sequence of conversion of fatty acids in *Tetrahymena* species to be stearate → oleate → linoleate → γ-linolenate. They also observed that the branched-chain iso fatty acids disappear from *T. paravorax* cultures on continued incubation.

Triparanol also influenced the cell membrane, as evidenced by excessive fragility of cells in its presence. This perhaps is also mediated through interruption of the lipid synthesis or change in lipid composition of the cell wall. The interference of triparanol with the metabolism of fatty acids may explain some of the unfavorable side effects of triparanol treatment in humans. This is a field for further study.

The changes we have observed in the nonsaponifiable components of lipids of *Tetrahymena* inhibited with triparanol will be discussed later.

Summary. Triparanol suppressed the synthesis of total lipids in 3 strains of *Tetrahymena pyriformis*. Strain differences were noted when triparanol inhibition was reversed with oleic acid or by prolonged incubation. Supplements of short-chained carboxylic acids influenced the effect of triparanol on the total lipids, the percentage composition of saturated and unsaturated fatty acids and the specific fatty acids synthesized. There was an increase in the content of odd-numbered and branched-chain saturated fatty acids synthesized with triparanol plus propionate or α-methyl-*n*-butyrate supplements, and an increase in the percentage of oleic acid synthesized with triparanol plus acetate supplements. Triparanol may act by inhibiting the ability of *T. pyriformis* to demethylate and to dehydrogenate saturated fatty acids in formation of unsaturated fatty acids.

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Changes in Plasma Proteins After Portcaval Shunt in the Rat.* (29301)

A. L. KENNAN (Introduced by J. J. Lalich)

Department of Gynecology and Obstetrics, University of Wisconsin School of Medicine, Madison

The electrophoretic distribution of serum proteins has been observed in a variety of clinical conditions. Severe malnutrition, wasting diseases and liver cirrhosis result in a decrease in albumin, attributed to impaired synthesis, and usually an elevation of the globulins. These changes occur in so many conditions that they are seldom useful for diagnostic purposes. The more specific hyperglobulinemia of multiple myeloma has been found to consist of a series of protein molecules in the γ group(1).

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Analysis of the serum protein in human beings with diabetes mellitus shows a decrease in albumin and an increase in α_2 globulin. Less consistent changes occur in the β lipoprotein and γ globulin(2). Particular interest surrounds these changes as they may be related to the abnormalities of lipid and cholesterol metabolism found in these patients. Serum protein changes in alloxan-diabetic rats are not entirely comparable to those changes due to diabetes mellitus in human beings(3), but since insulin is necessary for the protein anabolic effect of growth hormone and has been shown to cause an increased incorporation of amino acids into the protein of alloxan-diabetic rat liver(4), the changes in serum protein may result from the lack of an insulin effect on liver protein synthesis.

Studies of liver function after a portacaval shunt in rats reveal changes in plasma proteins that are quite similar to those found in human diabetics and suggest that the biologic effect of insulin on the liver may be a significant factor in these changes.

Six months after end-to-side portacaval shunt, heparinized capillary blood was taken for protein analysis. Six lambda was applied to Schleicher and Schuell 2043A filter paper. After the run, the strips were stained with bromphenol blue and electrophoretic curves for the components determined on a densitometer (Spinco Analytrol).

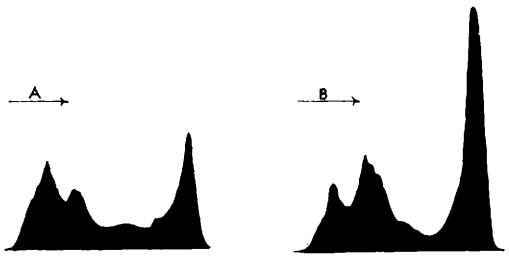

FIG. 1. Typical electrophoretic curves for plasma from (A) rat with portacaval shunt, and (B) normal rat after 1020 min. of electrophoresis at a potential gradient of 2.6 V cm^{-1} at 25°C in diethylbarbiturate buffer ionic strength pH 8.6.

TABLE I. Plasma Protein Fractions in Rats. % of electrophoretic curve area.

		Alb (%)	α_1 (%)	α_2 (%)	β (%)	γ (%)
Normal		42.9	9.2	6.0	28.6	13.4
P-C Shunt	1.	26.5	11.2	14.1	18.8	29.4
	2.	44.6	10.7	7.1	16.1	21.4
	3.	37.4	11.7	9.1	18.7	23.0
	4.	14.5	9.7	7.5	22.0	46.3
	5.	26.7	8.5	8.5	25.6	30.7
	6.	42.3	10.0	9.0	16.7	22.2
	7.	26.2	10.4	10.4	14.5	38.6

The results from a preliminary study (Table I) show an increase in α_2 and γ globulin and a consistent decrease in albumin and β lipoprotein. The electrophoretic curves for a shunted rat (Rat No. 1 of Table I) and for a normal rat are compared in Fig. 1.

The significance of the protein changes and their effect on the pathologic physiology of diabetes millitus is obscure, but the shunted animal provides a biologic system for the study of these changes, where diet and other variables can be controlled.

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Genetic Recombination by Transduction Between Mannitol-Negative Mutants of *Staphylococcus aureus*.* (29302)

W. H. MURPHEY† AND E. D. ROSENBLUM (Introduced by S. E. Sulkin)
Department of Microbiology, University of Texas, Southwestern Medical School, Dallas

Mannitol-negative *(mtl—)* mutants of *Staphylococcus aureus* strain 233 have been transduced to *mtl+* at relatively high rates

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† Present address: Graduate Dept. of Biochemistry, Brandeis Univ., Waltham, Mass.