

# Recombinant Plasmodium Falciparum MSP1 Protein, His-tagged

**Cat. No.** PLA-538    **Lot. No.** (See product label)

## SPECIFICATION

### Product Overview

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

### Tag


His

### Background

Merozoite surface proteins (MSP) are both integral and peripheral proteins found on the membrane of merozoites – an early life cycle stage of the Plasmodia genus. During the asexual blood stage of the Plasmodia life cycle, the Plasmodia parasite invades erythrocytes to replicate, resulting in the characteristic symptoms of malarial infection. The MSP surface protein complexes are involved in multiple interactions between Plasmodium and red blood cells (Kadekoppala and Holder, 2010). The merozoite surface proteins, 1 and 2 (MSP-1 & MSP-2) are the most abundant proteins on the surface of Plasmodium merozoites, making up 40% of the GPI-anchored protein coat (Cowan, et al., 2011). MSP-1 in particular, is essential in the pathogenesis of Plasmodium's blood stage, playing a central role in erythrocyte invasion and cell rupture. MSP-1 is synthesized as an approximately 190- kDa precursor protein, which is deposited at the surface of the developing Plasmodia merozoite via a GPI anchor (Kauth, et al., 2003). In late schizogony, prior to erythrocyte invasion, the GPI-anchored MSP-1 precursor protein is processed into four major subunits (Jaschke, et al., 2017). During red blood cell invasion, the merozoite attaches to the host cell using its MSP-1 complex to gain entry. The majority of the complex is then released upon entry into the host cell, but a small portion of the MSP-1 C-terminus, known as MSP-119, is retained. The exact role of

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MSP-119 remains unknown, but currently serves as a marker for the formation of the food vacuole (Blackman et al., 1990).

The merozoite surface proteins have been major targets for the development of malaria vaccines, with the aim of disrupting Plasmodia at the key stages of its life cycle. MSP-1 also interacts with several other MSPs to form protein complexes, which can all be inhibited by anti MSP-1 antibodies to disrupt parasitic growth. However, the sequences encoding proteins such as MSP-1 vary greatly depending on the region they are found, making them challenging targets.

**Molecular Mass** ~45 kDa

**Applications** Can be used with Plasmodium vivax 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 Falciparum MSP1

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