

Plasmid psgRNA_1target_cen, for Transfection in *Plasmodium falciparum*

Catalog No. MRA-1328

For research use only. Not for use in humans.

Contributor:

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Manufacturer:

BEI Resources

Product Description:

MRA-1328 is a centromere plasmid containing a single guide RNA (sgRNA) expression cassette, in which the expression of sgRNA is controlled by the U6 promoter. The sgRNA can be cloned in *BsmBI* sites. MRA-1328 contains human dihydrofolate reductase gene (*dhfr*), a drug-selectable marker.^{1,2} The beta-lactamase gene, *bla*, provides transformant selection through ampicillin resistance in *Escherichia coli* (*E. coli*). The resulting size of the plasmid is approximately 9600 base pairs. The complete plasmid sequence is provided on the BEI Resources webpage.

Comments: Gene-editing in a transgenic strain of *Plasmodium falciparum* that expresses the Cas9 protein (BEI Resources MRA-1327) can be done by CRISPR/Cas9 system-mediated recombination, by introducing the linear DNA fragment for homologous recombination and using sgRNAs expressed on plasmids (BEI Resources MRA-1328 and MRA-1329).^{1,2} Transgenic parasites obtained using these reagents are drug-selection marker-free and the gene editing procedure can be repeated on the same host.

Material Provided:

Each vial of MRA-1328 contains approximately 0.5 µg of plasmid DNA in TE buffer (10 mM Tris-HCl and 0.5 mM EDTA). The concentration is shown on the Certificate of Analysis. The vial should be centrifuged prior to opening.

Packaging/Storage:

MRA-1328 was packaged aseptically in screw-capped plastic cryovials. The product is provided frozen on dry ice and should be stored at -20°C or colder immediately upon arrival. Freeze-thaw cycles should be minimized.

Citation:

Acknowledgment for publications should read “The following reagent was obtained through BEI Resources, NIAID, NIH: Plasmid psgRNA_1target_cen, for Transfection in *Plasmodium falciparum*, MRA-1328, contributed by Shiroh Iwanaga.”

Biosafety Level: 1

Appropriate safety procedures should always be used with this material. Laboratory safety is discussed in the following publication: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, and National Institutes of Health. [Biosafety in Microbiological and Biomedical Laboratories \(BMBL\)](#). 6th ed. Washington, DC: U.S. Government Printing Office, 2020.

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References:

1. Iwanaga, S., Personal Communication.
2. Nishi, T., et al. “Highly Efficient CRISPR/Cas9 System in *Plasmodium falciparum* using Cas9-Expressing Parasites and a Linear Donor Template.” *Sci. Rep.* 11 (2021) PubMed: 34531479.

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