ProductInformation

ZYMOSAN A
from Saccharomyces cerevisiae
Sigma product number Z4250

CAS NUMBER: 58856-93-2

GENERAL REMARKS:

Zymosan is a polysaccharide prepared from the cell wall of Saccharomyces cerevisiae (bakers' yeast) by a procedure modified from that first reported by Pillemer and Ecker.[1] Zymosan is a light grey-to beige powder, insoluble in water but dispersible in aqueous systems to give a fine suspension. It is defined physically as a hemicellulosic derivative, primarily a glucose polymer.[1,4] Zymosan consists of "ghost cells", and the average diameter of zymosan particles is about 3 μm (compared to the average diameter of yeast cells, 6 μm).[2]

Mammalian sera contain a protein, properdin, which is an important constituent of a natural defense mechanism of blood. Properdin, in conjunction with complement and magnesium ion, participates in the destruction of certain bacteria and abnormal red cells and in the neutralization and inactivation of certain viruses.

The specific yeast fraction Zymosan A has the useful immunological property of inactivating the third component of complement, C'3; the relationship is stoichiometric, but requires the presence of properdin for this inactivation; thus, properdin can be quantitated in serum by incubation with zymosan.[3,4]

METHOD OF PREPARATION:

Per Sigma supplier, this is prepared as described by Pillemer.[1]

STORAGE / STABILITY AS SUPPLIED:

Zymosan is stable at least three years stored at 2-8°C.

SOLUBILITY/SOLUTION STABILITY:

The product is extremely stable to temperature, since it is subjected to boiling during isolation. It is not soluble in water, but can be suspended uniformly in saline solution.

For the properdin assay, zymosan A is suspended at 1% in 0.15 M sodium chloride, placed in a boiling water bath for one hour, then centrifuged for 30 minutes at 4000 rpm, the supernatant discarded and the residue suspended evenly in the diluent of choice to the desired concentration. Such suspensions can be maintained at 0-4°C for at least a month, if not contaminated.[4]

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REFERENCES:

1. Pillemer, L. and Ecker, E.E., *J. Biol. Chem.*, 137, 139-142, (1941).
2. DiCarlo, F. and Fiore, J.V., *Science*, 127, 756-757 (1958).
3. Pillemer, L., Blum, L., et al., *Science,* 120, 279 (1954).
4. Pillemer, L., et al., *J. Experimental Medicine*, 103, 3 (1956).

See also:

Huber, A.R. and Weiss, S.J., *J. Clin. Invest.*, 83, 1122-1136 (1989). (Zymosan was used to activate)

Minta, J., *Methods in Enzymology,* 93, 384 (1983). (Preparation of zymosan, purification of properdin.)

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