SANTA CRUZ BIOTECHNOLOGY, INC.

M13 Major Coat Protein (S-14): sc-15987

BACKGROUND

Morphogenesis of filamentous phage includes synthesis of the phage major coat protein in precursor form, its insertion into the host cell plasma membrane, its cleavage to the mature form of the protein, and its assembly there into virions. At each stage of infection, the major coat protein of coliphage M13 binds to the *E. coli* cytoplasmic membrane with its antigenic site exposed to the cell exterior, which is at the amino-terminus of the protein. Coat protein synthesized *in vitro* is initially made with a 23 amino acid amino-terminal "leader peptide", termed "procoat", that is also a biosynthetic precursor of coat protein *in vivo*. The filamentous bacteriophage major coat protein occurs as a membrane-spanning assembly intermediately prior to incorporation into the lipid-free virion. Assembly of coliphage M13 is known to occur as the viral DNA crosses the cytoplasmic membrane, shedding its virus-coded DNA unwinding protein and acquiring from the membrane approximately 2400 copies of the major coat protein.

REFERENCES

1. Wickner, W. 1976. Asymmetric orientation of phage M13 coat protein in *Escherichia coli* cytoplasmic membranes and in synthetic lipid vesicles. Proc. Natl. Acad. Sci. USA 73: 1159-1163.
2. Wickner, W. and Killick, T. 1977. Membrane-associated assembly of M13 phage in extracts of virus-infected *Escherichia coli*. Proc. Natl. Acad. Sci. USA 74: 505-509.
3. Ito, K., Mandel, G. and Wickner, W. 1979. Soluble precursor of an integral membrane protein: synthesis of procoat protein in *Escherichia coli* infected with bacteriophage M13. Proc. Natl. Acad. Sci. USA 76: 1199-1203.
4. Russel, M. and Model, P. 1981. A mutation downstream from the signal peptidase cleavage site affects cleavage but not membrane insertion of phage coat protein. Proc. Natl. Acad. Sci. USA 78: 1717-1721.
5. Khan, A.R., Williams, K.A., Boggs, J.M. and Deber, C.M. 1995. Accessibility and dynamics of Cys residues in Bacteriophage IKe and M13 major coat protein mutants. Biochemistry 34: 12388-12397.

SOURCE

M13 Major Coat Protein (S-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of M13 Major Coat Protein.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-15987 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

M13 Major Coat Protein (S-14) is recommended for detection of M13, F1 and Fd Major Coat Protein by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.