

Plasmodium falciparum, Strain Dd2

Catalog No. MRA-150

Product Description:

Plasmodium falciparum (*P. falciparum*), strain Dd2 is a clone derived from W2-MEF, which was selected from W2-MCII after 6 months of continuous cultivation in the presence of mefloquine. W2-MCII was derived from W2'82 after 12 months of continuous cultivation in the presence of mefloquine, which was itself derived from Indochina III/CDC. *P. falciparum*, strain Dd2 was deposited as resistant to chloroquine, pyrimethamine and mefloquine. MRA-150 was produced by cultivation of BEI Resources seed lot 64043571 in fresh human erythrocytes suspended in RPMI 1640 medium, adjusted to contain 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 blood-gas atmosphere (90% N₂, 5% CO₂, 5% O₂) and monitored for parasitemia for 17 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: 70068224

Manufacturing Date: 08AUG2024

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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	29.6 ± 1.4 nM
Artemisinin	Report results	6.6 ± 0.2 nM
Quinine	Report results	108.9 ± 2.5 nM
Cycloguanil	Report results	1441 ± 33.2 nM
Pyrimethamine	Report results	21050 ± 3408 nM
Sulfadoxine	Report results	278400 ± 32122 nM
Genotypic Analysis¹ Sequencing of Merozoite Surface Protein 2 (MSP2) gene (~ 800 base pairs)	≥ 99% sequence identity to <i>P. falciparum</i> , strain Dd2 (GenBank: AASM01000018.1)	99.9% sequence identity to <i>P. falciparum</i> , strain Dd2 (GenBank: AASM01000018.1)
Level of Parasitemia by Giemsa Stain Microscopy Pre-freeze (17 days post-infection) ³		
Ring-stage parasitemia	Report results	2.65%
Total parasitemia	≥ 2%	3.85%
Post-freeze (2 days post-infection) ¹		
Ring-stage parasitemia	Report results	3.78%
Total parasitemia	≥ 1%	4.98%
Viability (2 days post-infection)¹	Growth in infected red blood cells	Growth in infected red blood cells
Sterility (14-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

TEST	SPECIFICATIONS	RESULTS
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-150 MSP2 Sequence

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TTATTTTTGTTACCTTTAATATTAATAAATGAAAAGTAAATATAGCAACACATTCATAAAACAATGCTTATAATATGAGTATAAGGAGAA
GTATGGCAAATGAAGGTTCTAATACTACTAGTGTAGGTGCAAATGCTCCAAATGCTGATACTATTGCTAGTGGAAAGTCAAAGTAGTA
CAAATAGTGCAAGTACTAGTACTACTAATAATGGAGAATCACAACTACTACTCCTACCGCTGCTGATACTATTGCTAGTGGAAAGTC
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GTGGAAGTCAAAGGAGTACAAATAGTGCAAGTACTAGTACTACTAATAATGGAGAATCACAACTACTACTCCTACCGCTGCTGATA
CCCCTACTGCTACAGAAAGTAATTCACCTTCACCACCCATCACTACTACAGAAAGTTCAGTTCTGGCAATGCACCAAATAAAACAG
ACGGTAAAGGAGAAGAGAGTGAAAAACAAAATGAATTAATGAATCAACTGAAGAAGGACCCAAAGCTCCACAAGAACCTCAAACGG
CAGAAAATGAAAATCCTGCTGCACCAGAGAATAAAGGTACAGGACAACATGGACATATGCATGGTTCTAGAAAATAATCATCCACAAA
ATACTTCTGATAGTCAAAAAGAATGTACCGATGGTAACAAAGAAAACGTGGAGCAGCAACATCCCTCTTAAATAACTCTAGTAATA
TTGCTTCAATAAATAAATTTGTTG
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