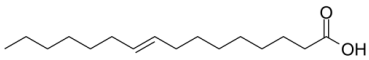
Data Sheet

Product Name:	Palmitelaidic Acid
Cat. No.:	CS-6346
CAS No.:	10030-73-6
Molecular Formula:	$C_{16}H_{30}O_2$
Molecular Weight:	254.41
Target:	AMPK; Glucokinase; PPAR
Pathway:	Cell Cycle/DNA Damage; Epigenetics; Metabolic Enzyme/Protease; PI3K/Akt/mTOR
Solubility:	Ethanol : 100 mg/mL (393.07 mM; Need ultrasonic)



BIOLOGICAL ACTIVITY:

Palmitelaidic Acid (9-trans-Hexadecenoic acid) is the trans isomer of palmitoleic acid. Palmitoleic acid is one of the most abundant fatty acids in serum and tissue. IC50 & Target: AMPK, PPARα, Glucokinase[2] **In Vitro:** The monounsaturated fatty acid palmitoleate (palmitoleic acid) is one of the most abundant fatty acids in serum and tissues, particularly adipose tissue and liver. Its endogenous production by stearoyl-CoA desaturase 1 gives rise to its cis isoform, cis-palmitoleate. Palmitoleic acid has been correlated with multiple cardiometabolic risk factors, including high blood pressure, total cholesterol, TGs, apoA-I, apoB, and endothelial dysfunction [1]. **In Vivo:** Palmitoleic acid promotes a faster uptake of glucose in the body, associated with higher insulin concentration. Palmitoleic acid increases the phosphorylation of AMPK, up-regulates glucokinase and down-regulates SREBP-1. Regarding AMPK downstream, palmitoleic acid increases the production of FGF-21 and stimulates the expression of PPARα[2]. Palmitoleic acid reduces body weight increase, ameliorates the development of hyperglycemia and hypertriglyceridemia, and improves insulin sensitivity. Furthermore, palmitoleic acid down-regulates mRNA expressions of proinflammatory adipocytokine genes (TNFα and resistin) in white adipose tissue and lipogenic genes (SREBP-1, FAS, and SCD-1) in liver[3].

PROTOCOL (Extracted from published papers and Only for reference)

Animal Administration: [2]Mice: Male C57BL/6J wild type and PPARα-KO mice are fed a high-fat diet or a standard diet for 12 weeks. In the last two weeks, the HF-fed mice are treated daily with oleic acid (300 mg/kg of body weight) or palmitoleic acid (00 mg/kg of body weight) by oral gavage. After 12 weeks, the mice are fasted for 6 h, injected with insulin or PBS vehicle. Blood and liver samples are collected and stored for the further analysis of RNA and protein expression[2].

References:

[1]. Frigolet ME, et al. The Role of the Novel Lipokine Palmitoleic Acid in Health and Disease.

[2]. de Souza CO, et al. Palmitoleic Acid Improves Metabolic Functions in Fatty Liver by PPARα-Dependent AMPK Activation. J Cell Physiol. 2016 Dec 7. doi: 10.1002/jcp.25715.

[3]. Yang ZH, et al. Chronic administration of palmitoleic acid reduces insulin resistance and hepatic lipid accumulation in KK-Ay Mice with genetic type 2 diabetes. Lipids Health Dis. 2011 Jul 21;10:120.

CAIndexNames:

9-Hexadecenoic acid, (9E)-

SMILES:

CCCCCC/C=C/CCCCCCCC(O)=O

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: 610-426-3128 Fax: 888-484-5008 E-mail: sales@ChemScene.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA