# LETTER TO THE EDITOR

## RELEASE OF EXOTIC GENOMES

The article by Hanson et al. (pp. 78–83) published in this issue describes an experiment in genetic control of mosquitoes. The purpose of this experiment was to determine whether the overwintering ability of a field population of *Aedes albopictus* could be reduced if *Ae. albopictus* males from a tropical population, lacking the genetic ability for diapause, were released into the field population. Results indicated that genetic markers, including the inability to diapause, were successfully transferred from the released tropical males to the field population. This project demonstrates that, with sufficient understanding of the ecology and genetics of a mosquito population, genes may be introduced and gene frequencies manipulated and that this may have valuable application as a control mechanism. As conventional control methods fail or become unacceptable for other reasons, more emphasis will likely be placed on the development of genetic control strategies, making more field trials necessary.

We at the Centers for Disease Control, Division of Vector-Borne Infectious Diseases, strongly urge that such experiments be conducted cautiously and with consideration of the public health implications of releasing exotic mosquitoes or exotic genomes into the field. A primary danger is that exotic pathogens may be simultaneously imported and released. The potential for transovarial and venereal transmission of viruses is well documented. In the research carried out by Hanson and colleagues, this potential was remote because of the long period of laboratory colonization and the fact that humans used as blood sources in maintaining the colony did not become ill. To reduce the potential for accidental release of a disease agent, we urge that all exotic species or strains scheduled to be released as part of an experiment or operational mosquito control program be screened for the presence of pathogens. The Division of Vector-Borne Infectious Diseases, Centers for Disease Control and Prevention in Fort Collins, Colorado is willing to screen samples of the material to be released for arboviruses, when this service is not available elsewhere.

It is also possible that the vectorial capacity of the target mosquito population may be altered by combination with the genome from the introduced strain. The genetic control of vector competence is poorly understood, and vector competence is unlikely to be regulated by simple, single-locus traits. However, novel genes may enhance vector competence. In addition, ecological traits that influence vector potential, such as survivorship, fecundity, feeding success and host preference, may be changed. Because the impact of combining domestic and exotic genomes on vector potential is unknown, we suggest that the introduction of new genes into a population should be limited. This may be accomplished by selecting the desired trait(s) and using introgressive mating with the domestic strain to eliminate as much of the exotic genome as possible before it is introduced into the field. We also recommend that a committee be formed, perhaps by the AMCA, to review and make recommendations on such releases.

We realize that the actions suggested above will increase the work associated with experimental release projects and the development of genetic control methods. However, recent experiences with accidental introduction and establishment of several organisms, including mosquitoes, require that we act cautiously and use all available resources to protect the public health.

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