

of Disse, and in the hepatic sinusoids. Near the end of gestation, these particles enlarge to the size range characteristic of chylomicrons secreted from the intestinal mucosa after ingestion of fat. At the same time, the hyperlipemia increases and is characterized by the accumulation of particles resembling chylomicrons morphologically and chemically. The results are interpreted as evidence of intense hepatic synthesis and secretion of very low density lipoproteins which may be related to the extensive transplacental transport of free fatty acids known to occur in this species. After birth, the hyperlipemia subsides rapidly and the hepatic steatosis more gradually.

EFFECT OF VITAMIN K DEPLETION AND RESTORATION OF SPHINGOLIPID METABOLISM IN BACTEROIDES MELANINOGENICUS. M. Lev and A.F. Milford (Dept. of Microbiol. and Immunology and Dept. of Surgery, Albert Einstein College of Med., Bronx, N.Y. 10461). *J. Lipid Res.* 13, 364-70 (1972). *Bacteroides melaninogenicus* requires vitamin K for normal growth. Cells incubated in a vitamin K-free medium form defective cell envelopes. Studies with vitamin K-grown "K(+)" and vitamin K-depleted "K(-)" cells showed that [¹⁴C]choline and [¹⁴C]glycerol were not taken up, but several amino acids and acetate were incorporated to the same degree by both types of cultures. However, K(-) cells incorporated succinate to a greater degree than did K(+) cultures. The relative incorporation of succinate into ceramide phosphorylethanolamine and ceramide phosphorylglycerol was depressed compared with incorporation into phosphatidylethanolamine in K(-) cultures. *B. melaninogenicus* can be grown in serial subculture in the absence of vitamin K in the presence of 2.5 mg/ml of succinate. Under these conditions the relative incorporation of [2,3-¹⁴C]succinate and ³²P into ceramide phosphorylethanolamine and ceramide phosphorylglycerol is markedly depressed.

HMG CoA REDUCTASE OF INTESTINAL MUCOSA AND LIVER OF THE RAT. S. Shefer, S. Hauser, V. Lapan and E.H. Mosbach (Dept. of Lab. Diagnosis, Public Health Res. Inst. of the City of N.Y., Inc., and the Bureau of Lab. of the N.Y. City Dept. of Health, N.Y. 10016). *J. Lipid Res.* 13, 402-12 (1972). Methods were developed for the determination of HMG CoA (3-hydroxy-3-methylglutaryl CoA) reductase activity in subcellular fractions of intestinal mucosa and liver of Wistar strain rats. In the liver, reductase activity was located exclusively in the microsomal fraction. In the intestinal mucosa, activity was found in both mitochondrial and microsomal fractions of crypt cells but not of villi. The microsomal HMG CoA reductases of liver and intestinal mucosa had similar kinetic characteristics and pH optima. However, the activity of the hepatic enzyme differed with age and sex of the experimental animals while that of the intestinal crypt cells did not. Cholestyramine treatment enhanced the activity of the microsomal HMG CoA reductase in both liver and intestinal mucosa. Reductase activity of the intestinal crypt cells was elevated in both jejunum and ileum. The greatest stimulation, both relatively and absolutely, was observed in the distal half of the jejunum.

INFLUENCE OF DIETARY FAT ON THE CONCENTRATION OF LONG-CHAIN UNSATURATED FATTY ACID FAMILIES IN RAT TISSUES.

