

**Distribution of histamine and substance 'P' in the wall of the digestive tract of the dog / by W.W. Douglas [and others].**

**Contributors**

Paton, William D. M.  
Douglas, W. W.

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**Distribution of histamine and substance 'P' in the wall of the digestive tract of the dog.** By W. W. DOUGLAS, W. FELDBERG, W. D. M. PATON and M. SCHACHTER. *From the National Institute for Medical Research, Mill Hill, N.W. 7*

The histamine equivalent of the different layers of the dog's digestive tract was determined by extraction with acidified saline, brief boiling, and assay on the atropinized guinea-pig's ileum (Table 1). The results show that: (1) the oesophagus contains relatively little histamine; (2) the gastric mucosa of fundus and corpus about twice as much as that of the pyloric region (confirming Emmelin & Kahlson, 1944); (3) the histamine in the wall of the small intestine progressively decreases towards the ileum; all layers except muscularis mucosae share in this gradient; (4) in the wall of the small and large intestine, where the muscularis mucosae could be separated, it yielded a higher histamine equivalent than any other layer; (5) the muscularis externa always contained less histamine than the mucosa, whereas (6) the submucosa, although free from muscle and glands, contained relatively large amounts.

TABLE 1. Average values from three dogs of histamine equivalent ( $\mu\text{g.}$  of base per g. fresh tissue)

	G.M.	M.M.	S.M.	M.E.	Whole wall
Oesophagus	←—————28—————→			8	17
Stomach					
Fundus	←—————127—————→		58	32	69
Corpus	←—————100—————→		100	25	69
Pyloric region	←—————60—————→		48	14	27
Duodenum	89	128	74	40	89
Jejunum	88	124	51	26	74
Upper Ileum	54	143	35	26	64
Lower Ileum	32	110	31	19	50
Colon	9	143	29	7	44
Rectum	7	130	31	14	42

G.M. = glandularis mucosae; M.M. = muscularis mucosae; S.M. = submucosa;  
M.E. = muscularis externa.

In addition to histamine a substance resembling substance 'P' of von Euler & Gaddum (1931) was found. There was little in oesophagus and stomach, but large amounts in the small and large intestine. These large amounts were mainly present in the two layers of the mucosa, particularly in muscularis mucosae, 5-10 mg. of which contained as much activity (on the atropinized guinea-pig's gut after mepyramine and on the blood-pressure of the atropinized rabbit) as 1 mg. of a purified sample of substance 'P' kindly supplied by von Euler.

REFERENCES

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