

only one of 24 sera have we found activity in the γ -globulin fraction, and this serum gave a positive antiglobulin test in addition to having the characteristic agglutinating fraction in the pre-albumin zone. The suggestion is made that some antibiotics may function as haptens and produce true immune haemagglutinin of γ -globulin type, but that certain sera may contain an additional fraction in the pre-albumin moiety which may or may not be of immune origin. The nature and further characteristics of this factor are under investigation.

K. C. WATSON
S. M. JOUBERT

Department of Pathology,
University of Natal,
Durban,
South Africa.

¹ Watson, K. C., Joubert, S. M., and Bennett, M. A. E., *Nature*, **183**, 468 (1959).
² Watson, K. C., Joubert, S. M., and Bennett, M. A. E., *Immunology*, **3**, 1 (1960).

Separation of Human Serum Albumins

THE presence of several protein components in human serum albumin was recently demonstrated¹⁻³ by two-dimensional zone electrophoresis (filter paper followed by starch gel)⁴. Their identity with albumin was determined by two-dimensional zone electrophoresis³. The proteins are not related to those described by Knedel⁴ or by Gitlin *et al.*⁵. During our work on normal human sera, several new proteins were observed which had the same mobility as albumin by filter paper electrophoresis (at pH 8.6), but which when subjected to electrophoresis in starch gel in a discontinuous system of buffers⁷ migrated more slowly than albumin. These proteins can be divided into two main groups: the members of the first group are immunologically related to albumin and one of them is present in sera in about 50 per cent of all normal adults and children. These proteins will be referred to as 'albumin-like proteins'.

A second group of proteins was also found which possessed a mobility on filter paper similar to, but not identical with, that of albumin. They migrate at the same rate as the 'slow' portion of the albumin and in

starch gel can be separated from albumin only in a discontinuous system of buffers. These proteins are not immunologically related to albumin and will be referred to as 'quasi-albumins'. Their presence in sera was found in 61 of the 64 individuals screened.

Proteins of either or both these groups may be present or absent in a serum for a given individual. Fig. 1, *a*, *b*, *c*, shows diagrammatically the three possible combinations of the occurrence of these proteins. A detailed description of the distribution and some of the properties of the proteins will be given elsewhere.

This work was supported by the Michigan Kidney Disease Foundation.

M. D. POULIK
W. W. ZUELZER
R. MEYER

Child Research Center of Michigan,
Children's Hospital of Michigan,
Department of Pediatrics,
Wayne State University,
College of Medicine.

- ¹ Poulik, M. D., *Fed. Proc.*, **17**, 530 (1958).
² Fraser, G. R., Harris, H., and Robson, E. B., *Lancet*, **i**, 1023 (1959).
³ Poulik, M. D., *J. Immunol.*, **82**, 502 (1959).
⁴ Poulik, M. D., and Smithies, O., *Biochem. J.*, **68**, 636 (1958).
⁵ Knedel, M., *Clin. Chim. Acta*, **3**, 72 (1958).
⁶ Gitlin, D., Earl, D. P., and Hutt, M. P., Proc. Fourth Intern. Cong. Biochem., Vienna, 1958, **15** (Pergamon Press, New York, 1959).
⁷ Poulik, M. D., *Nature*, **180**, 1477 (1957).

PATHOLOGY

Spontaneous Cytomegalic Inclusion Body Disease Involving Lacrimal Glands of Caesarian-derived (so-called) Pathogen-free Rats

HISTOLOGICAL study of lacrimal glands in laboratory rodents revealed cytological changes, for example, nuclear polymorphism and inclusions characteristic of cytomegalic inclusion body disease in rats of the Sprague-Dawley strain; no other organs were involved. Lesions occurred in both intra- and ex-orbital glands of males only at an age of six months or older and with an incidence of 100 per cent. Similar observations have recently been published for eight rat colonies of different geographical locations¹. The disease is apparently widespread among laboratory rats. Guinea pigs, a variety of mouse strains, both golden and Chinese hamsters, Wistar and Fisher rats, either commercially obtained or bred and raised in the Roscoe B. Jackson Laboratory, were free of the disease.

Our Sprague-Dawley colony was derived from stock animals purchased several years ago from a local breeding farm. For a number of years now, this breeder has since specialized in the production of Caesarian-derived pathogen-free animals. Routinely Caesarian-derived Sprague-Dawley pups are foster-suckled on germ-free Lohnd strain mothers (alpha-colony) and on attaining breeder size

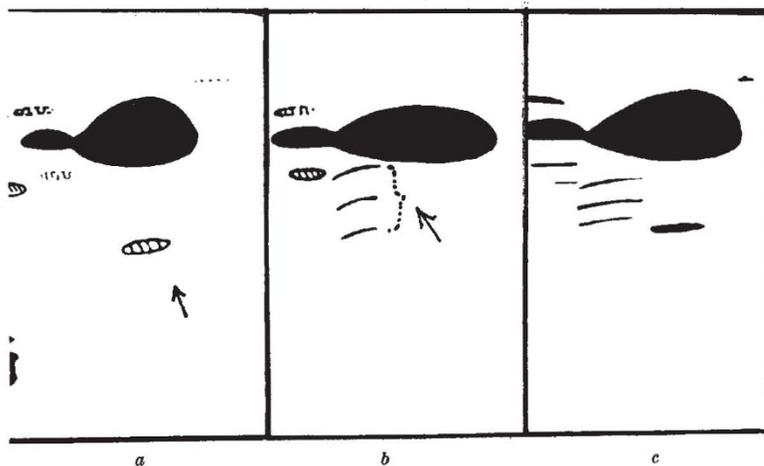


Fig. 1. Diagrams (traced from photographs) of two-dimensional zone electrophoretic patterns of human sera showing the separation of albumins (only albumin(s) and α -1-globulin regions shown). *a*, position of the 'albumin-like' protein; *b*, positions of 'quasi-albumins'; *c*, pattern of an individual with both groups of proteins