latter enzyme is primarily microsomal. The intracellular sites for the biosynthesis of phosphatidylcholine, phosphatidylethanolamine and diphosphatidylglycerol are discussed, and the implications of their sites of biosynthesis on the assembly processes involved in the biogenesis of mitochondria are considered.

VERY LOW DENSITY LIPOPROTEINS AND LIPOPROTEIN LIPASE IN SERUM OF RATS DEFICIENT IN ESSENTIAL FATTY ACIDS. G.G. de Pury and F.D. Collins (Russell Grimwade Schl. of Biochem., Univ. of Melbourne, Parkville, Victoria 3052, Australia). *J. Lipid Res.* 13, 268–75 (1972). Rats fed a diet deficient in essential fatty acids have a low level of serum very low density lipoproteins (VLDL). It was found that after intraperitoneal injection of heparin, deficient rats had a higher level of lipoprotein lipase activity in their plasma than did normal rats. VLDL isolated from serum of normal and deficient rats were compared as substrates for postheparin lipase of rat plasma. There was no significant difference in V_{max} between the two preparations of lipoproteins, but the apparent K_m for lipoproteins from deficient animals was significantly less than that for normal animals. These observations suggest that the low concentration of VLDL in deficient rats may be explained (a) by an increased activity of lipoprotein lipase in the tissues of these animals and (b) by the VLDL of deficient rats being more rapidly hydrolyzed at low concentrations by lipoprotein lipase than VLDL from normal rats.

EFFECTS OF STARVATION, REFEEDING AND FAT FEEDING ON ADIPOCYTE GHOST ADENYL CYCLASE ACTIVITY. R.R. Gorman, Helen M. Tepperman and J. Tepperman (Dept. of Parmacol., State Univ. of New York, Upstate Med. Center, Syracuse, N.Y. 13210). *J. Lipid Res.* 13, 276–80 (1972). Basal adenyl cyclase activity and its response to epinephrine and glucagon were studied in isolated adipocyte ghosts obtained from fed, starved, refed and fat-diet-adapted rats. Epinephrine stimulation of adenyl cyclase was significantly increased in fasted rats, but the glucagon response did not change. Rats fasted for 48 hr and refed a high carbohydrate, low fat diet for 48 or 96 hr showed no differences from chow-fed animals in either basal or hormone-stimulated adenyl cyclase activity. Rats adapted to a high fat, low carbohydrate diet showed an initial and transitory increase in basal activity but a progressive loss of epinephrine- and glucagon-stimulated enzyme activities. The loss in hormone responsiveness correlated well with a decrease in hormone-stimulated lipolysis of fat pads and was associated with a significant increase in fat cell diameter.

ESTRADIOL 17β-HEMISUCCINATE: AN IMPROVED PROCEDURE. T.O. Yellin (Dept. of Chem. Pharmacol., Abbott Labs., North Chicago, Ill. 60064). *J. Lipid Res.* 13, 554–5 (1972). A simple, rapid, high-yield and relatively inexpensive procedure for the preparation of estradiol 17β-hemisuccinate is described. The synthesis can be done conveniently in the ordinary biological laboratory.

DETERMINATION OF ACETYL COENZYME A. INTERFERENCE BY A CONTAMINANT IN MALATE DEHYDROGENASE. I. Mulder (Lab. of Vet. Biochem., Univ. of Utrecht, Utrecht, The Netherlands). *J. Lipid Res.* 13, 552–4 (1972). Spectrophotometric determinations of acetyl CoA with malate dehydrogenase and citrate synthase are likely to overestimate the amount of acetyl CoA in solutions containing acetoacetyl CoA, since commercial preparations of malate dehydrogenase may contain thiolase.

