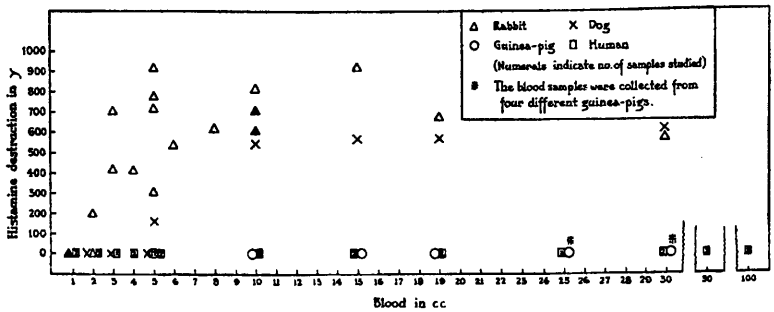
[2] Bartosch, R., Feldberg, W., and Nagel, E., *Arch. f. d. ges. physiol.*, 1932, **230**, 129, 674.

[3] Gebauer-Fuelnegg, E., and Dragstedt, *Am. J. Physiol.*, 1932, **102**, 520.

[4] Best, C. H., and McHenry, E. W., *J. Physiol.*, 1930, **70**, 349.

[5] Burn, J. H., *Methods of Biol. Assay*, 1928, IX, 111.

tectable destruction of histamine at 30 cc. Similarly, human blood showed no destruction of histamine up to 100 cc. Graph 1 gives the actual data.




In view of the fact that the guinea pig is more susceptible to fatal histamine shock than either the dog or rabbit (Schmidt and Stähelin[6]), it may be suggested that the sensitivity to histamine in guinea pig and man may be accounted for by the absence of antihistamine activity in their blood. One may possibly attribute the high susceptibility of the guinea pig to anaphylaxis (assuming that the toxic symptoms of anaphylaxis are due to a histamine-like substance) to the absence of anti-histamine activity in its blood. Since the susceptibility of man to anaphylaxis can not be subjected to experimental test, the present finding on human blood may perhaps be taken as evidence of the susceptibility of man to anaphylaxis.

[6] Schmidt, G. W., and Stähelin, A., *Z. f. Immunitasforsch.*, 1929, **60**, 222.