

Vancomycin (2F10): sc-58070

BACKGROUND

Vancomycin is a branched tricyclic glycosylated non-ribosomal peptide antibiotic that is used in the prophylaxis and treatment of infections caused by Gram-positive bacteria. This drug is produced by the fermentation of the Actinobacteria species *Amycolatopsis orientalis* and functions by inhibiting cell wall synthesis in bacteria leading to cell lysis. Vancomycin is large and hydrophilic, so it can hydrogen bond with the terminal D-alanyl-D-alanine moieties of the NAM/NAG-peptides, preventing the incorporation of the NAM/NAG-peptide subunits into the peptidoglycan matrix, which forms the major structural component of Gram-positive cell walls. Vancomycin has a molecular weight of 1449.3 g/mol and a half life of 4-11 hours in normal adults. The drug cannot pass through the intestinal lining, so it is usually administered intravenously in a dilute solution, over at least a 60 minute time period, to avoid the high incidence of pain and thrombophlebitis that may occur.

REFERENCES

1. Sorrell, T.C. and Collignon, P.J. 1985. A prospective study of adverse reactions associated with Vancomycin therapy. *J. Antimicrob. Chemother.* 16: 235-241.
2. Henrickson, K.J., Powell, K.R. and Schwartz, C.L. 1988. A dilute solution of Vancomycin and heparin retains antibacterial and anticoagulant activities. *J. Infect. Dis.* 157: 600-601.
3. Brandt, J.J., Chatwood, L.L., Yang, K.W. and Crowder, M.W. 1999. Continuous assay for VanX, the D-alanyl-D-alanine dipeptidase required for high-level Vancomycin resistance. *Anal. Biochem.* 272: 94-99.
4. Wood, M.J. 2000. Comparative safety of teicoplanin and Vancomycin. *J. Chemother.* 12: 21-25.
5. Heck, A.J., Bonnici, P.J., Breukink, E., Morris, D. and Wills, M. 2001. Modification and inhibition of Vancomycin group antibiotics by formaldehyde and acetaldehyde. *Chemistry* 7: 910-916.
6. Bosáková, Z., Kloucková, I. and Tesarová, E. 2002. Study of the stability of promethazine enantiomers by liquid chromatography using a Vancomycin-bonded chiral stationary phase. *J. Chromatogr. B Analyt. Technol. Biomed. Life Sci.* 770: 63-69.
7. Anissimova, M., Yaouancq, L., Noor, F., Badet-Denisot, M.A. and Badet, B. 2003. New chromogenic dipeptide substrate for continuous assay of the D-alanyl-D-alanine dipeptidase VanX required for high-level Vancomycin resistance. *J. Pept. Res.* 62: 88-95.
8. Stiefel, U., Pultz, N.J., Helfand, M.S. and Donskey, C.J. 2004. Efficacy of oral ramoplanin for inhibition of intestinal colonization by Vancomycin-resistant *Enterococci* in mice. *Antimicrob. Agents Chemother.* 48: 2144-2148.
9. Rubio-Martínez, L.M., López-Sanromán, J., Cruz, A.M., Santos, M., Andres, M.S. and Román, F.S. 2005. Evaluation of safety and pharmacokinetics of Vancomycin after intravenous regional limb perfusion in horses. *Am. J. Vet. Res.* 66: 2107-2113.

RESEARCH USE

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

SOURCE

Vancomycin (2F10) is a mouse monoclonal antibody raised against Vancomycin.

PRODUCT

Each vial contains 100 µg IgM in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Vancomycin (2F10) is recommended for detection of Vancomycin by immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

SELECT PRODUCT CITATIONS

1. Henry, C.E., Henry, C.E., Wang, Y.Y., Yang, Q., Hoang, T., Chattopadhyay, S., Hoen, T., Ensign, L.M., Nunn, K.L., Schroeder, H., McCallen, J., Moench, T., Cone, R., Roffler, S.R. and Lai, S.K. 2016. Anti-PEG antibodies alter the mobility and biodistribution of densely PEGylated nanoparticles in mucus. *Acta Biomater.* 43: 61-70.
2. Schiller, J.L., Marvin, A., McCallen, J.D. and Lai, S.K. 2019. Robust antigen-specific tuning of the nanoscale barrier properties of biogels using matrix-associating IgG and IgM antibodies. *Acta Biomater.* 89: 95-103.
3. Schiller, J.L., Fogle, M.M., Bussey, O., Kissner, W.J., Hill, D.B. and Lai, S.K. 2020. Antibody-mediated trapping in biological hydrogels is governed by sugar-sugar hydrogen bonds. *Acta Biomater.* 107: 91-101.

STORAGE

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

PROTOCOLS

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