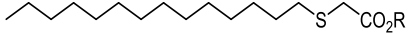
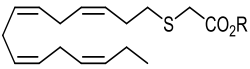
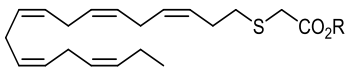


3-Thia Fatty Acids

3-thia fatty acids are chemically modified fatty acids with a sulfur atom incorporated in position 3 of a fatty acid. The chemical properties of 3-thia fatty acids are similar to normal fatty acids of similar length, but the metabolism and metabolic effects differ markedly from these other fatty acids. Because the 3-thia fatty acids are blocked for β -oxidation they are more metabolically stable than similar natural fatty acids. Whereas normal β -oxidation of 3-thia fatty acids does not occur, they are catabolized through ω -oxidation and sulfur oxidation. 3-Thia fatty acids such as tetradecylthioacetic acid (TTA), promote hepatic proliferation of mitochondria and peroxisomes and decrease serum triacylglycerol, cholesterol, and free fatty acid levels in animal models. It is also reported that TTA has antioxidant and anti-inflammatory properties, ref 2.

The 3-thia polyunsaturated fatty acid, methyl 3-thiooctadeca-6,9,12,15-tetraenoate, show similar lipid lowering effects as TTA in rats, ref. 3

Article: 3001	 <chem>CCCCCCCCCCCCCCCCSC(=O)R</chem>	R=H	Name: 2-tetradecylsulfanylacetic acid Synonym: Tetradecylthioacetic acid (TTA) CAS number: 2921-20-2 Molecular formula: C ₁₆ H ₃₂ O ₂ S Molecular weight: 288.49
Article: 3002	 <chem>CCCC=CC=CC=CC=CCSC(=O)R</chem>	R=H	Name: (all-Z)-3-Thia-6,9,12,15-octadecatetraenoic acid Synonym: 3-Thia-OTA CAS number: 178437-79-1 Molecular formula: C ₁₇ H ₂₆ O ₂ S Molecular weight: 294.45
Article: 3003	 <chem>CCCC=CC=CC=CC=CC=CCSC(=O)R</chem>	R=H	Name: (all-Z)-3-Thia-6,9,12,15,18-heneicosapentaenoic acid Synonym: 3-thia-HPA CAS number: 178437-80-4 Molecular formula: C ₂₀ H ₃₀ O ₂ S Molecular weight: 334.52

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- 2) Dyroy E, Yndestad A, Ueland T, Halvorsen B, Damas JK, Aukrust P, Berge RK. Antiinflammatory effects of tetradecylthioacetic acid involve both peroxisome proliferator-activated receptor alpha-dependent and -independent pathways. *Arterioscler Thromb Vasc Biol.* 2005;25:1364–1369
- 3) Willumsen N., Vaagenes H., Rustan A., Grav H., Lundquist M, Skattebøl L, Songstad J., Berge RK. Enhanced hepatic fatty acid oxidation and upregulated carnitine palmitoyltransferase II gene expression by methyl 3-thiooctadeca-6,9,12,15-tetraenoate in rats., *J Lipid Mediat Cell Signal.* 1997 Nov;17(2):115-34.