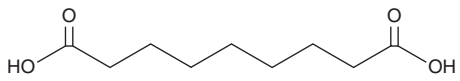
PRODUCT INFORMATION

Azelaic Acid

Item No. 23977

CAS Registry No.:	123-99-9
Formal Name:	nonanedioic acid
Synonyms:	FA 9:1;O2, NSC 19493
MF:	$C_9H_{16}O_4$
FW:	188.2
Purity:	≥95%
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years



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

Laboratory Procedures

Azelaic acid is supplied as a crystalline solid. A stock solution may be made by dissolving the azelaic acid in the solvent of choice. Azelaic acid is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of azelaic acid in these solvents is approximately 10 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. Organic solvent-free aqueous solutions of azelaic acid can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of azelaic acid in PBS, pH 7.2, is approximately 0.1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Azelaic acid is a naturally occurring and saturated dicarboxylic acid with diverse biological activities.[1-5] It is a competitive inhibitor of tyrosinase, NADH dehydrogenase, succinic dehydrogenase, and reduced ubiquitinone:cytochrome C oxidoreductase *in vitro*.[1,2] Azelaic acid inhibits the growth and colony formation of B16 murine as well as HMB2 and SK32 human melanoma cells in a concentration-dependent manner but has no effect on CHO cells.[3] It decreases DNA synthesis, induces mitochondrial damage and dilation of the rough endoplasmic reticulum (RER), and reduces growth of mouse keratinocytes in a dose- and time-dependent manner.[4] Azelaic acid is bacteriostatic against *S. epidermidis*, *S. aureus*, *S. capitis*, *P. acnes*, *P. avidum*, *P. mirabilis*, and *C. albicans in vitro* (MICs = 0.03-0.25 M).[5] Formulations containing azelaic acid have been used in the treatment of acne and hyperpigmentation disorders.

References

1. Nazzaro-Porro, M. and Passi, S. Identification of tyrosinase inhibitors in cultures of Pityrosporum. *J. Invest. Dermatol.* **71(3)**, 205-208 (1978).
2. Passi, S., Picardo, M., Nazzaro-Porro, M., *et al.* Antimitochondrial effect of saturated medium chain length (C_8-C_{13}) dicarboxylic acids. *Biochem. Pharmacol.* **33(1)**, 103-108 (1984).
3. Lemic-Stojcevic, L., Nias, A.H., and Breathnach, A.S. Effect of azelaic acid on melanoma cells in culture. *Exp. Dermatol.* **4(2)**, 79-81 (1995).
4. Detmar, M., Mayer-da-Silva, A., Stadler, R., *et al.* Effects of azelaic acid on proliferation and ultrastructure of mouse keratinocytes in vitro. *J. Invest. Dermatol.* **93(1)**, 70-74 (1989).
5. Nguyen, Q.H. and Bui, T.P. Azelaic acid: Pharmacokinetic and pharmacodynamic properties and its therapeutic role in hyperpigmentary disorders and acne. *Int. J. Dermatol.* **34(2)**, 75-84 (1995).

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