Product Information Sheet for MRA-1262

Plasmid pBAT1G6, for Transfection in *Plasmodium berghei*

Catalog No. MRA-1262

For research use only. Not for use in humans.

Contributor:
Taco W. A. Kooij, Ph.D., Parasitology Unit, Max Planck Institute for Infection Biology, Berlin, Germany

Manufacturer:
BEI Resources

Product Description:
MRA-1262 is a *Plasmodium berghei (P. berghei)* adaptable transfection vector (pBAT) containing two target sequences for integration in the silent intergenic locus on *P. berghei* chromosome 6 (SIL6) to be used for stable transgene integration.[1,2] The vector also contains a drug-selectable cassette consisting of a fusion of human dihydrofolate reductase (hDHFR) and yeast Fcu (cytosine deaminase-uracil phosphoribosyl transferase) under the control of *P. berghei* dihydrofolate reductase-thymidylate synthetase (PbDHFR-TS) 5′ and 3′ untranslated regions (UTRs). hDHFR confers resistance to pyrimethamine and WR99210, allowing positive selection of successfully transfected parasites. Yeast Fcu confers sensitivity to 5-fluorocytosine allowing recycling of the drug-selectable cassette. The tag sequence consists of a gene encoding the red fluorescent protein mCherry and a triple c-Myc epitope tag both preceded by a linker sequence and followed by the *P. berghei* dihydropterin pyrophosphokinase-dihydropteroate synthetase (PPPK-DHPS) 3′UTR. The high-expressing green fluorescent protein (GFP) cassette allows fluorescence microscopy analysis of live and fixed mutant parasites in all parasite life cycle stages. In pBAT1G6, also known as pBAT-SIL6 (GenBank: JX099570), the PbDHFR-TS 3′UTR is duplicated, which, following recombination results in the excision of the drug-selectable cassette alone.[2] pBAT1G6 has 10687 base pairs and contains an ampicillin resistance marker. The complete plasmid sequence is provided on the BEI Resources webpage.

pBAT transfection vectors are useful in the genetic manipulation of *P. berghei,* such as gene deletion, disruption, testing of promoter activity and transgene integration of genes with or without tags. MRA-1262 can also be used for cloning and shuttling of DNA fragments between the pBAT transfection vector set.[1]

Material Provided:
Each vial of MRA-1262 contains approximately 500 ng of plasmid DNA in TE buffer (10 mM Tris-HCl and 1 mM EDTA). The concentration is shown on the Certificate of Analysis. The vial should be centrifuged prior to opening.

Packaging/Storage:
MRA-1262 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 avoided.

Citation:
Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: Plasmid pBAT1G6, for Transfection in *Plasmodium berghei*, MRA-1262, contributed by Taco W. A. Kooij."

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.

Disclaimers:
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BEI Resources
www.beiresources.org

E-mail: contact@beiresources.org
Tel: 800-359-7370
Fax: 703-365-2898

References:

1. Kooij, T. W. A., Personal Communication.
2. Kooij, T. W. A., et al. "Expansion of Experimental Genetics Approaches for *Plasmodium berghei* with Versatile Transfection Vectors." Mol. Biochem. Parasitol. 185 (2012): 19-26. PubMed: 22705315.