

Brief Communication

HAEMOPEXIN POLYMORPHISM IN PIGS

(Preliminary observations)

Several genetically controlled intraspecific serum protein variations have been disclosed in man and domestic animals, including swine mainly by means of starch gel electrophoresis, (*vide Moustgaard & Hesselholt 1966*). Thus it has been found that five allele genes, Hp⁰, Hp^{1F}, Hp¹, Hp² and Hp³, seem to govern the polymorphism of swine serum haematin-binding proteins (*Kristjansson 1961; Hesselholt 1963; Schrøffel 1965*). Two-dimensional electrophoresis (paper-starch gel) has shown that the haematin-binding protein belongs to the β_1 -globulin fraction. With these characteristics, the protein is very similar to the human serum protein haemopexin (*Schultze et al. 1961*). We therefore consider this polymorphous protein to be the porcine haemopexin.

Using a starch gel electrophoretic procedure, which has been described elsewhere (*Hesselholt 1966*) and benzidine staining a large number of Danish Landrace pigs has been typed for haemopexin. Six electrophoretically different haemopexin components were observed. The original nomenclature was used and

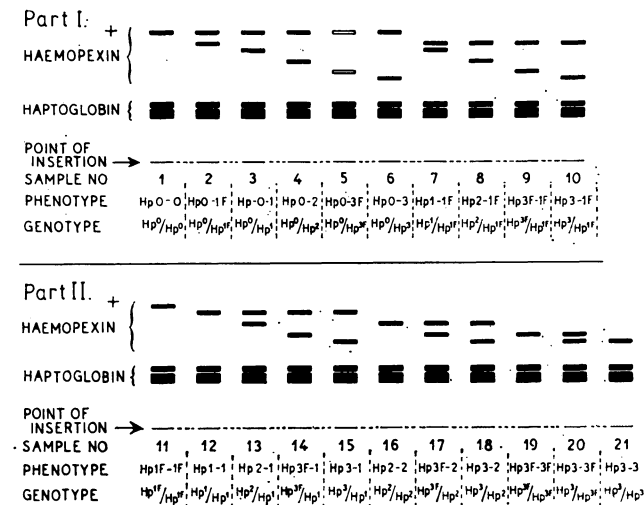


Figure 1. Diagram of 21 theoretical haemopexin phenotypes in pigs. Hollow bands indicate that the phenotype has not been observed.

the components were called Hp 0, Hp 1F, Hp 1, Hp 2, Hp 3F and Hp 3 in the order of decreasing mobility. Each component either occurred singly or together with only one of the other components. Fig. 1 shows the 21 theoretical phenotypes. These phenotypes have all been observed with the exception of Hp 0—3F. Both Hp 0 and Hp 3F are relatively rare in Danish Landrace. Based upon these observations, the theory was advanced that the haemopexin polymorphism in pigs is governed by the following six codominant allele genes: Hp⁰, Hp^{1F}, Hp¹, Hp², Hp^{3F} and Hp³. The phenotype-genotype relationship presented in Fig. 1 is in accordance with the six-allele theory.

Preliminary family investigations (to be published later) support this theory. The distribution of the causative alleles among 159 pigs of Danish Landrace was

Hp ⁰	Hp ^{1F}	Hp ¹	Hp ²	Hp ^{3F}	Hp ³
2	21	12	15	3	47

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