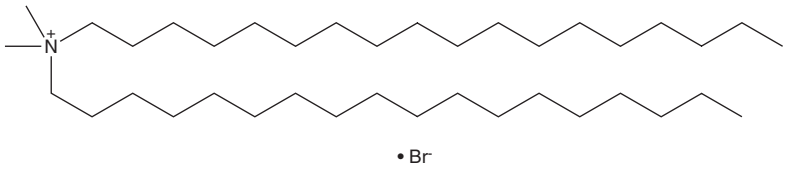
PRODUCT INFORMATION

Dimethyldioctadecylammonium (bromide)

Item No. 26120

CAS Registry No.: 3700-67-2
Formal Name: N,N-dimethyl-N-octadecyl-1-octadecanaminium, monobromide
Synonyms: DDA, DDAB, DODAB
MF: $C_{38}H_{80}N \bullet Br$
FW: 631.0
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

Dimethyldioctadecylammonium (DDA) (bromide) is supplied as a crystalline solid. A stock solution may be made by dissolving the DDA (bromide) in the solvent of choice. DDA (bromide) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of DDA (bromide) in these solvents is approximately 33, 16, and 2 mg/ml, respectively.

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 DDA (bromide) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of DDA (bromide) in PBS, pH 7.2, is approximately 5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

DDA is a cationic amphipathic lipid.[1,2] DDA liposomes containing an Ag85B-ESAT-6 antigen induce antigen deposition at an intramuscular or subcutaneous injection site in mice, increasing immune cell exposure to the antigen.[3] In a guinea pig model of *M. tuberculosis* infection, spleen bacterial load is reduced and lung and spleen lesion numbers are decreased when the mycobacterial lipid antigens Ac_2SGL and PIM_2 are administered in liposomes comprised of DDA and a synthetic analog of the mycobacterial cord factor trehalose 6,6-dibehenate (TDB).[2] DDA has also been used in the study of lipid bilayer dynamics.[4]

References

1. De Serrano, L.O. and Burkhart, D.J. Liposomal vaccine formulations as prophylactic agents: Design considerations for modern vaccines. *J. Nanobiotechnology* **15(1)**, 83 (2017).
2. Larrouy-Maumus, G., Layre, F., Clark, S., *et al.* Protective efficacy of a lipid antigen vaccine in a guinea pig model of tuberculosis. *Vaccine* **35(10)**, 1395-1402 (2017).
3. Henriksen-Lacey, M., Bramwell, V.W., Christensen, D., *et al.* Liposomes based on dimethyldioctadecylammonium promote a depot effect and enhance immunogenicity of soluble antigen. *J. Control Release* **142(2)**, 180-186 (2010).
4. Dubey, P.S., Sharma, V.K., Srinivasan, H., *et al.* Effects of NSAIDs on the dynamics and phase behavior of DODAB bilayers. *J. Phys. Chem. B.* **122(43)**, 9962-9972 (2018).

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