

Plasmodium falciparum, Strain FCB

Catalog No. MRA-309

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Product Description:

Plasmodium falciparum (*P. falciparum*), strain FCB originated in Southeast Asia and has shown resistance to chloroquine. MRA-309 lot 70058156 was produced by cultivation of BEI Resources seed lot 63901355 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% N₂, 5% CO₂, 5% O₂) and monitored for parasitemia for 10 days. Every 1 to 2 days, uninfected, leukocyte-filtered, Type O erythrocytes in complete culture medium were added dropwise to the culture as needed and monitored for hematocrit.

Lot: 70058156

Manufacturing Date: 02FEB2023

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TEST	SPECIFICATIONS	RESULTS
Identification by Giemsa Stain Microscopy¹	Blood-stage parasites present	Blood-stage parasites present
Antimalarial Susceptibility Profile (<i>in vitro</i>)¹ Half-maximal Inhibitory Concentration (IC ₅₀) by SYBR Green I [®] drug sensitivity assay ²		
Chloroquine	Report results	50.2 ± 1.2 nM
Artemisinin	Report results	19.8 ± 0.5 nM
Quinine	Report results	234.8 ± 5.4 nM
Cycloguanil	Report results	619.4 ± 143.9 nM
Pyrimethamine	Report results	30.2 ± 0.7 nM
Sulfadoxine	Report results	439300 ± 30370 nM
Genotypic Analysis¹ Sequencing of Merozoite Surface Protein 2 (MSP2) gene (~ 640 base pairs)	Consistent with <i>P. falciparum</i>	Consistent with <i>P. falciparum</i> (Figure 1)
Level of Parasitemia by Giemsa Stain Microscopy		
Pre-freeze (10 days post-infection) ³		
Ring-stage parasitemia	Report results	6.2%
Total parasitemia	≥ 2%	7.8%
Post-freeze (3 days post-infection) ¹		
Ring-stage parasitemia	Report results	5.7%
Total parasitemia	≥ 1%	6.1%
Viability (3 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 Contamination¹ DNA detection by PCR	None detected	None detected

¹Testing completed on vial, post-freeze material

²A SYBR Green I[®] anti-malarial drug sensitivity assay in 96-well plates was used to determine IC₅₀ 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](#).]

³Testing completed on bulk material prior to vialing and freezing

⁴Atlas, Ronald M. *Handbook of Microbiological Media*. 3rd ed. Ed. Lawrence C. Parks. Boca Raton: CRC Press, 2004, p. 798.

Figure 1: MRA-309 MSP2 Sequence

TATTATAAATTTCTTTATTTTTGTTACCTTTAATATATAAAAATGAAAGTAAATATAGCAACACATTTCATAAACAATGCTTATAATATGAGTATAAGG
 AGAAGTATGACAGAAAGTAATCCTCCTACTGGTGCTAGTGGTAGTGCTGGTGGTAGTGCTGGTGGTAGTGCTGGTGGTAGTGCTGGTGGTAGTGCTG
 GTGGTAGTGCTGGTGGTAGTGCTGGTGGTAGTGCTGGTGGTAGTGCTGGTGGTAGTGCTGGTGGTAGTGCTGGTGGTAGTGCTGGTGGTAGTGCTGG
 TTCTGGTGATGGTAATGGTGCTAATCCTGGTGAGATGCTGAGAGAAAGTCCAAGTACTCCCCTACTACCACAACCTACCACAACCTACTAATGATGCA
 GAAGCATCTACCAGTACCTCTTCAGAAAATCCAAATCATAATAATGCCGAAACAAATCAAGCAAATAAAGAAACTCAAATAACTCAAATGYTCAAC
 AAGACTCTCAAATAAATCAAATGTTCCACCCACTCAAGATGCAGACACTAAAAGTCTACTGCACAACCTGAACAAGCTGAAAATTTCTGCTCCAAC
 AGCCGAAACAACTGAATCCCCGAATTACAATCTGCACCAGAGAATAAAGGTACAGG

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06 JUN 2023

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