Hexadecenoic acid (cis-9)

Catalog number: 1016  
Common Name: Palmitoleic acid; C16:1 (cis-9) fatty acid  
Source: natural, plant  
Solubility: chloroform, hexane, ethyl ether  
CAS number: 373-49-9  

Molecular Formula: C_{16}H_{30}O_2  
Molecular Weight: 254  
Storage: -20°C  
Purity: TLC: 99%, GC: 99%  
TLC System: hexane/ethyl ether/acetic acid (85:15:1 by vol.)  
Appearance: liquid

Application Notes:
Hexadecenoic acid (cis-9) is often found as a component of human adipose tissues, esterified to glycerol and is found in small amounts in most animals. It is synthesized from palmitic acid by the enzyme delta-9-desaturase. Hexadecenoic acid (cis-9) is thought to be biomarker for the de novo synthesis of fatty acids from glucose. It has been reported that there is a consistant positive association between changes in inflammatory markers and hexadecenoic acid (cis-9). Hypercaloric high carbohydrate diets have been shown to stimulate the production of several fatty acids including hexadecenoic acid (cis-9) and its increase is a marker of lipogenesis.\(^1\) Hexadecenoic acid (cis-9), because it is a product of stearoyl-CoA desaturase activity, can be used as a biomarker for triglyceridemia and abdominal adiposity.\(^2\) It has been demonstrated that oleic and Hexadecenoic acids (cis-9) can inhibit the cytotoxic activity of trans-10, cis-12-conjugated linoleic acid.\(^3\) Hexadecenoic acid (cis-9) has been classified as a lipid hormone which stimulates insulin in muscles.\(^4\)

Selected References:
1. C. Forsythe “Comparison of Low Fat and Low Carbohydrate Diets on Circulating Fatty Acid Composition and Markers of Inflammation” Lipids, Vol. 43 pp. 65-77, 2008
4. Z. Yang, H. Miyahara, A. Hatanaka “Chronic administration of palmitoleic acid reduces insulin resistance and hepatic lipid accumulation in KK-Ay Mice with genetic type 2 diabetes” Lipids in Health and Disease, vol. 10 pp. 120, 2011

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