also. Treatment of phrynoderma brought about changes in PUFA levels in the erythrocytes similar to plasma PUFA. Administration of safflower oil or B-complex vitamins reduced the triencic acid considerably. However, the decrease was not statistically significant. These studies would indicate that phrynoderma is a manifestation of essential fatty acid deficiency and vitamins of the B-complex group play a significant role in the etiology and treatment of the condition. The relationship between metabolism of EFA and vitamins of the B-complex group is not clear at present and needs further investigation.

VITAMIN A, VITAMIN E, AND LIPIDS IN SERUM OF CHILDREN WITH CYSTIC FIBROSIS OR CONGENITAL HEART DEFECTS COMPARED WITH NORMAL CHILDREN. Mildred J. Bennett and Barbara F. Medwadowski (Bruce Lyon Mem. Res. Lab., Children's Hospital Med. Center, Oakland, Calif.). *J. Clin. Nutr.* 20, 415–21 (1967). The serum levels of vitamin A, vitamin E and cholesterol and the fatty acid distribution in the serum total fatty acids of children with cystic fibrosis (CD) or congenital heart defects (CHD) were compared with those of normal children. Fatty acid composition of dietary fat was calculated from 7-day diet records. Although the linoleate level in sera of CF and CHD patients was about two-thirds the normal value, the levels of arachidonic and 8,11,14-eicosatrienoic acids, metabolic products of linoleic acid, were similar in all groups. The serum values for vitamin A and vitamin E in CF patients were about one-half the values for the normal but in CHD patients the values were similar to the normal. Thus, the low linoleate values in CHD did not appear to be related to serum vitamin E levels. Nor did the differences in serum fatty acid patterns appear to be directly related to diet, since the diet patterns of the CHD subjects were like that of the normal while the CF children consumed fat which had a higher ratio of linoleate-to-saturated fat.

PHOSPHOENOLPYRUVATE CARBOXYKINASE AND THE SYNTHESIS OF GLYCERIDE-GLYCEROL FROM PYRUVATE IN ADIPOSE TISSUE. F. J. Ballard, R. W. Hanson (Fels Res. Inst., Dept. of Biochem., Temple Univ., Philadelphia, Penna. 19140), and G. A. Leveille. *J. Biol. Chem.* 242, 2746–50 (1967). In the absence of glucose, significant amounts of labeled pyruvate were converted to glyceride-glycerol by rat epididymal fat pads *in vitro*. Using specifically labeled pyruvate-^{14}C twice as much C-2 was incorporated into glyceride-glycerol as C-1. Although this ratio is not affected by changes in dietary conditions, the amount of pyruvate incorporated into glyceride-glycerol is decreased 3-fold in fasted rats as compared to fasted-refed animals. The addition of glucose to the incubation medium depressed the appearance of label in glycerol and stimulated the formation of fatty acids from pyruvate. Under all dietary conditions, over 90% of pyruvate C-1 and 43 to 49% of pyruvate C-2 incorporated into glycerol were in the a carbon atoms. These results indicate the occurrence of the dicarboxylic acid shuttle in adipose tissue.

LIPID METABOLISM IN CULTURED CELLS. VII. LINOLEIC ACID CONTENT OF CELLS GROWN ON LIPID-FREE SYNTHETIC MEDIUM. J. M. Bailey and J. Menter (Dept. of Biochem., George Washington Univ., Washington, D.C.). *Proc. Soc. Exp. Biol. Med.* 125, 101–5 (1967). The fatty acid composition of L-strain mouse fibroblasts growing both in serum and in lipid-free synthetic medium was measured. Linoleic acid comprised about 17% of the total fatty acids in cells grown on serum-supplemented medium and about 6% in cells grown for prolonged periods in lipid-free chemically defined medium. In contrast to other fatty acids however linoleic acid was not synthesized from ^{14}C-acetate added to the growth medium. The most probable explanation of these anomalous findings is that cells under deficiency conditions can conserve traces of linoleic acid which are present below detectable levels in the culture environment. No synthesis of positional isomers of linoleic acid similar to that which may occur in linoleic acid deficiency *in vivo* was observed.

A LONG CHAIN TERPENYL PYROPHOSPHATE SYNTHETASE FROM MICROCOCCUS LYSODEIKTICUS. C. M. Allen, W. Alworth, A. Macrae and K. Bloch (Conant Lab., Harvard Univ., Cambridge, Mass.). *J. Biol. Chem.* 242, 1895–1902 (1967). A new terpene pyrophosphate synthetase (Enzyme II) distinct from the previously reported geranylgeranyl pyrophosphate synthetase (Enzyme I) has been isolated from extracts of *Micrococcus lysodeikticus* and partially purified. Enzyme II catalyzes the elongation of terpenoid allyl pyrophosphates by isopentenyl pyrophosphate to long chain products.

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• *New Products*

PHARMACIA FINE CHEMICALS AB, Uppsala, Sweden, is marketing spherical agarose gel particles, with the trade name Sepharose. Sepharose is used for gel filtration of viruses, and high molecular weight macromolecules such as proteins, polysaccharides and nucleic acids which are totally excluded from Sephadex G-200. Thus is a valuable complement to the available series of Sephadex types.

PALL CORPORATION, Glen Cove, Long Island, N. Y., has introduced a new series of ultrafine filtration media for purifying liquids and gases. Typical applications include use in the purification of distilled, deionized or turbid water, beer, sugar syrups an solvents, as well as for hydraulic fluids, jet fuels, parenterals and heat affected fluids. Expanding the firm's line of Ultipor filter media, the materials have ratings of 0.1 to 175 microns nominal and 0.35 to 3.0 microns absolute.

GENERAL ANILINE & FILM CORPORATION, New York, has developed Antarox BL-25, a new low coat, low foaming biodegradable surfactant, based on a linear primary alcohol. The new surfactant shows properties which could make it particularly useful for hard surface cleaning and as a wetting agent for textile processing.

LACHAT CHEMICALS, INC., Chicago Heights, Ill., can now supply the following in 2 kilo or more quantity: caproic anhydryde, diolein (1,3-glycerol dioleate), ethyl lignocerate (ethyl tetracosanoate), ethyl linoleate, 2-hendecanol (2-undecyl alcohol), lauronitrile (n-undecyl cyanide), methyl oleate, Microside L (benzalkonium chloride quaternary compounds), monomethyl azelate, 11-tricosene. Catalog available upon request.