

Plasmodium falciparum, Strain 3D7 KAHRP(+His)-GFP
Catalog No. MRA-576
Product Description:

Plasmodium falciparum (*P. falciparum*), strain 3D7 KAHRP(+His)-GFP was created by transfection of the parent 3D7 strain with a plasmid containing the knob-associated histidine-rich protein (KAHRP), the histidine-rich region, and green fluorescent protein (GFP). MRA-576 was produced by cultivation of BEI Resources seed lot 63901360 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 every 1 to 3 days for 19 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: 70068223
Manufacturing Date: 22OCT2024

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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 Artemisinin Quinine Cycloguanil Pyrimethamine Sulfadoxine	Report results Report results Report results Report results Report results Report results	6.3 ± 0.3 nM 14.3 ± 0.3 nM 39.2 ± 2.7 nM 216 ± 50.2 nM 55170 ± 2542 nM 493700 ± 45536 nM
Genotypic Analysis¹ Sequencing of Merozoite Surface Protein 2 (MSP2) gene (~ 760 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)
Phenotypic Analysis GFP expression by fluorescence microscopy	Positive	Positive (Figure 2)
Level of Parasitemia by Giemsa Stain Microscopy Pre-freeze (19 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%	3.81% 5.72% 0.57% 3.25%
Viability (4 days post-infection)¹	Growth in infected red blood cells	Growth in infected red blood cells
Sterility (14-day incubation)¹ Trypticase soy broth, 37°C and 26°C, aerobic Sabouraud broth, 37°C and 26°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
Mycoplasma Contamination¹ DNA detection by PCR	None detected	None detected

¹Testing completed on vial, post-freeze material

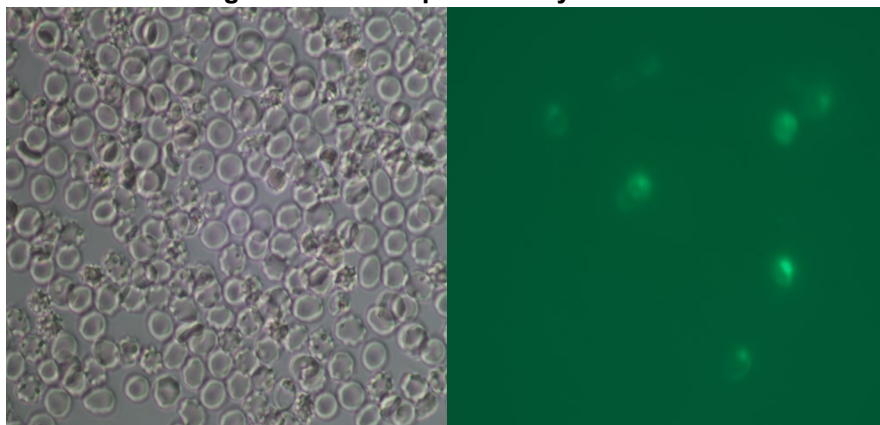
²A SYBR Green I® anti-malarial drug sensitivity assay in 96-well plates was used to determine IC₅₀ values of an active (> 70% ring stage) parasite culture in the presence of each antimalarial drug [Hartwig, C. L., et al. "XI: I. SYBR Green I®-Based Parasite Growth Inhibition Assay for Measurement of 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](https://www.beiresources.org/).]

³Testing completed on bulk material prior to vialing and freezing

Figure 1: MRA-576 MSP2 Sequence

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AAAAGATAAAACAAGTGTGCTGAAATTAAAACAACAAATTTATTTATTTGAAGCAATATTACTAGAGTTATTTAAGAGGGATGTTGCTGCTCCACAG
TTTTCTTTGTTACCATCGGTACATTCTTTTGGACTATCAGAAGTATTTGTGGATGATTATTTCTAGAACCATGCATATGTCCATGTTGTCCTGTAC
CTTTATCTCTGCTGTCAGATTGTAATTCGGGGGATTGAGTTTGTTCGGCTGTTGGAGCAGAATTTTCAGCTTGTTCAGGTTGTGCAGTAGGACTTTT
AGTGTCTGCATCTTGAGTGGGTGGAACATTTGATTTAGTTTGTGAGAGTCTTGTGAACATTTGAGTTATTTTGTGTTCTTTATTTGCTTGATTGGT
TCTTGAACCTTCTCCTTTACCTTTTGGATTGTTTCGGCATTTTATGATTGTTGTTCTGAAGAGGTACTGGTAGATGCTTCTGCATCATTAGTAG
TTGTGGTAGTTGTGGTAGTTTGGTAGTTGTGGTAGTAGCGGGAGTACTTGAACCTCCCTCAGCATCTGCACCATACCATCACCAGAACAGCACT
ACCACCAGCACTACCACCAGCACTACCACCAGCACTACCACCAGCACTACCACCAGCACTACCACCAGCACTACCAGTAGAAGGCTTACTTTCTGCCATA
CTTCTCCTTATACTCATATTATAAGCATTTGTTTATGAATGTGTTGCTATATTTACTTTTCATTTTAAATATTAAGGTAACAAAA
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Figure 2: GFP Expression by MRA-576



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Technical Manager or designee, ATCC Federal Solutions

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