SANTA CRUZ BIOTECHNOLOGY, INC.

ESAT6 (HYB 076-08): sc-57730

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Mycobacterium tuberculosis is a slow-growing obligate aerobic bacillus that causes most cases of tuberculosis (TB). It is a small, rod-like microbe that can withstand weak disinfectants and survive in a dry state for weeks, but can only grow within a host organism. *M. tuberculosis* has a thick waxy cell wall that is responsible for the typical caseous granuloma formation in tuberculosis. ESAT6 is a protein secreted by *M. tuberculosis* that induces a strong immune response in infected organisms, making it a strong candidate for the development of a vaccine against tuberculosis. ESAT6 may also be useful in the detection of the disease. Deletion of the ESAT6 gene leads to the loss of virulence of *M. tuberculosis*.

REFERENCES

1. Ulrichs, T., et al. 1999. Differential T cell responses to *Mycobacterium tuberculosis* ESAT6 in tuberculosis patients and healthy donors. Eur. J. Immunol. 28: 3949-3958.
2. Wards, B.J., et al. 2000. An ESAT6 knockout mutant of *Mycobacterium bovis* produced by homologous recombination will contribute to the development of a live tuberculosis vaccine. Tuber. Lung Dis. 80: 185-189.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 604305. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Wang, Q.M., et al. 2004. Improved immunogenicity of a tuberculosis DNA vaccine encoding ESAT6 by DNA priming and protein boosting. Vaccine 22: 3622-3627.
5. Dietrich, J., et al. 2005. Exchanging ESAT6 with TB10.4 in an Ag85B fusion molecule-based tuberculosis subunit vaccine: efficient protection and ESAT6-based sensitive monitoring of vaccine efficacy. J. Immunol. 174: 6332-6339.
6. Fan, X.L., et al. 2005. Cloning and expression of the fusion protein of interleukin-2 and ESAT6 in *Mycobacterium bovis Bacillus* Calmette-Guerin strain. Chin. Med. J. 118: 762-765.
7. Wang, X.Y., et al. 2006. Expression of the fusion protein CFP10-ESAT6 of *Mycobacterium tuberculosis* and the study of its immunogenicity. Sichuan Da Xue Xue Bao Yi Xue Ban 37: 353-356.

SOURCE

ESAT6 (HYB 076-08) is a mouse monoclonal antibody raised against PPD from *Mycobacterium tuberculosis*.

PRODUCT

Each vial contains 100 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

ESAT6 (HYB 076-08) is recommended for detection of ESAT6 of *Mycobacterium tuberculosis* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000).

Molecular Weight of ESAT6: 6 kDa.

STORAGE

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

SELECT PRODUCT CITATIONS

1. Krammer, F., et al. 2010. Influenza virus-like particles as an antigen-carrier platform for the ESAT-6 epitope of *Mycobacterium tuberculosis*. J. Virol. Methods 167: 17-22.
2. Cao, G., et al. 2013. Functional analysis of the EspR binding sites upstream of espR in *Mycobacterium tuberculosis*. Curr. Microbiol. 67: 572-579.
3. Cao, G., et al. 2015. EspR, a regulator of the ESX-1 secretion system in *Mycobacterium tuberculosis,* is directly regulated by the two-component systems MprAB and PhoPR. Microbiology 161: 477-489.
4. Diouani, M.F., et al. 2017. Detection of ESAT-6 by a label free miniature immuno-electrochemical biosensor as a diagnostic tool for tuberculosis. Mater. Sci. Eng. C Mater. Biol. Appl. 74: 465-470.
5. Fu, J., et al. 2018. Deletion of the β-propeller protein gene Rv1057 reduces ESAT-6 secretion and intracellular growth of *Mycobacterium tuberculosis*. Curr. Microbiol. 75: 401-409.
6. Leung-Theung-Long, S., et al. 2018. A multi-antigenic MVA vaccine increases efficacy of combination chemotherapy against *Mycobacterium tuberculosis*. PLoS ONE 13: e0196815.
7. Aguilera, J., et al. 2020. N^{α}-acetylation of the virulence factor EsxA is required for mycobacterial cytosolic translocation and virulence. J. Biol. Chem. 295: 5785-5794.

RESEARCH USE

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

PROTOCOLS

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