

## Recombinant Plasmodium Vivax LDH Protein

**Cat. No.** PLA-539    **Lot. No.** (See product label)

### SPECIFICATION

#### Product Overview

Plasmodium vivax LDH Protein is a recombinant Plasmodium vivax LDH protein expressed and purified from E. coli. Plasmodium vivax specific lactate dehydrogenase enzyme is an essential Plasmodium protein and it is expressed during the intra-erythrocytic stages of the parasitic life cycle. As such, it is used as a diagnostic marker for the detection of P. vivax malaria.

#### Background

The LDH enzyme catalyzes the interconversion of pyruvate to lactate in the final step of glycolysis, which is required for energy production in living Plasmodium cells. Ferriprotoporphyrin IX (also known as hemozoin) is one of the products of hemoglobin degradation by malarial parasites and intoxicates the parasite by competing with NADH for the active site of LDH. Parasite survival therefore depends on the polymerization of hemozoin to hemozoin, which remains active in the food vacuole of the parasite and leads to parasite death (Penna-Coutinho et al., 2011).

Plasmodium LDH is a potential diagnostic target, because of its indispensable role in endoerythrocytic stage of Plasmodia parasites (Keluksar et al., 2014) and the ldh gene shows a high degree of genetic conservation (Shin et al., 2013). As Plasmodia are also dependent on LDH for glycolytic energy production, it is also a candidate for anti-malarial therapeutics.

Plasmodium falciparum is a unicellular protozoan parasite of humans, and causes the most dangerous form of malaria, with the highest rate of complications and mortality in humans. It is transmitted through the bite of female Anopheles mosquitoes and is responsible for ~50% of all malaria cases worldwide. As a result, P. falciparum is regarded as the deadliest parasite in humans, causing 435,000 deaths in 2017 alone (WHO).

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|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Molecular Mass</b>   | ~66 kDa                                                                                                                                                                                                                                          |
| <b>Formulation</b>      | 10 mM Tris-HCl, pH 8.5, 10 mM NaCl.                                                                                                                                                                                                              |
| <b>Applications</b>     | Can be used for immunoassay development.                                                                                                                                                                                                         |
| <b>Notes</b>            | 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. |
| <b>Type</b>             | Recombinant                                                                                                                                                                                                                                      |
| <b>ClassID 1</b>        | Infectious Disease                                                                                                                                                                                                                               |
| <b>GENE INFORMATION</b> |                                                                                                                                                                                                                                                  |
| <b>Synonyms</b>         | Plasmodium Vivax LDH                                                                                                                                                                                                                             |

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