

# PRODUCT INFORMATION



## Oleic Acid

Item No. 90260

CAS Registry No.: 112-80-1

Formal Name: 9Z-octadecenoic acid

Synonym: 9Z-Octadecenoic Acid, C18:1(9Z),  
cis-9-Octadecenoic acid

MF:  $C_{18}H_{34}O_2$

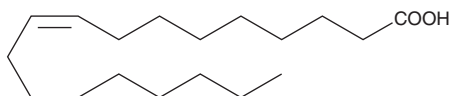
FW: 282.5

Purity:  $\geq 98\%$

Supplied as: A solution in ethanol

Storage:  $-20^{\circ}\text{C}$

Stability:  $\geq 2$  years



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

### Laboratory Procedures

Oleic acid is supplied as a solution in ethanol. To change the solvent, evaporate the ethanol under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as DMSO or dimethyl formamide purged with an inert gas can be used. The solubility of oleic acid in these solvents is at least 100 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 oleic acid is needed, it can be prepared by evaporating the ethanol and directly dissolving the neat oil in aqueous buffers. The solubility of oleic acid in PBS (pH 7.2) and 0.15 M Tris-HCl (pH 8.5) is less than 0.1 and at least 1 mg/ml, respectively. We do not recommend storing the aqueous solution for more than one day.

### Description

Oleic acid is a monounsaturated fatty acid and a major component of membrane phospholipids that has been found in human plasma, cell membranes, and adipose tissue.<sup>1,2</sup> It contributes approximately 17% of the total fatty acids esterified to phosphatidylcholine, the major phospholipid class in porcine platelets.<sup>1</sup> Oleic acid inhibits collagen-stimulated platelet aggregation by approximately 90% when used at a concentration of 10  $\mu\text{g}/\text{ml}$ . It also inhibits fMLF-induced neutrophil aggregation and degranulation by 55 and 68%, respectively, when used at a concentration of 5  $\mu\text{M}$ , similar to arachidonic acid (Item No. 90010 | 90010.1 | 10006607).<sup>3</sup> Oleic acid (60  $\mu\text{M}$ ) induces release of intracellular calcium in human platelets.<sup>4</sup> *In vivo*, oleic acid increases TNF- $\alpha$ , IL-8, IL-6, and IL-1 $\beta$  production, neutrophil accumulation, and apoptotic and necrotic cell death in mouse lung and has been used to induce lung injury in a mouse model of acute respiratory distress syndrome (ARDS).<sup>2</sup>

### References

1. Wahle, K.W.J. and Peacock, L.I.L. *Biochim. Biophys. Acta* **1301(1-2)**, 141-149 (1996).
2. Gonçalves-de-Albuquerque, C.F., Silva, A.R., Burth, P., et al. *Mediators Inflamm.* **2015:260465**, (2015).
3. Naccache, P.H., Moiski, T.F.P., Volpi, M., et al. *J. Leukoc. Biol.* **36(3)**, 333-340 (1984).
4. Sifaka-Kapadai, A., Hanahan, D.J., and Javors, M.A. Oleic acid-induced  $\text{Ca}^{2+}$  mobilization in human platelets: Is oleic acid an intracellular messenger? *J. Lipid Mediators Cell Signalling* **15(3)**, 215-232 (1997).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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