

GENERATING TRANSGENIC *CULEX QUINQUEFASCIATUS* (DIPTERA: CULICIDAE) STRAINS CARRYING A REPRESSIVE DOMINANT LETHAL GENE

André B. B. Wilke¹, Margareth de L. Capurro², Luke Alphey³, Mauro T. Marrelli¹

¹Departamento de Epidemiologia, Faculdade de Saúde Pública, Universidade de São Paulo, Brazil, ²Departamento de Parasitologia, Instituto de Ciências Biomédicas, USP, Brazil, ³Oxford University, Oxford, United Kingdom

Releasing of genetically modified mosquitoes carrying a repressive dominant lethal gene (RIDL system) has been suggested as an alternative strategy to eliminate or to reduce mosquito populations in place of conventional sterilization methods related to the Sterile Insect Technique. The objective of this study is to generate RIDL *Culex quinquefasciatus* transgenic mosquito strains. *Culex quinquefasciatus* is considered an urban plague, which immature forms develop intensely in aquatic bodies compromised with domestic and industrial effluents. This species transmits several arboviruses and bancroftian filariases. To generate such strains, two genetic constructions were developed, named LA513 and LA882, containing coding sequences for the tetracycline repressible transcriptional activator (tTA), insect gene sequences, the tetracycline operator (tetO), sequences encoding fluorescent proteins DsRed, sequences derived from transposable elements (*piggyBac*), together with regulatory and other sequences. The constructions were prepared for embryo microinjections using maxi preparations. In this process the immature stages that were obtained after injections are receiving a diet supplemented with a chemical repressor (tetracycline) to keep the expression of the dominant lethal gene off, and thus they can be screened by analyzing DsRed expression. Supported by FAPESP. Keywords: *Culex quinquefasciatus*, dominant lethal gene, RIDL.