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JOURNAL ARTICLE

Kinetics of human spermatozoa long-chain fatty acid: CoASH ligase

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The kinetics of long-chain saturated fatty acid activation were studied in the supernatant obtained from Triton-treated human spermatozoa. Sperm long-chain fatty acid: CoASH ligase (AMP) (E.C. 6.2.1.3) was able to activate myristic, palmitic, and stearic acids, but was incapable of utilizing lauric, arachidic, and behenic acids. Peak activity was obtained with palmitic acid. Although the Kms for each fatty acid were similar (4.3 to 5.0 microM), the Vmax was several-fold higher for palmitate. In contrast, ligase from liver homogenates assayed under identical conditions activated lauric through stearic acids, with maximal rates being noted with myristic acid. When compared with nongerminal tissues, sperm ligase appears unique because of its narrower acyl substrate specificity.