

## *Anopheles gambiae*, Strain M2, Eggs

### Catalog No. MRA-105

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#### Contributor and Manufacturer:

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#### Product Description:

Classification: Culicidae, *Anopheles*

Species: *Anopheles gambiae* (African malaria mosquito)

Strain: M2

Original Source: *Anopheles gambiae* (*An. gambiae*), strain M2 is a *white* gene mutant strain that was created in 1994 by irradiation of *An. gambiae* G3 mosquitoes.<sup>1</sup> *An. gambiae*, strain G3 is a wild-type strain isolated in 1975 in The Gambia, Africa.<sup>2,3</sup>

Comments: Strain M2 has a white eye color, and eyes appear transparent during larval stages. Strain M2 is phenotypically *c*<sup>1</sup> due to *white* mutation epistasis over *c*<sup>+</sup> expression. Outcross information demonstrated that the original stock isolate contained both alleles. The genotype for *An. gambiae*, strain M2 is *p*<sup>+</sup> + *w*<sup>1</sup>, *dl*<sup>r</sup>, 2La: wild type, TEP1 s/s.<sup>1, 3-4</sup>

Binding sites of diagnostic primers are in the *white* gene (GenBank: [U29485](#)). Neither region 'a' nor 'b' of the *white* gene<sup>1</sup> are amplifiable by PCR using primer pairs, 5'-AACACGGACGACCAGTATG-3'/ 5'-TGTTGTCGGGCTCA TTATC-3' and 5'-CGGGCATTATCAAACAGTTC-3'/ 5'-AGGA AGAATTGTGGCTCTG-3', respectively, but region 'c' can be amplified using the primer pair 5'-GATGCTACCACTACCAC TTC-3'/ 5'-CATTGAGCAGCGTCGTCTTG-3', with a fragment size of 620 base pairs.<sup>3</sup> Available evidence indicates that the white-eye phenotype is due to this deletion.<sup>3</sup>

#### Material Provided:

MRA-105 contains a suitable number of eggs to establish a stock.<sup>4</sup> Eggs are provided on damp filter paper and should be hatched immediately upon receipt.

#### Packaging/Storage:

MRA-105 is prepared and shipped by CDC. The product is provided at room temperature.

#### Growth Conditions:

Standard *An. gambiae* rearing methods are recommended.<sup>5,6</sup>

#### Citation:

Acknowledgment for publications should read "The following reagent was obtained through BEI Resources, NIAID, NIH: *Anopheles gambiae*, Strain M2, Eggs, MRA-105, contributed by Mark Q. Benedict."

#### 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. 5th ed. Washington, DC: U.S. Government Printing Office, 2009; see [www.cdc.gov/biosafety/publications/bmb15/index.htm](http://www.cdc.gov/biosafety/publications/bmb15/index.htm).

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#### References:

1. Benedict, M. Q., et al. "Mutations in the *Anopheles gambiae* *Pink-Eye* and *White* Genes Define Distinct, Tightly Linked Eye-Color Loci." J. Hered. 87 (1996): 48-53.
2. Beard, C. B., et al. "Eye Pigments in Wild-Type and Eye-Color Mutant Strains of the African Malaria Vector *Anopheles gambiae*." J. Hered. 86 (1995): 375-380. PubMed: 7560874.
3. Benedict, M. Q., Personal Communication.
4. For details on authentication methods used to confirm the identity of this M2 stock, please refer to:

[https://www.beiresources.org/portals/2/MR4/pdfs/anopheles/M2\\_stock\\_auth\\_sheet.pdf](https://www.beiresources.org/portals/2/MR4/pdfs/anopheles/M2_stock_auth_sheet.pdf)

5. Benedict, M. Q. "Care and Maintenance of Anopheline Mosquito Colonies." In The Molecular Biology of Insect Disease Vectors (1997) Crampton, J. M., C. B. Beard and C. Louis (Eds.), Chapman & Hall: New York, pp. 2-12.
6. [Methods in Anopheles Research](#)
7. Benedict, M. Q. and C. S. Rafferly. "Unassisted Isolated-Pair Mating of *Anopheles gambiae* (Diptera: Culicidae) Mosquitoes." J. Med. Entomol. 39 (2002): 942-944. PubMed: 12495198.
8. Besansky, N. J., et al. "Cloning and Characterization of the *White* Gene from *Anopheles gambiae*." Insect Mol. Biol. 4 (1995): 217-231. PubMed: 8825759.
9. Mason, G. F. "Genetic Studies on Mutations in Species A and B of the *Anopheles gambiae* Complex." Genet. Res. 10 (1967): 205-217. PubMed: 5587938.
10. Seawright, J. A., M. Q. Benedict and S. Narang. "Studies of the X Chromosome of *Anopheles albimanus*." Can. J. Genet. Cytol. 27 (1985): 74-82.

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