SANTA CRUZ BIOTECHNOLOGY, INC.

MSP-1 (PEM-2): sc-52078

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Malaria is an infectious disease caused by a protistan parasite of the genus *Plasmodium* and is mainly transmitted by mosquitoes. *Plasmodium* invades the red blood cells of its host, which causes symptoms such as fever, anemia and in severe cases, coma potentially leading to death. In the blood-stage forms of the malarial parasite *Plasmodium falciparum*, the merozoite surface protein 1 (MSP-1) is a major surface component. In preparation for erythrocyte invasion, MSP-1 undergoes selective proteolytic processing and reassembly. A glycosylphosphatidylinositol (GPI) anchor links MSP-1 to the parasite plasma membrane. MSP-1 contains mono- or oligosaccharides in O-linkage to serines or threonines. N-linked carbohydrates also associate with asparagines on MSP-1, despite the lack of N-glycosylating machinery in *P. falciparum* parasites. The peptide ligand T cell epitopes of MSP-1 mutually inhibit IFN-γ secretion as well as proliferation of $CD4^+$ T cells in a majority of malaria cases, making it a good vaccine candidate antigen.

REFERENCES

1. Fleck, S.L., et al. 2003. Suramin and suramin analogues inhibit MSP-1 secondary processing and erythrocyte invasion by the malaria parasite *Plasmodium falciparum*. J. Biol. Chem. 278: 47670-47677.
2. Wang, L., et al. 2003. Naturally acquired antibody responses to the components of the *Plasmodium falciparum* MSP-1 complex. Parasite Immunol. 25: 403-412.
3. Hensmann, M., et al. 2004. Disulfide bonds in MSP-1 of the malaria parasite impede efficient antigen processing and affect the *in vivo* antibody response. Eur. J. Immunol. 34: 639-648.
4. Kim, Y.M., et al. 2004. Efficacy of the MSP-1 of *Plasmodium vivax* as an antigen for ELISA to diagnose malaria. Yonsei Med. J. 45: 129-134.
5. Lozano, J.M., et al. 2004. Mapping the anatomy of a *Plasmodium falciparum* MSP-1 epitope using pseudopeptide-induced mono- and polyclonal antibodies and CD and NMR conformation analysis. J. Struct. Biol. 148: 110-122.
6. Taylor, D.W., et al. 2004. Antibodies that inhibit binding of *Plasmodium falciparum*-infected erythrocytes to chondroitin sulfate A and to the C terminus of MSP-1 correlate with reduced placental malaria in Cameroonian women. Infect. Immun. 72: 1603-1607.
7. Lee, E.A., et al. 2006. Dimorphic *Plasmodium falciparum* MSP-1 epitopes turn off memory T cells and interfere with T cell priming. Eur. J. Immunol. 36: 1168-1178.
8. Takala, S.L., et al. 2006. Genetic diversity in the Block 2 region of the merozoite sur (MSP-1) of *Plasmodium falciparum:* additional complexity and selection and conver polymorphism. Infect. Genet. Evol. 6: 417-424.
9. Farooq, U., et al. 2006. *Plasmodium falciparum*: polymorphism in the MSP-1 gene in Indian isolates and predominance of certain alleles in cerebral malaria. Exp. Parasitol. 112: 139-143.

SOURCE

MSP-1 (PEM-2) is a mouse monoclonal antibody raised against recombinant MSP-1 of *Plasmodium falciparum* origin.

PRODUCT

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

APPLICATIONS

MSP-1 (PEM-2) is recommended for detection of MSP-1 of *Plasmodium falciparum* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000).

Molecular Weight of MSP-1: 195 kDa.

SELECT PRODUCT CITATIONS

1. Akaddar, A., et al. 2010. Catestatin, an endogenous chromogranin A-derived peptide, inhibits *in vitro* growth of *Plasmodium falciparum.* Cell. Mol. Life Sci. 67: 1005-1015.
2. Bour, T., et al. 2016. Apicomplexa-specific tRip facilitates import of exogenous tRNAs into malaria parasites. Proc. Natl. Acad. Sci. USA 113: 4717-4722.

STORAGE

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

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.