Product Information Sheet for MRA-820

Plasmodium falciparum, Strain V1/S

Catalog No. MRA-820

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Product Description:

Plasmodium falciparum (P. falciparum), strain V1/S is an in vitro culture-adapted clone of the V1 strain originating in Vietnam, which shows resistance to chloroquine and quinine. MRA-820 lot 70058152 was produced by cultivation of BEI Resources seed lot 7398274 in fresh human erythrocytes suspended in RPMI 1640 medium supplemented with 10% (v/v) heat-inactivated human serum (pooled Type A), 25 mM HEPES, 2 mM L-glutamine, 2 g/L D-glucose, 27 µg/mL hypoxanthine and 5 µg/mL gentamicin. The culture was incubated at 37°C in sealed flasks outgassed with a blood-gas atmosphere (90% N_2, 5% CO_2, 5% O_2) and monitored for parasitemia for 12 days. Every 1 to 3 days, uninfected, leukocyte-filtered, Type O erythrocytes in complete culture medium were added dropwise to the culture as needed and monitored for hematocrit.

Lot: 70058152 **Manufacturing Date: 07FEB2023**

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TEST	SPECIFICATIONS	RESULTS
Identification by Giemsa Stain Microscopy[1]	Blood-stage parasites present	Blood-stage parasites present
Antimalarial Susceptibility Profile (*in vitro*)[1]		
Half-maximal Inhibitory Concentration (IC_{50}) by SYBR Green I® drug sensitivity assay[2]		
Chloroquine	Report results	7.8 ± 0.4 nM
Artemisinin	Report results	8.6 ± 0.2 nM
Quinine	Report results	200.2 ± 9.2 nM
Cycloguanil	Report results	41.3 ± 7.7 nM
Pyrimethamine	Report results	48540 ± 3356 nM
Sulfadoxine	Report results	420600 ± 48530 nM
Genotypic Analysis[1]		
Sequencing of Merozoite Surface Protein 2 (MSP2) gene (~ 800 base pairs)	Consistent with *P. falciparum*	Consistent with *P. falciparum* (Figure 1)
Level of Parasitemia by Giemsa Stain Microscopy		
Pre-freeze (12 days post-infection)[3]		
Ring-stage parasitemia	Report results	3.07%
Total parasitemia	≥ 2%	5.03%
Post-freeze (2 days post-infection)[1]		
Ring-stage parasitemia	Report results	2.8%
Total parasitemia	≥ 1%	3.5%
Viability (2 days post-infection)[1]	Growth in infected red blood cells	Growth in infected red blood cells
Sterility (21-day incubation)[1]		
Harpo's HTYE broth, 37°C and 26°C, aerobic[4]	No growth	No growth
Trypticase soy broth, 37°C and 26°C, aerobic	No growth	No growth
Sabouraud broth, 37°C and 26°C, aerobic	No growth	No growth
DMEM with 10% FBS, 37°C, aerobic	No growth	No growth
Sheep blood agar, 37°C, aerobic	No growth	No growth
Sheep blood agar, 37°C, anaerobic	No growth	No growth
Thioglycollate broth, 37°C, anaerobic	No growth	No growth
Mycoplasma Contamination[1]		
DNA detection by PCR	None detected	None detected

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[1]Testing completed on vialed, post-freeze material
[2]A SYBR Green I® anti-malarial drug sensitivity assay in 96-well plates was used to determine IC_{50} values of an active (> 70% ring stage) parasite culture in the presence of each antimalarial drug [Hartwig, C. L., et al. "XI: I. SYBR Green I®-Based Parasite Growth Inhibition Assay for Measurement of Antimalarial Drug Susceptibility in *Plasmodium falciparum*." In Methods in Malaria Research Sixth Edition. (2013) Moll, K., et al. (Ed.), EVIMalaR, pp. 122-129. Methods in Malaria Research Sixth Edition is available on the BEI Resources website.]
[3]Testing completed on bulk material prior to vialing and freezing
[4]Atlas, Ronald M. Handbook of Microbiological Media. 3rd ed. Ed. Lawrence C. Parks. Boca Raton: CRC Press, 2004, p. 798.

Figure 1: MRA-820 MSP2 Sequence

AATTAAAACATTGTCTATTATAAATTTCTTTATTTTTGTTACCTTTAATATTAAAAATGAAAGTAAATATAGCAACACATTCATAAACAATGCTTAT
AATATGAGTATAAGGAGAAGTATGGAAGAAAGTAATCCTTCTACTGGTGCTGGTGGTAGTGGTAGTGCTGGTGGTAGTGGTAGTGCTGGTGGTAGTG
GTAGTGCTGGTGGTAGTGGTAGTGCTGGTGGTAGTGGTAGTGCTGGTGGTAGTGGTAGTGCTGGTGGTAGTGGTAGTGCTGGTTCTGGTGATGGTAA
TGGTGCTAATCCTGGTGCAGATGCTGAGAGAAGTCCAAGTACTCCCGCTACTACCACAACTACCACAACTACTAATGATGCAGAAGCATCTACCAGT
ACCTCTTCAGAAAATCCAAATCATAATAATGCCGAAACAAATCCAAAAGGTAAAGGAGAAGTTCAAAAACCAAATCAAGCAAATAAAGAAACTCAAA
ATAACTCAAATGTTCAACAAGACTCTCAAACTAAATCAAATGTTCCACCCACTCAAGATGCAGACACTAAAAGTCCTACTGCACAACCTGAACAAGC
TGAAAATTCTGCTCCAACAGCCGAACAAACTGAATCCCCCGAATTACAATCTGCACCAGAGAATAAAGGTACAGGACAACATGGACATATGCATGGT
TCTAGAAATAATCATCCACAAAATACTTCTGATAGTCAAAAAGAATGTACCGATGGTAACAAAGAAAACTGTGGAGCAGCAACATCCCTCTTAAATA
ACTCTAGTAATATTGCTTCAATAAATAAA

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