

Recombinant Plasmodium Vivax MSP1 Protein

Cat. No. PLA-540 Lot. No. (See product label)

SPECIFICATION

Product Overview

Plasmodium vivax MSP1 is a recombinant MSP1 protein expressed and purified from E. coli.

Background

Merozoite surface proteins (MSP) are integral and peripheral proteins found on the membrane of merozoites, of the Plasmodia genus. During the asexual blood stage of Plasmodia's life cycle, the parasite invades red blood cells to replicate, resulting in the common symptoms of malaria infection. The MSP surface protein complexes are involved in multiple interactions between Plasmodium and red blood cells to facilitate pathogenesis (Kadekoppala and Holder, 2010).

The merozoite surface proteins, MSP-1 and MSP-2 are the most abundant proteins on the surface of merozoites, constituting 40% of the GPI-anchored proteins on its cell surface (Cowan, et al., 2011). MSP-1 is essential in the pathogenesis of the merozoite's blood stage, facilitating erythrocyte invasion and cell rupture. MSP-1 is first synthesized as 190- kDa precursor protein, which is deposited at the surface of the developing merozoite cell via its GPI anchor (Kauth, et al., 2003). Before invasion of a red blood cell, the GPI-anchored MSP-1 precursor protein is processed into four major MSP-1 subunits (Jaschke, et al., 2017). During invasion of the red blood cell, the merozoite then attaches to the host cell using the MSP-1 complex to gain entry. The majority of the MSP complex is then released upon entry into the host cell, though a small portion of the MSP-1 C-terminus (MSP-119) is retained. While the role of MSP-119 is unclear, it currently serves as a marker for the formation of the merozoite food vacuole (Blackman et al., 1990).

Merozoite surface proteins have been key targets for the development of malaria vaccines, with the aim of halting parasitic growth at the key stages of its life complex

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cycle. The MSP-1 protein interacts with several other MSPs to form protein complexes at the cell surface, which can all be inhibited by anti MSP-1 antibodies to disrupt plasmodia's growth. However, the sequences encoding proteins such as MSP-1 vary greatly depending on the region they are found in, which makes them challenging targets for effective therapeutics.

Formulation phosphate buffered saline with 25mM arginine.

Applications Can be used with Plasmodium falciparum MSP1 for ELISA and rapid test.

Notes This product is intended for research and manufacturing uses only. It is not a diagnostic device. The user assumes all responsibility for care, custody and control of the material, including its disposal, in accordance with all regulations.

Type Recombinant

ClassID 1 Infectious Disease

GENE INFORMATION

Synonyms Plasmodium Vivax MSP1

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