IDENTIFICATION AND QUANTITATION OF FREE CERAMIDES IN HUMAN PLATELETS. W. Krivit and S. Hammarstrom (Dept. of Pediatrics, Univ. of Minn., Minneapolis, Minn. 55455). *J. Lipid Res.* 13, 525–30 (1972). Free ceramides were isolated from human platelets. Their structures were unequivocally determined by gas-liquid chromatography-mass spectrometry of the trimethylsilyl ether derivatives. The major components were N-(palmitoyl) sphingosine, N-(stearoyl) sphingosine, N-(eicosanoyl) sphingosine, N-(docosanoyl) sphingosine, N-(tetracosanoyl) sphingosine and N-(tetracosenoyl) sphingosine. Sphinganine and sphingadienine-containing ceramides as well as ceramides containing other unsaturated acids were also present. The amount of ceramides was determined by quantitative gas-liquid chromatography, using radioactive ceramide as internal standard and synthetic crystalline ceramides for comparison of peak areas. The concentration of ceramides was found to be 1.31 μg/mg of platelet protein.

ON THE STRUCTURE OF CYTOLIPIN R, A CERAMIDE TETRAHEXOSIDE HAPTEN FROM RAT LYMPHOSARCOMA. R. Lain, C.C. Sweeley, Y.-T. Li, A. Kisic and M.M. Rapport (Dept. of Biochem., Michigan State Univ., East Lansing, Mich. 48823). *J. Lipid Res.* 13, 519–24 (1972). Cytolipin R, a ceramide tetrahexoside isolated from rat lymphosarcoma, was studied by sequential hydrolysis with specific glycosidases which revealed the anomeric configurations of the glycosidic bonds. Sugar linkages were established by combined gas-liquid chromatography and mass spectrometry of the partially methylated alditol acetates prepared after permethylation and hydrolysis of the intact lipid. Results indicated the structure of cytolipin R to be N-acetylgalactosaminyl(β1 → 3)galactosyl(α1 → 3)galactosyl (β1 → 4)glucosyl ceramide. Cytolipin K (glaboside I) differs in having a galactosyl(α1 → 4)galactosyl internal linkage, and this difference must account for the immunological differences between cytolipin K and cytolipin R.

15-HYDROXY-9-OXOPROSTA-11,13-DIENOIC ACID AS THE PRODUCT OF A PROSTAGLANDIN ISOMERASE. R.L. Jones (Dept. of Pharmacol., Univ. of Edinburgh, Edinburgh EH8 9JZ, Scotland). *J. Lipid Res.* 13, 511–8 (1972). The initial product of the interaction between prostaglandin A_1 and the prostaglandin isomerase of cat blood plasma has been isolated. By ultraviolet spectroscopy and mass spectrometry and from stability and chromatographic studies, the structure of the compound has been established as 15-hydroxy-9-oxoprosta-11,13-dienoic acid, an allylic isomer of prostaglandin A_1. The compound is unstable under mild alkaline conditions, isomerizing to prostaglandin B_1. The biological significance of the enzymatic isomerization of prostaglandin A_1 is discussed.

HYDROLYSIS OF FULLY ESTERIFIED ALCOHOLS CONTAINING FROM ONE TO EIGHT HYDROXYL GROUPS BY THE LIPOLYTIC ENZYMES OF RAT PANCREATIC JUICE. F.H. Mattson and R.A. Volpenhein (Procter & Gamble Company, Miami Valley Lab., Cincinnati, Ohio 45239). *J. Lipid Res.* 13, 325–8 (1972). The enzymatic hydrolysis in vitro of the esters of methanol, ethylene glycol, glycerol, erythritol, pentaerythritol, adonitol, sorbitol and sucrose in which all alcohol groups were esterified with oleic acid was studied. Various preparations of rat pancreatic juice, including pure lipase, were used as the sources of enzymes. Lipase (EC 3.1.1.3) did not hydrolyze compounds that contained more than three ester groups. Compounds containing four and five ester groups were hydrolyzed by certain preparations of pancreatic juice; this activity is attributed to the enzyme, nonspecific lipase. This enzyme also hydrolyzed esters of primary alcohols. The compounds containing six (sorbitol)