

Product Specification Sheet

DRAA3, repeat-sequence peptide of the *P. vivax* circumsporozoite protein (CSP)

<input type="checkbox"/> Cat. # DRAA31-P	DRAA3, peptide of the <i>P. vivax</i> CSP	SIZE: 1 mg	Form: Powder
<input type="checkbox"/> Cat. # DRAA31-BSA	DRAA3 peptide conjugated with BSA	SIZE: 1 mg	Form: Powder/Solution

Malaria is a severe and debilitating disease caused by the parasitic protozoan *Plasmodium*, which is transmitted by many species of anopheline mosquitoes. Four *Plasmodium* species, namely, *Plasmodium falciparum*, *Plasmodium vivax*, *Plasmodium ovale* and *Plasmodium malariae* infect humans. *P. falciparum* is the most widespread and also the most serious and potentially fatal form of *Plasmodium* species. Recent estimates of the annual number of clinical malaria cases worldwide range from 214 to 397 million. Estimates of annual mortality (nearly all from *P. falciparum* malaria) are thought to be around 1.1 million. The life cycle of the malaria is complex, with phases both in human host and the insect vector, the female anopheline mosquito. There are several *Plasmodium* forms: sporozoites, merozoites, gametocytes, gametes, ookinets, oocysts. Parasite may encode in the order of 2000 proteins, several hundred of which are antigenic. The development of a malaria vaccine is one of the highest priorities in infectious disease research, as such a vaccine could be enormously helpful in reducing the 500 million new *Plasmodium* infections and over 1 million deaths due to malaria annually.

The circumsporozoite protein-1 (CSP-1), an approximate 60 kDa protein located on the surface of developing and mature sporozoites and present in developing exoerythrocytic forms is the best-characterized protein of sporozoites. It constitutes the major surface protein of the sporozoite and is a multifunctional molecule that plays a crucial role at various points of the malaria life cycle. The CSP-1 is synthesized as a precursor protein of 67 kDa, which is processed by removal of approximately 50-100 residues to generate the mature protein of 58 kDa. The central domain of CSP-1 is composed of an extensive array of tandemly repeated short sequences. The deduced sequence of the CSP of the human malaria parasite *Plasmodium vivax* consists of 373 amino acids with a central region of 19 tandem repeats of the nonapeptide Asp-Arg-Ala-Asp/Ala-Gly-Gln-Pro-Ala-Gly. (DRAD/AGQPAG). These tandem repetitions comprise the immunodominant epitope of the parasite. There are two variants of the nonapeptide: variant D, with Asp, and variant A, with Ala, in the fourth position.

Synthetic peptides reproducing a sequential array of DRADGQPAG and DRAAGQPAG repeats of the *P. vivax* CS protein were investigated for their potential use in the detection of *P. vivax* sporozoite antibodies in human sera. The ELISA using the peptide reproducing this sequential array was applied to the detection of *P. vivax* CS protein antibodies in a large number of sera from an endemic area in Sri Lanka. This ELISA represents a simple and useful tool for the analysis of the antibody response to *P. vivax* sporozoites in naturally exposed individuals. The *P. vivax* repeat peptide (DRAAGQPAG)₂ was employed for the stimulation of the CD4⁺ clones derived from a laboratory-born chimpanzee's T cell line secreted IFN-gamma and IL-2.

Specificity

DRAA3 represents the central repeat region of *P. vivax* CSP. It shares 88% of identity with DRADGQPAG polypeptide of *P. vivax* CSP which it forms tandem repeats with.

Sources of Peptides

Cat. # DRAA31-P
Sequence: DRAAGQPAGDRAAGQPAGDRAAGQPAG
Mol. Wt: 2490
Formula: C₉₉H₁₆₁N₃₉O₃₇
Form: Powder
Solubility: not tested
Storage: Store powder at -20°C for up to 6 months.
After reconstitution in water, store solution in small aliquots at -20°C for 3-6 months. Do not freeze and thaw or store diluted solutions.

Cat. # DRAA31-BSA
DRAA31-P peptide was coupled to BSA using a proprietary technique. It is supplied in PBS, pH 7.4, 0.1% azide in liquid (1 mg/ml) or lyophilized in PBS. Reconstitute the peptide in PBS at 1 mg/ml. Store in suitable aliquots at -20°C.

Suggested Usage

DRAA31-P free peptide can be used for ELISA or as an antigen to obtain antibodies.
DRAA31-BSA can be used for ELISA in the concentration 1-10 mg/ml per coating.

General References: Nardin E. et al (1991) J. Immunol., 146, 1674-1678; Nardin E. et al (1995) Adv. Immunol., 60, 105-149; Pessi A. et al (1990) Am. J. Trop. Med. Hyg., 42, 17-23.

Related items:

Cat. #	Description
NANP51-P,	repeat-sequence peptide of <i>P. falciparum</i>
NANP51-BSA	CSP/ its BSA conjugate
NANP101-P	repeat-sequence peptide of <i>P. falciparum</i> CSP
NVDP41-P,	repeat-sequence peptide of <i>P. falciparum</i>
NVDP41-BSA	CSP/ its BSA conjugate
DRAD31-P	repeat-sequence peptide of <i>P. vivax</i> CSP
PAPP31-P	repeat-sequence peptide of <i>P. berghei</i> CSP
PPPP311-P	repeat-sequence peptide of <i>P. berghei</i> CSP
PPPP321-P,	repeat-sequence peptide of <i>P. berghei</i> CSP/
PPPP321-BSA	its BSA conjugate

**This product is for In vitro research use only.*

DRAA31-P	90625G
DRAA31-BSA	