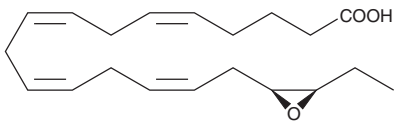
PRODUCT INFORMATION

(±)17(18)-EpETE

Item No. 50861

Formal Name:	(±)17,18-epoxy-5Z,8Z,11Z,14Z-eicosatetraenoic acid
Synonyms:	(±)17(18)-EEQ, (±)17(18)-epoxy-5(Z),8(Z), (±)17(18)-epoxy-all-*cis*-5,8,11,14-Eicosatetraenoic Acid, (±)17(18)-Epoxyeicosatetraenoic Acid, 11(Z),14(Z)-ETE, FA 20:5;O
MF:	$C_{20}H_{30}O_3$
FW:	318.5
Purity:	≥90%
Supplied as:	A solution in ethanol
Storage:	-20°C
Stability:	≥2 years



NOTE: Relative stereochemistry shown in chemical structure

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

(±)17(18)-EpETE is supplied as a solution in ethanol. To change the solvent, simply evaporate the ethanol under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as DMSO and dimethyl formamide purged with an inert gas can be used. The solubility of (±)17(18)-EpETE in these solvents is approximately 50 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. If an organic solvent-free solution of (±)17(18)-EpETE is needed, it can be prepared by evaporating the ethanol and directly dissolving the neat oil in aqueous buffers. The solubility of (±)17(18)-EpETE in PBS (pH 7.2) is approximately 1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

(±)17(18)-EpETE is an active metabolite of the ω-3 fatty acid eicosapentaenoic acid (EPA; Item Nos. 90110 | 90110.1 | 21908) formed *via* epoxidation of the 17,18 double bond by the cytochrome P450 (CYP) isoform CYP1A2 and an agonist of sphingosine-1-phosphate receptor 1 ($S1P_1$).[1,2] It binds to $S1P_1$ (K_i = 0.57 nM) and activates $S1P_1$ in a bioluminescence resonance energy transfer (BRET) assay using HEK293T cells expressing human $S1P_1$ (EC_{50} = 8.93).[1] (±)17(18)-EpETE (100 nM) also increases outward potassium efflux in rat vascular smooth muscle cells expressing large-conductance calcium-activated potassium channels (K_{Ca}1.1/BK).[3] It inhibits oscillatory shear stress- or TNF-α-induced increases in vascular cell adhesion molecule-1 (VCAM1) levels in human umbilical vein endothelial cells (HUVECs) in a concentration-dependent manner.[1] (±)17(18)-EpETE (1 µM) increases levels of phosphorylated endothelial nitric oxide synthase (eNOS), as well as prevents TNF-α-induced increases in levels of IκBα and phosphorylated levels of IKKα and p65 in HUVECs. *In vivo*, (±)17(18)-EpETE decreases tissue levels of VCAM1 and intracellular adhesion molecule-1 (ICAM1) and reduces the number of atherosclerotic lesions in the carotid arteries of wild-type but not *S1pr1*$^{-/-}$ mice in a model of atherosclerosis induced by arterial ligation and the Pcsk9 mutant Pcsk9^{N377Y}.

References

1. Lauterbach, B., Barbosa-Sicard, E., Wang, M.H., *et al. Hypertension* **39(2 Pt. 2)**, 609-613 (2002).
2. Zhou, T., Cheng, J., He, S., *et al. Nat. Metab.* **6(8)**, 1566-1583 (2024).
3. Isobe, Y., Itagaki, M., ito, Y., *et al. Sci. Rep.* **8(1)**, 7954 (2018).

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