



*Anopheles gambiae* Patton (Cellia)

**Strain Name:** RSP, MRA-334

**Place of Origin:** Kisumu, Kenya

**Colonization date:** 1990

**Established by:** Dr. John Vulule

**Deposited by:** Dr. John Vulule

**Genotype:** 2La/+, 2Rj +/+, TEP1 s/s, L1014S KDR

**Phenotype:** polymorphic for c+ (*collarless*); increased Cytochrome P450 activity, red stripe

**Karyotype:** undefined

**Ribosomal DNA form:** Mopti/Savanna mix

**Insecticide Resistance:** permethrin

**Larval Morphological Traits**



Collarless (c+) is caused by a uric acid build-up in the larvae. Expression is often variable but best seen in L4 larvae. RSP is polymorphic for c+

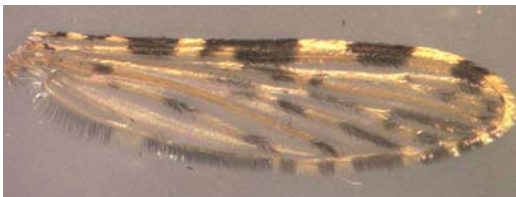


Red stripe-if present, individuals expressing red stripe are female



When reared in a dark pan, larvae with wild-type eye color will melanize when compared to a cohort reared in a white pan.

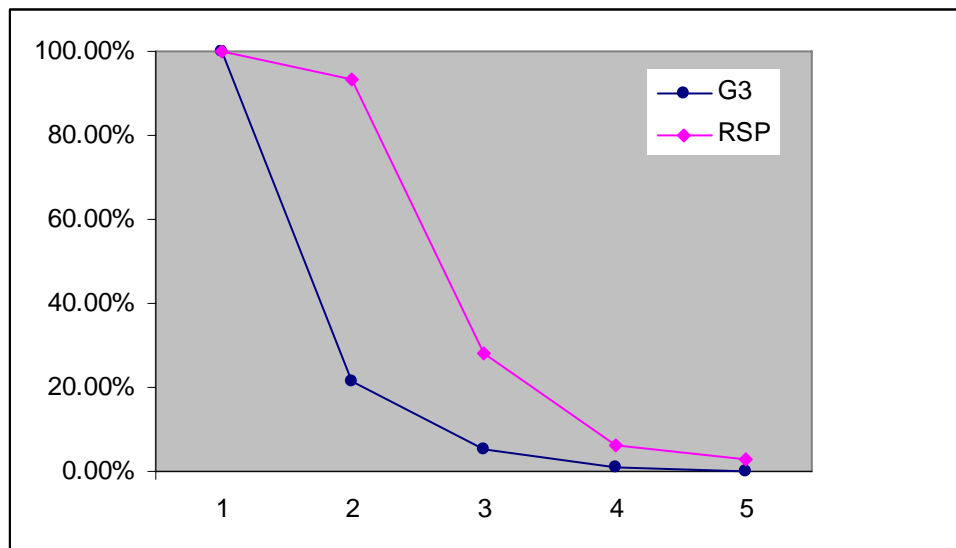
**Adult Morphological Traits**



Morphological characteristics of *An. gambiae* s.l. adults.



### Insecticide Resistance Profile (Time to mortality graph)



CDC Bottle Bioassay: 43 µg permethrin per bottle, exposed for 60 minutes.

### Authentication Methods used to confirm stock identity

1. Examined immatures for the *collarless* (c+) trait: L4 larvae are polymorphic for c+
2. Examined the color of the larvae when cultured in a black pan: larvae are melanized when compared to a cohort reared in a white pan.
3. Exposed L4 larvae to 1ppm permethrin for 24 hours to confirm resistant status. Continued stock with survivors.
4. Examined adults microscopically for morphological characters: all individuals had standard features of *An. gambiae* and wild eye.

### References referring to this stock:

Tripet, F., J. Wright, et al. (2006). "A new high-performance PCR diagnostic for the detection of pyrethroid knockdown resistance *kdr* in *Anopheles gambiae*." *The American Journal of Tropical Medicine and Hygiene* 74(4): 658-662.

Vulule JM et al. (1999) Elevated oxidase and esterase levels associated with permethrin tolerance in *Anopheles gambiae* from Kenyan villages using permethrin-impregnated nets. *Med Vet Entomol* 13:239-244

Vulule JM, Beach RF, Atieli FK, Mount DL, Roberts JM, Mwangi RW (1996) Long-term use of permethrin-impregnated nets does not increase *Anopheles gambiae* permethrin tolerance. *Med Vet Entomol* 10:71-79

Wilkins, E., P. Howell, et al. (2007). "X and Y chromosome inheritance and mixtures of rDNA intergenic spacer regions in *Anopheles gambiae*." *Insect Molecular Biology* 16(6): 735-741.