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Anti-Circumsporozite protein [2A10] Bulk Size Ab03231-23.0-BT

This chimeric rabbit antibody was made using the variable domain sequences of the original Mouse IgG2b format for improved compatibility with existing reagents assays and techniques.

Isotype and Format: Rabbit IgG, 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: 1 mg Purified antibody in bulk size.

Purification: Protein A affinity purified

Supplied In: PBS only.

Storage Recommendation: Store at 4°C for up to 3 months. Note, this antibody is provided without added preservatives, it is therefore recommended this antibody be handled under sterile conditions. 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.