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Anti-Circumsporozite protein [2A10] Standard Size Ab03231-3.3

This antibody was created using our proprietary Fc Silent™ engineered Fc domain containing key point mutations that abrogate binding to Fc gamma receptors.

Isotype and Format: Mouse IgG2b, [Fc Silent™](#), Kappa

Clone Number: 2A10

Alternative Name(s) of Target: CSP; PfCSP; CS

UniProt Accession Number of Target Protein: P02893

Published Application(s): crystallography, in vitro, in vivo, IP, ITC, WB, ELISA, IF

Published Species Reactivity: Plasmodium falciparum

Immunogen: The original antibody was generated by immunizing BALB/c mice with sporozoites of *P.falciparum*.

Specificity: The antibody is specific for the repeat domain of CSP. Circumsporozoite protein (CSP) is a secreted protein of the sporozoite stage of the malaria parasite.

Application Notes: The structure of the Fab fragment was determined by X-ray crystallography. Isothermal titration calorimetry (ITC) experiments were performed to understand the interaction between the antibody or the Fab fragment and CSP or the synthetic peptide antigen (NANP)6, which is a short segment of the antigenic NANP-repeat region of CSP. The binding free energies (ΔG) and dissociation constants (KD) were found to be -49.0 kJ/mol and 2.7 nM for the full antibody with CSP, -40 kJ/mol and 94 nM for the Fab with CSP, and -36.4 kJ/mol and 420 nM for the Fab with the (NANP)6 peptide, suggesting that the antigenic region of CSP constitutes a multivalent antigen. The specificity of the antibody to (NANP)6 peptide was confirmed by ELISA (Fisher et al., 2017; PMID: 28759640). The antibody inhibited in vitro inhibition of sporozoite invasion (Herrera et al., 2015; PMID: 26169272). The antibody is a neutralizing antibody, which can block sporozoite infectivity in vitro and in in vivo mouse models utilizing rodent *P. berghei* parasites expressing the *P. falciparum* CSP repeat region (Persson et al., 2002; PMID: 12471098). The antibody was employed to immunoprecipitate CSP from lysed sporozoites. The antibody inhibited parasite infection (*P.b.-P.f.* CSP-R parasite strain). Further, the antibody-mediated sporozoite neutralization could be enhanced by combining the antibody with the antibody 5D5, which recognize different epitopes of the *P. falciparum* CSP (Espinosa et al., 2015; PMID: 25762791). The antibody detected CSP by western blot analysis (Zhang et al., 2016 and Coppi et al., 2005; PMID: 15630135). The antibody, which is specific for the central repeats CSP, was employed for staining of live sporozoites (Zhang et al., 2016). A Western Blot assay for quantitative detection of Plasmodium falciparum circumsporozoite protein (PfCSP) in *P. falciparum*

sporozoite (PfSPZ) and in recombinant (rPfCSP) product was developed using the antibody (Kumar et al. 2013; PMID: 23399449).

Antibody First Published in: Nardin et al. Circumsporozoite proteins of human malaria parasites *Plasmodium falciparum* and *Plasmodium vivax* *J Exp Med.* 1982 Jul 1;156(1):20-30. [PMID:7045272](#)

Note on publication: The paper describes the generation and characterization of a panel of monoclonal antibodies to circumsporozoite (CS) proteins.

Product Form

Size: 200 µg Purified antibody.

Purification: Protein A affinity purified

Supplied In: PBS with 0.02% Proclin 300.

Storage Recommendation: Store at 4°C for up to 3 months. For longer storage, aliquot and store at -20°C.

Concentration: 1 mg/ml.

Important note - This product is for research use only. It is not intended for use in therapeutic or diagnostic procedures for humans or animals.