Table 2. COMPLEMENT-FIXATION REACTIONS OF RHESUS MONKEY ANTI-HUMAN PANCREAS SERA WITH FLUIDS CONTAINING PANCREATIC SECRETIONS

Secretions aspirated from duodenal tube	Monkey anti-human pancreas sera						Normal monkey serum
	M No. 23	*M* No. 24	*M* No. 27	*M* No. 30	*M* No. 33	*M* No. 34	
Patient No. 1 Pre-secretin stimulation	810	—	—	810	—	810	—
Patient No. 1 10 min post-secretin	270	—	—	270	—	270	—
Patient No. 2 Pre-secretin	—	—	—	10	10	10	—
Patient No. 2 10 min post-secretin	—	—	—	810	90	270	—
Patient No. 2 20 min post-secretin	—	—	—	90	270	90	—
Patient No. 2 40 min post-secretin	—	—	—	270	90	270	—

—, Complement-fixation antigen titre <10; other figures represent reciprocal of highest dilution of secretions giving complete fixation of complement with 1 : 10 antiserum.

titre at various time intervals after stimulation with secretin. Samples taken after stimulation with pancreozymin have not been available for testing.

The nature of the pancreas-specific isoantigens in man, rabbits and monkeys has not been established. A possible function of the antigens could be enzymatic since they are located in the secretory portion of the acinar cells[2] and are present in the secretions of these cells. However, direct demonstration of enzymatic activity of the pancreas isoantigen–antibody complexes or inhibition of enzyme activity by antibody has not as yet been successful. Much further work must be performed before these isoantigens can be associated with pancreatic disease.

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Effect of Hydrocortisone Hemi-succinate on Immune Lysis of Sheep Erythrocytes

THE effect of hydrocortisone on immune lysis was examined by titrating guinea pig complement in the presence of various concentrations of the steroid. Sheep erythrocytes, sensitized with rabbit anti-sheep cell hæmolysin, were used as the indicator system for complement activity; a 50 per cent lysis end point was used. Complement activity was not detectable in the presence of 5 mg/ml. hydrocortisone; the titre was reduced significantly by concentrations as low as 0·01 mg/ml.

In order to attempt to determine the mechanism of this antilytic action the following experiments were carried out.

Pre-treatment of complement with hydrocortisone for periods of up to 30 min did not result in any greater reduction in titre than was observed with the same concentration of steroid added at the same time as the sensitized cells. This suggests that the steroid does not have a direct action on free uncombined complement.

Dialysis against isotonic saline of a mixture of sheep red cells, lysin, complement and sufficient hydrocortisone to inhibit lysis was carried out. After dialysis for 2 h complete lysis of the erythrocytes had occurred, indicating that the combination of hydrocortisone with the reactants was unstable, the hydrocortisone passing through the dialysis sac and allowing normal lysis to occur.

A similar unlysed mixture of cells, lysin, complement and hydrocortisone was incubated for 1 h, and the cells were then washed three times in saline. They failed to lyse on further incubation, but could be lysed by the addition of complement, indicating that antibody but not complement was attached to the cells. It is presumed that the complement remained free, and was removed along with the hydrocortisone by the washing procedure. This suggestion was confirmed by the use of the conglutination reaction. Sheep erythrocytes were incubated with either guinea pig or horse complement, both with and without hydrocortisone, and with heated normal bovine serum as a source of conglutinin and naturally occurring anti-sheep cell antibody. Conglutination occurred in the tube containing horse complement but no hydrocortisone; lysis took place as expected in the guinea pig complement control tube. Neither lysis nor conglutination occurred in the two tubes containing hydrocortisone. This experiment and the preceding data would suggest that hydrocortisone hemi-succinate obstructs immune lysis of sensitized erythrocytes by preventing the attachment of one or more complement components. In preliminary experiments hydrocortisone has been found to inhibit the lysis of erythrocytes by hypotonic salt solutions. This observation suggests that the steroid modifies the red cell surface. The modification of cell surface suggested may account for the failure of complement-binding. At the same time the effect of this and other steroids is being investigated using various other lytic systems.

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BIOLOGY

DNA, PNA and Protein Contents in a Rapidly Differentiating System, the Rat Tapeworm (*Hymenolepis diminuta*)

THE role of the nucleic acids, deoxypentosenucleic acid (DNA) and pentosenucleic acid (PNA), in the growth and differentiation of organisms has been thoroughly examined and characterized. Rapidly growing tissues usually display rapid synthesis of DNA, PNA and protein. The synthetic rate of these constituents in a given tissue may be estimated by the relative amount of each present. Most of the systems that have been investigated in this regard have required the use of several different individual preparations at different stages of development. Tapeworms, such as *Hymenolepis diminuta*, should be ideal organisms for the examination of certain principles of growth and differentiation, for along the length of the strobila is a gradient of developmental stages, all within the same individual. The experiments reported in this communication were designed to test the usefulness of the tapeworm in a typical examination of growth and development.

The rat tapeworm was maintained in male rats of the Sprague–Dawley strain[1]. Adult worms were flushed from the host's small intestine with Krebs–Ringer solution[2], *p*H 7·4, with 0·05 M 2-amino-2-hydroxymethylpropane-1,3-diol (*tris*) acid maleate[3]. The tapeworms were divided