

John H. Werren
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Dear Dr. Werren:

The purpose of this letter is to indicate my strong support for the proposed project to sequence the *Nasonia vitripennis* genome.

As the Senior National Program Leader for Biological Control Research and Insect Genomics at the Agricultural Research Service, USDA, I am very aware of the importance of parasitoid wasps in biological control of arthropods of agricultural and medical importance. Invasive pests cost this country over \$130 billion annually, with some threats estimated to be in the \$100's billions (e.g., Asian longhorned beetle, \$670 billion). To counter these realized costs and anticipated threats, natural biological control by use of parasitoid wasps is a key tool, and is estimated to save the U.S. over \$20 billion annually.

N. vitripennis is the logical choice for the first genome sequence of a parasitoid. It is an excellent laboratory organism, being very easy to work with in the laboratory. *Nasonia* (also known as *Mormoniella*) has been the model system for parasitoid genetics for over 50 years. An active community of geneticists using *Nasonia* has developed genetic resources that have resulted in this organism quickly advancing as a system for genetic research. These wasps have also been the subject of ecological, evolutionary, and developmental research. We are using this parasitoid at our Columbia laboratory to test mass rearing systems, particularly to develop zoophytogenous diets and delivery systems for parasitoids.

Nasonia spp. are parasitoids of flies, including flies of economic and health importance such as houseflies and blowflies. This genus is part of a superfamily of parasitoids (chalcidoid wasps) that is immense, and contains many species that are biological control agents of a diverse array of pest insects. They comprise as much as 50% of some beneficial insectary inventories.

There is a large international community of parasitoid wasp researchers working on different species – we estimate over 100 research laboratories in the United States alone. Many of these researchers will be able to exploit the *Nasonia* genome in their studies, in particular to assist in gene discovery and development of genomic resources for other parasitoids used in biological control and basic research. Among the important research applications will be studies of genes involved in host finding and host selection, environmental tolerances, parasitoid venoms that manipulate cell physiology, etc.

I strongly support this project. Toward this end I have tasked a USDA sponsored committee for development of genetic resources in parasitoids to assist you in development of the “white paper” for the *Nasonia* Genome Project. Although it is too early to make specific commitments of resources from the USDA for the *Nasonia* genome, I will commit to advocating some funding support for this project through the USDA hierarchy, should the project be approved for funding based on scientific merit by the NIH review process. Please let me know if I can be of further help.

Kevin Hackett