

Simulium vittatum, Adult

Catalog No. NR-53893

For research use only. Not for use in humans.

Contributor and Manufacturer:

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Product Description:

Classification: *Simuliidae*, *Simulium*

Species: *Simulium vittatum* sensu stricto (common name: black fly)

Original Source: *Simulium vittatum* (*S. vittatum*) was collected from Flaxmill Brook in Cambridge, New York, USA, by C. A. Tarrant in September 1981.¹

Comments: This species is a competent vector (biological and mechanical) of vesicular stomatitis New Jersey virus (VSNJV).²

S. vittatum complex is distributed across North America and contains two species: *S. tribulatum* (also known as cytospecies IILL-1), found throughout the continent, and *S. vittatum* sensu stricto, found primarily in the northern and western United States and Canada.³ *S. vittatum* is the vector for VSNJV, the causative agent of vesicular stomatitis in ungulates such as cows, horses and swine. Vesicular stomatitis is characterized by fever and vesicles in the oral cavity and on the muzzle, snout, lips and coronary bands of feet, teats and prepuce.² *S. vittatum* also transmits the parasitic nematode *Onchocerca* under laboratory conditions.⁴

Material Provided:

NR-53893 contains live, mixed-sex *S. vittatum* adult black flies provided in modified pint paper cans. The product is shipped on blue ice to keep the adults cool during shipping.

Note: Live *S. vittatum* can also be obtained in egg (NR-53890), larval (NR-53891) or pupal stages (NR-53892).

Packaging/Storage:

NR-53893 is prepared and shipped by the University of Georgia [Black Fly Research and Resource Center](#). Adult flies are packaged in modified, pint paper cans, with screening on one end and a double-layered entrance portal on the side; cotton pads soaked in 10% sucrose and distilled water will be pressed and secured against the screened end of the container. Adult flies should be stored in refrigeration (4°C to 8°C) in a secondary, sealed container to help maintain a humid environment for the flies.

Growth Conditions:

Standard *S. vittatum* rearing procedures are recommended.^{5,6} See Appendix I for details on handling *S. vittatum* adults. Instruction for construction of adult handling containers can be found on the BEI Resources website.

Citation:

Acknowledgment for publications should read “The *Simulium vittatum* used in this work were produced with the support of NIH Task Order C-08, Contract No. HHSN2722017000351, Task Order No. 75N93020F00002 and obtained through BEI Resources, NIAID, NIH: *Simulium vittatum*, Adult, NR-53893.”

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). Current Edition. Washington, DC: U.S. Government Printing Office.

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References:

1. Brockhouse, C. L. and P. H. Adler. “Cytogenetics of Laboratory Colonies of *Simulium vittatum* Cytospecies IS-7 (Diptera: Simuliidae).” *J. Med. Entomol.* 39 (2002): 293-297. PubMed: 11931029.

2. Reis, J. L., Jr., et al. "Lesion Development and Replication Kinetics During Early Infection in Cattle Inoculated with Vesicular Stomatitis New Jersey Virus via Scarification and Black Fly (*Simulium vittatum*) Bite." Vet. Pathol. 48 (2011): 547-557. PubMed: 20858740.
3. Adler, P. H., D. C. Currie and D. M. Wood. The Blackflies (Simuliidae) of North America. (2004) New York, New York: ROM Publication in Sciences.
4. Lehmann, T., M. S. Cupp and E. W. Cupp. "Analysis of Migration Success of *Onchocerca lienalis* Microfilariae in the Haemocoel of *Simulium vittatum*." J. Helminthol. 69 (1995): 47-52. PubMed: 7622790.
5. Gray, E. W. and R. Noblet. "Black Fly Rearing and Use in Laboratory Information: Bioassays." Rearing Animal and Plant Pathogen Vectors. (2014) Maramorosch, K., and F. Mahmood (Eds.) Boca Raton: CRC Press.
6. Bernardo, M. J., E. W. Cupp and A. E. Kiszewski. "Rearing Black Flies (Diptera: Simuliidae) in the Laboratory: Colonization and Life Table Statistics for *Simulium vittatum*." Ann. Entomol. Soc. Am. 79 (1986): 610-621.

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APPENDIX I: HANDLING *Simulium vittatum* ADULTS

Shipping:

1. Flies will be shipped in modified, pint paper cans, with screening on one end and a double-layered entrance portal on the side. Cotton pads soaked with 10% sucrose and distilled water will be pressed and secured against the screened end of the container. Flies are typically mixed sex, unless specified otherwise.
2. The product is shipped in a disposable foam cooler with blue ice to keep the adults cool during shipping.

Procedure Upon Arrival:

1. Open the shipping package and remove the adult storage container.
2. Confirm that the moistened cotton pads are still secured to the screened end of the adult container. At room temperature, the flies will imbibe on the moisture available from these pads, it is imperative that the pads are pressed against the screened end of the adult storage container to allow contact by the flies.
3. If the flies are to be stored for any number of days, the adult container should be placed in a secondary, sealed container to help maintain a humid environment for the flies and stored in refrigeration (4°C to 8°C).

Direction for Use

1. Upon preparing to use the flies for study, remove the adult container from refrigeration 4 hours prior to usage and make sure the cotton pads are moist, but not dripping, into the container.
2. Flies can be anesthetized lightly with CO₂ to ease handling and separation.
3. Flies can be removed from the adult container individually or in small numbers with a wide variety of aspirators by entering the adult container through the entry port on the side of the adult container.