

Plasmodium falciparum, Strain 3D7

Catalog No. MRA-102

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Product Description:

Plasmodium falciparum (*P. falciparum*), strain 3D7 was cloned from the NF54 strain by limiting dilution; it is reported as a pyrimethamine-sensitive strain. The parent NF54 isolate was derived from a patient living near Schipol Airport, Amsterdam, who had never left the Netherlands. MRA-102 was produced by cultivation of the BEI Resources seed material 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 daily 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: 70067055

Manufacturing Date: 30APR2024

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TEST	SPECIFICATIONS	RESULTS
Identification by Giemsa Stain Microscopy ¹	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 Artemisinin Quinine Cycloguanil Pyrimethamine Sulfadoxine	Report results Report results Report results Report results Report results Report results	8.8 ± 0.2 nM 24.7 ± 0.6 nM 111.0 ± 5.1 nM 19.7 ± 1.4 nM 88.6 ± 8.2 nM 237900 ± 38511 nM
Genotypic Analysis ¹ Sequencing of Merozoite Surface Protein 2 (MSP2) gene (~ 780 base pairs)	≥ 99% sequence identity to <i>P. falciparum</i> , strain 3D7 (GenBank: LN999943.1)	100% sequence identity to <i>P. falciparum</i> , strain 3D7 (GenBank: LN999943.1) (Figure 1)
Level of Parasitemia by Giemsa Stain Microscopy Pre-freeze (17 days post-infection) ³ Ring-stage parasitemia Total parasitemia Post-freeze (4 days post-infection) ¹ Ring-stage parasitemia Total parasitemia	Report results ≥ 2% Report results ≥ 1%	3.38% 3.59% 3.17% 3.62%
Viability (post-freeze; 4 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 Trypticase soy broth, 37°C and 26°C, aerobic Sabouraud broth, 37°C and 26°C, aerobic DMEM with 10% FBS, 37°C, aerobic Sheep blood agar, 37°C, aerobic Sheep blood agar, 37°C, anaerobic Thioglycollate broth, 37°C, anaerobic	No growth No growth No growth No growth No growth No growth No growth	No growth No growth No growth No growth No growth No growth No growth

TEST	SPECIFICATIONS	RESULTS
Mycoplasma Contamination¹ DNA detection by PCR	None detected	None detected

¹Testing completed on vialled, 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](http://www.beiresources.org).]

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-102 MSP2 Sequence

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ATAAATTTCT TTATTTTTGT TACCTTTAAT ATTA AAAATG AAAGTAAATA TAGCAACACA TTCATAAACA ATGCTTATAA
TATGAGTATA AGGAGAAGTA TGGCAGAAAG TAAGCCTTCT ACTGGTGCTG GTGGTAGTGC TGGTGGTAGT GCTGGTGGTA
GTGCTGGTGG TAGTGCTGGT GGTAGTGCTG GTGGTAGTGC TGGTTCTGGT GATGGTAATG GTGCAGATGC TGAGGGAAGT
TCAAGTACTC CCGCTACTAC CACA ACTACC AAAACTACCA CAACTACCAC AACTACTAAT GATGCAGAAG CATCTACCAG
TACCTCTTCA GAAAATCCAA ATCATAAAAA TGCCGAAAACA AATCCAAAAG GTAAAGGAGA AGTTCAAGAA CCAAATCAAG
CAAATAAAGA AACTCAAAAT AACTCAAAATG TTCAACAAGA CTCTCAAACT AAATCAAAATG TTCCACCCAC TCAAGATGCA
GACACTAAAA GTCCTACTGC ACAACCTGAA CAAGCTGAAA ATTCTGCTCC AACAGCCGAA CAAACTGAAT CCCCCGAATT
ACAATCTGCA CCAGAGAATA AAGGTACAGG ACAACATGGA CATATGCATG GTTCTAGAAA TAATCATCCA CAAAATACTT
CTGATAGTCA AAAAGAATGT ACCGATGGTA ACAAAGAAAA CTGTGGAGCA GCAACATCCC TCTTAAATAA CTCTAGTAAT
ATTGCTTCAA TAAATAAATT TGTTGTTTTA ATTTTCAGCAA CACTTGTTTT ATCTTTTGC
    
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/Sonia Bjorum Brower/

Sonia Bjorum Brower

Technical Manager or designee, ATCC Federal Solutions

04 MAR 2025

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