



HSP 65 (5177): sc-58170

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. *Mycobacterium tuberculosis* has a thick waxy cell wall that is responsible for the typical caseous granuloma formation in tuberculosis. TB infection begins when the mycobacteria reach the pulmonary alveoli, where they invade and replicate within alveolar macrophages. Bacteria are picked up by dendritic cells, which transport them to local lymph nodes. The bacteria may spread further through the bloodstream to more distant tissues and organs, where secondary TB lesions can develop in lung apices, peripheral lymph nodes, kidneys, brain and bone. HSP 65 (heat shock protein 65) is a *Mycobacterium tuberculosis* cell antigen that induces NFκB activity by signalling through Toll-like receptor 4 (TLR4). Activation of NFκB is dependent on MyD88, MAL, TRIF, TICAM-2 and the presence of MD-2. HSP 65 may also play a role in cytokine expression after infection by *Mycobacterium tuberculosis*.

REFERENCES

- Demkow, U., et al. 2002. Humoral immune response against 38 kDa and 16 kDa mycobacterial antigens in bone and joint tuberculosis. *Int. J. Tuberc. Lung Dis.* 6: 1023-1028.
- Devi, K.R., et al. 2002. Purification and characterization of three immunodominant proteins (38, 30, and 16 kDa) of *Mycobacterium tuberculosis*. *Protein Expr. Purif.* 24: 188-195.
- Raja, A., et al. 2002. Immunoglobulin G, A, and M responses in serum and circulating immune complexes elicited by the 16-kilodalton antigen of *Mycobacterium tuberculosis*. *Clin. Diagn. Lab. Immunol.* 9: 308-312.
- Bosze, S., et al. 2004. *In vitro* T cell immunogenicity of oligopeptides derived from the region 92-110 of the 16 kDa protein of *Mycobacterium tuberculosis*. *Biopolymers* 76: 467-476.
- Bothamley, G.H. 2004. Epitope-specific antibody levels demonstrate recognition of new epitopes and changes in titer but not affinity during treatment of tuberculosis. *Clin. Diagn. Lab. Immunol.* 11: 942-951.
- Preneta, R., et al. 2004. Autophosphorylation of the 16 kDa and 70 kDa antigens (Hsp 16.3 and Hsp 70) of *Mycobacterium tuberculosis*. *Microbiology* 150: 2135-2141.
- Caccamo, N., et al. 2005. Th0 to Th1 switch of CD4 T cell clones specific from the 16 kDa antigen of *Mycobacterium tuberculosis* after successful therapy: lack of involvement of epitope repertoire and HLA-DR. *Immunol. Lett.* 98: 253-238.
- Davidow, A., et al. 2005. Antibody profiles characteristic of *Mycobacterium tuberculosis* infection state. *Infect. Immun.* 73: 6846-6851.
- Bulut, Y., et al. 2005. *Mycobacterium tuberculosis* heat shock proteins use diverse Toll-like receptor pathways to activate pro-inflammatory signals. *J. Biol. Chem.* 280: 20961-20967.

RESEARCH USE

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

SOURCE

HSP 65 (5177) is a mouse monoclonal antibody raised against HSP 65 of *Mycobacterium tuberculosis* origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

HSP 65 (5177) is recommended for detection of HSP 65 of *M. tuberculosis* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000); non cross-reactive with other *Mycobacteria*.

Molecular Weight of HSP 65: 65 kDa.

SELECT PRODUCT CITATIONS

- Bai, L., et al. 2020. Dimethylaminophenyl hydrazides as inhibitors of the lipid transport protein LprG in mycobacteria. *ACS Infect. Dis.* 6: 637-648.
- Zhou, Y., et al. 2020. *Mycobacterium smegmatis* MSMEG_0129 is a nutrition-associated regulator that interacts with CarD and ClpP2. *Int. J. Biochem. Cell Biol.* 124: 105763.
- Oh, Y., et al. 2020. The partner switching system of the SigF σ factor in *Mycobacterium smegmatis* and induction of the SigF regulon under respiration-inhibitory conditions. *Front. Microbiol.* 11: 588487.
- Ko, E.M. and Oh, J.I. 2020. Induction of the cydAB operon encoding the bd auinol oxidase under respiration-inhibitory conditions by the major cAMP receptor protein MSMEG_6189 in *Mycobacterium smegmatis*. *Front. Microbiol.* 11: 608624.
- Oh, Y. and Oh, J.I. 2024. The RsfSR two-component system regulates SigF function by monitoring the state of the respiratory electron transport chain in *Mycobacterium smegmatis*. *J. Biol. Chem.* 300: 105764.
- Parkin, L.A., et al. 2025. Metabolic tagging reveals surface-associated lipoproteins in mycobacteria. *bioRxiv*. E-published.

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.