P.O. Egwim and F.A. Kummerow (Burnsides Res. Lab., Jnfy. of Ill., Urbana, Ill. 61801). *J. Lipid Res.* 13, 500-10 (1972). The relative concentration of long-chain unsaturated fatty acids (chain length C₂₀ and greater) of the (n-6), (n-7), and (n-9) families in the cholesteryl esters and phospholipids of rat adrenals, liver, heart and plasma lipoproteins was measured after the feeding of hydrogenated fat, milk fat, beef tallow, corn oil and fat-free diets. Barely optimal levels of dietary linoleate were found to result in the same order of concentration of the (n-6) series of fatty acids as was obtained with excess dietary linoleate. The linoleate-poor or deficient diets—hydrogenated fat and fat-free diets—gave almost identical levels and trends with respect to the concentration of the (n-9) and (n-7) series of acids. With these two diets, the concentrations of the total (n-9) long-chain acids were several times greater than the amounts obtained by feeding either the linoleate-rich diet or the barely linoleate-adequate diets. It is concluded from the results that the linoleate-deficient nature of the hydrogenated fat, rather than its high content of *trans* acids, would explain the high tendency of this fat to induce the accumulation of long-chain (n-9) fatty acids in the cholesteryl esters and phospholipids of the tissues studied.

NATURAL OCCURRENCE OF FREE FATTY ALDEHYDES IN BOVINE CARDIAC MUSCLE. J.R. Gilbertson, R.C. Johnson, Rose A. Gelman and Carol Buffenmyer (Dept. of Pharmacol. and Physiol., Schl. of Dental Med., Univ. of Pittsburgh, Pittsburgh, Pa. 15213). *J. Lipid Res.* 13, 491-9 (1972). Free fatty acids, aldehydes, alcohols and 1-0-alkyl and alk-1-enyl glycerols were identified and quantified in lipid extracts from bovine cardiac muscle. Although a number of components present in the free fatty aldehydes were also noted in the fatty chains in the 1-0-alk-1-enyl glycerols, a direct qualitative similarity did not exist as would be expected if the free fatty aldehydes were artifactual in origin. Also, a qualitative similarity did not exist between the fatty chains of the 1-0-alkyl and alk-1-enyl glycerols. This latter observation would suggest a mechanism other than biodehydrogenation of the alkyl ethers for the origin of the alk-1-enyl glycerols. Free fatty aldehydes were distributed evenly between the 105,000 g supernatant and particulate fractions of cardiac muscle, while the 1-0-alk-1-enyl glycerols were associated primarily with the particulate fraction. Free fatty alcohols were noted only in the supernatant fraction, while the 1-0-alkyl glycerols were present in both fractions.

STUDIES OF THE DEVELOPMENT OF DIABETIC KETOSIS IN THE RAT. J.M. Meier, J.D. McGarry, G.R. Faloona, R.H. Unger and D.W. Foster (Dept. of Internal Med. and Biochem., Univ. of Texas Southwestern Med. Schl. and the Vet. Admin. Hosp., Dallas, Tx. 75235). *J. Lipid Res.* 13, 228-33 (1972). Plasma glucose, free fatty acid, ketone and triglyceride concentrations were measured at frequent intervals after the administration of alloxan to rats. Hepatic triglyceride levels were determined in the same animals. During the second 24-hr period after alloxan administration, severe ketoacidosis developed and triglyceride concentrations in the liver became markedly elevated.

Call for Nominations 1973 Honored Student Awards

Nominations are being solicited for the 1973 AOCs Honored Student Awards. Graduate students at any North American institution of higher learning, in any area of science dealing with fats and lipids, who are doing research toward an advanced degree and who are interested in the areas of science and technology fostered by this Society, are eligible. The student must be a registered graduate student at the time of application. To receive the award he must

remain a registered graduate student, and must not have received his degree or begun career employment, prior to the AOCs meeting he is to attend. Selection of awardees is on the basis of educational qualifications and performance.

The awards provide funds equal to travel costs plus \$75.00 to permit attendance at a national meeting of the AOCs. In 1973 these meetings will be held April 29-May 2 in New Orleans and September 16-20 in Chicago. Students will be awarded travel to the nearer meeting to allow as many awards as possible from the available funds.

Nomination forms may be obtained from AOCs headquarters (508 S. Sixth, Champaign, Ill. 61820) or from the chairman of the Honored Student Award Committee. Completed nominations should be returned to: Ralph T. Holman, HSA Committee Chairman, The Hormel Institute, University of Minnesota, Austin, Minn. 55912. ■