3050 Spruce Street, St. Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Product Information

Dimethyldioctadecylammonium bromide

Catalog Number **D2779**
Store at Room Temperature

CAS RN 3700-67-2
Synonyms: distearyldimethylammonium bromide, DDAB, DODAB

Product Description

Molecular Formula: $C_{38}H_{80}NBr$
Molecular Weight: 630.95

Dimethyldioctadecylammonium bromide is a tetraalkylammonium compound with long chain alkyl groups, which give it lipophilic properties. The alkyl groups of DDAB allow for its application in the preparation of cationic liposomes. Such liposomes may be used as DNA carrier systems for gene transfection and as vehicles for drug delivery.[1-3]

DDAB bilayers have been utilized to study their effects on the molecular conformation of 2′-deoxyadenosine 5′-monophosphate by circular dichroism (CD) spectroscopy to probe the denaturation of DNA after complexing with cationic lipids.[4] A CD study of the interaction of supercoiled plasmid DNA with DDAB has been reported.[5]

DDAB is used in immunology as an adjuvant.[6-8] It has been utilized to induce experimental arthritis in rats.[9] An *in vivo* study of pseudorabies virus in pigs has indicated that application of a DNA vaccine in conjunction with DDAB caused stronger immune responses than application of the vaccine alone and generally led to enhanced antiviral immunity.[10]

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

This product is soluble in ethanol (100 mg/ml) with heat as needed.

Storage/Stability

Store the product at room temperature.

References

1. Barreleiro, P.C., et al., Mechanism of formation of DNA-cationic vesicle complexes. Faraday Discuss., **122**, 191-201 (2003).
2. Lappalainen, K., et al., Cationic liposomes improve stability and intracellular delivery of antisense oligonucleotides into CaSki cells. Biochim. Biophys. Acta, **1196(2)**, 201-208 (1994).
3. Shi, G., et al., Efficient intracellular drug and gene delivery using folate receptor-targeted pH-sensitive liposomes composed of cationic/anionic lipid combinations. J. Control. Release, **80(1-3)**, 309-319 (2002).
4. Nantes, I.L., et al., Nucleotide conformational change induced by cationic bilayers. Arch. Biochem. Biophys., **416(1)**, 25-30 (2003).
5. Braun, C.S., et al., The structure of DNA within cationic lipid/DNA complexes. Biophys. J., **84(2 Pt 1)**, 1114-1123 (2003).
6. Hilgyers, L.A., and Snippe, H., DDA as an immunological adjuvant. Res. Immunol., **143(5)**, 494-503 (1992).
7. Kraaijeveld, C.A., et al., Dimethyl dioctadecyl ammoniumbromide as an adjuvant for delayed type hypersensitivity and cellular immunity against Semliki Forest virus in mice. Arch. Virol., **65(3-4)**, 211-217 (1980).
8. Snippe, H., et al., Variable expression of delayed hypersensitivity in different mouse strains using dimethyl dioctadecyl ammonium bromide as an adjuvant. Immunology, **39(3)**, 399-405 (1980).
9. Mia, M.Y., et al., Dimethyl dioctadecyl ammonium bromide (DDA)-induced arthritis in rats: a model of experimental arthritis. J. Autoimmun., **14(4)**, 303-310 (2000).
10. van Rooij, E.M., et al., Protective antiviral immune responses to pseudorabies virus induced by DNA vaccination using dimethyldioctadecylammonium bromide as an adjuvant. J. Virol., **76(20)**, 10540-10545 (2002).

GCY,NSB,MAM 02/10-1