

Plasmodium falciparum, Strain PfHDGFP

Catalog No. MRA-317

Product Description:

Plasmodium falciparum (*P. falciparum*), strain PfHDGFP is a transgenic clone of the 3D7 strain, created by tandem insertion of two copies of plasmid pHDGFP into the *HRP III* locus. MRA-317 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 14 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: 70076302

Manufacturing Date: 21JUL2025

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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	26.8 ± 1.2 nM 35.2 ± 1.6 nM 131.6 ± 9.1 nM 332.4 ± 69.4 nM 40.3 ± 2.8 nM 475000 ± 43811 nM
Genotypic Analysis ¹ Sequencing of Merozoite Surface Protein 2 (MSP2) gene (~ 780 base pairs)	Consistent with <i>P. falciparum</i>	Consistent with <i>P. falciparum</i> (Figure 1)
Phenotypic Analysis GFP expression by fluorescence microscopy	Positive	Positive (Figure 2)
Level of Parasitemia by Giemsa Stain Microscopy Pre-freeze (14 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%	4.60% 7.32% 2.52% 3.10%
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 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 Contamination ¹ 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](http://www.beiresearch.com).]

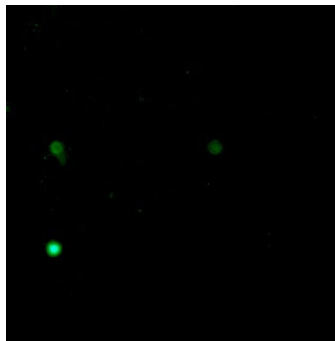
³Testing completed on bulk material prior to vialing and freezing.

Figure 1: MRA-317 MSP2 Sequence

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TTTATTTTTG TTACCTTTAA TATTAAAAAT GAAAGTAAAT ATAGCAACAC ATTCATAAAC AATGCTTATA ATATGAGTAT
AAGGAGAAGT ATGACAGAAA GTAATCCTCC TACTGGTGCT AGTGGTAGTG CTGGTGGTAG TGCTGGTGGT AGTGCTGGTG
GTAGTGCTGG TGGTAGTGCT GGTGGTAGTG CTGGTGGTAG TGCTGGTGGT AGTGCTGGTG GTAGTGCTGG TGGTAGTGCT
GGTGGTAGTG CTGGTGGTAG TGCTGGTGGT AGTGCTGGTG GTAGTGCTGG TTCTGGTGAT GGTAATGGTG CTAATCCTGG
TGCAGATGCT GAGAGAAGTC CAAGTACTCC CGCTACTACC ACAACTACCA CAACTACTAA TGATGCAGAA GCATCTACCA
GTACCTCTTC AGAAAATCCA AATCATAATA ATGCCGAAAC AAATCAAGCA AATAAAGAAA CTCAAATAA CTCAAATGTT
CAACAAGACT CTCAAATAA ATCAAATGTT CCACCCACTC AAGATGCAGA CACTAAAAGT CCTACTGCAC AACCTGAACA
AGCTGAAAAT TCTGCTCCAA CAGCCGAACA AACTGAATCC CCCGAATTAC AATCTGCACC AGAGAATAAA GGTACAGGAC
AACATGGACA TATGCATGGT TCTAGAAATA ATCATCCACA AAATACTTCT GATAGTCAAA AAGAATGTAC CGATGGTAAC
AAAGAAAACT GTGGAGCAGC AACATCCCTC TTAAATAACT CTAGTAATAT TGCTTCAA
    
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Figure 2: GFP Expression by MRA-317



/Sonia Bjorum Brower/

Sonia Bjorum Brower

Technical Manager or designee, ATCC Federal Solutions

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