ALPHA DIAGNOSTIC INTERNATIONAL

Product Data Sheet

Life Technologies™ Your Molecular & Cell Technology Partner

Cat # RP-627 Recombinant purified Mycobacterium Tuberculosis Heat Shock Protein 65 (hsp65/groEL-2/Cpn60-2) **Size**: 10 ug

Tuberculosis, MTB, or TB (short for tubercle bacillus) is a common, and in many cases lethal, infectious disease caused by various strains of mycobacteria, usually Mycobacterium tuberculosis. The infectious agents of tuberculosis are acid-resistant rod-like bacteria of the family Mycobacteriaceae, genus Mycobacterium. Tuberculosis typically attacks the lungs, but can also affect other parts of the body. It is spread through the air when people who have an active TB infection cough, sneeze, or otherwise transmit their saliva through the air. Individuals with HIV are at risk for infection by tuberculosis due to their impaired immune system. The only currently available vaccine as of 2012 is bacillus Calmette–Guérin (BCG with live attenuated bacteria) which, while it is effective against disseminated disease in childhood, confers inconsistent protection against contracting pulmonary TB. Nevertheless, it is the most widely used vaccine worldwide, with more than 90% of all children being vaccinated. A number of new TB vaccines are currently in phase I and II clinical trials. MVA85A (modified vaccinia Ankara 85A, Oxford University) is a subunit vaccine to BCG. This vaccine produces higher levels of long-lasting cellular immunity when used together with the old TB vaccine called BCG. It uses the attenuated MVA as a vaccine delivery platform to present antigen 85A to the immune system.

The closely related proteins of the antigen 85 complex, initially identified in Mycobacterium bovis BCG by crossed immunoelectrophoresis, are major secreted products of mycobacteria growing in synthetic media. Three closely related components, termed antigens 85A, 85B, and 85C, have been demonstrated in M. bovis BCG and M. tuberculosis. Although the antigens are genetically distinct, they are highly homologous and cross-react with polyclonal and monoclonal antibodies raised against individual components. The genes encoding antigen 85A, a 32-kDa protein also referred to as P32, have been cloned from M. bovis BCG and M. tuberculosis, while genes for 85B, a 30- to 31-kDa protein variously termed MPB59 or alpha antigen, have been isolated from M. bovis BCG, Mycobacterium kansasii, and Mycobacterium leprae. Sequence analysis revealed 85% identity between the M. bovis BCG 85A and 85B components in the amino acid sequence of the mature secreted proteins. Many mycobacterial antigens have been identified, such as 71, 65, 38, 23, 19, 16, 14 and 12-kDa proteins. The 38-kDa protein is an immunodominant lipoprotein antigen isolated as a component of antigen 5 by affinity chromatography, and is specific only for the M. tuberculosis complex. It is the most extensively studied antigen. The 16-kDa antigen is an immunodominant antigen, frequently called 14 kDa, related to the family of low molecular weight heat-shock proteins. This antigen contains B-cell epitopes specific for the M. tuberculosis complex.

Heat shock proteins induce pro-inflammatory cytokines. Mycobacterial HSPs participate in cytokine expression resulting from infection by M. tuberculosis. Furthermore, HSPs stabilize cellular proteins in response to various sources of stress or injury.

DnaK, originally identified for its DNA replication by bacteriophage l in E. coli is the bacterial hsp70 chaperone. This protein is involved in the folding and assembly of newly synthesized polypeptide chains and in preventing the aggregation of stress-denatured proteins. HSPs may enhance cross-processing by cytosolic or vacuolar mechanisms. Some researchers suggest that endocytosed mammalian HSPs enhance processing by vacuolar mechanisms, and in some cases such processing is TAP independent. Recombinant HSP fusion proteins (with antigenic sequences fused to the N or C terminus of the HSP) have been shown to elicit CD8, T cell and Ab responses.

Synonyms:
Protein Cpn60-2, groEL protein-2, 65 kDa antigen, Heat shock protein 65, Cell wall protein A, Antigen A, groL2, groEL-2..

Source & Storage

hsp65 was expressed and purified from Escherichia Coli (95%, 57.4 kda, His-tag at NT). It is supplied in a buffer containing 10mM Na-phosphate pH-7.4, 130mM NaCl and 2.5mM KCl or lyophilized in the same buffer (or see lot sp. conc on the vial). Reconstitute the lyophilized HSP-65 in water at not less than 100µg/ml, which can then be further diluted to other aqueous solutions. Store in liquid at 4oC for ~1 week or aliquots in suitable size and store at -20oC for long term storage.

References: Shinnick TM (1987) J. Baceriol. 169, 1080-1088; Qamra R (2004) J. Bacteriol. 186, 8105-8113; Fleischmann R.D. (2002) J. Bacteriol. 184, 548-5490

This item is for LABORATORY ESEARCH USE ONLY.

Related Items

Catalog#	ProdDescription
HSP651-M	Monoclonal Anti-M. tuberculosis Heat Shock Protein 65 (hsp65/groEL-2/Cpn60-2) IgG
HSP651-P	Heat shock protein (M. leprae HSP65; 417-429) specific P62 peptide (LLQAAPALDKLKL, MW:1393.7)
HSP652-P	Heat shock protein (M. leprae/M. tuberculosis HSP65; 417-429) P38 peptide (AGGGVTLLQAAPALD, MW:1353.5)
HSP653-P	Heat shock protein (M. leprae HSP65; 343-355) P61 peptide (RVAQIRTEIENSD, MW:1530.7)
HSP654-P	Heat shock protein (M. bovis HSP65; 243-255) indicator peptide in HLA-DQ2 binding assays (KPLLIIAEDVEGEY, MW:1588.8)
HSP701-C	Recombinant purified M. tuberculosis Heat Shock Protein 70 (hsp70/Dnak/ML2496) control for Western
HSP701-M	Monoclonal Anti-M. tuberculosis Heat Shock Protein 70 (hsp70/Dnak/ML2496) IgG
MTB061-M	Monoclonal Anti-Mycobacterium tuberculosis antigen (6kDa/ESAT-6) IgG
MTB06-R	Recombinant purified (E. coli) Mycobacterium tuberculosis antigen (6kDa/ESAT-6)
MTB161-M	Monoclonal Anti-Mycobacterium tuberculosis antigen (16kDa/Hspx) IgG
MTB16-R	Recombinant purified (E. coli) Mycobacterium tuberculosis antigen (16kDa/Hspx)
MTB381-M	Monoclonal Anti-Mycobacterium tuberculosis antigen 38kDa/Ag85B IgG
MTB38-R	Recombinant purified (E. coli) Mycobacterium tuberculosis antigen (38kDa/Ag85B)
MTB6381-S	Anti-M. Tuberculosis antigens (6Kda/ESAT+16kDa+38KDa/Ag85b mixture of proteins antiserum
RP-628	Recombinant purified Mycobacterium Tuberculosis Heat Shock Protein 70 (hsp70/Dnak/ML2496)
RP-977	Recombinant purified ESAT-6 (6 kDa early secretory antigen of T cells; Mycobacterium Tuberculosis)
RP-977-100	Recombinant purified ESAT-6 (6 kDa early secretory antigen of T cells; Mycobacterium Tuberculosis)
RP-999	Recombinant purified Mycobacterium Tuberculosis major secretory protein Antigen 85B (38kda Antigen, Ag85b)

RP-628 130326A

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