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175. Functionality of JcDNV-Derived Somatic Transformation Vectors in Insects and the Role of Viral Enhancer Sequences. Paul D. Shirk,[1] Richard B. Furlong,[1] Jennifer Gillett,[2] and Herve Bossin[3]. [1]USDA ARS CMAVE, Gainesville, Florida; [2]University of Florida, Gainesville, FL; [3]FAO/IAEA Agriculture and Biotechnology Laboratory, Seibersdorf, Austria.

Stable somatic transformation of insects following microinjection of syncytial embryos (Royer et al, 2001) or by transfection of cells lines (Bossin et al., 2003) can be achieved by integration of entire plasmids

containing the Junonia coenia lepidopteran densovirus (JcDNV) genome. We assessed effects of sequence modifications including the presence of expression cassettes on the efficiency of JcDNV somatic transformation activities in Lepidoptera and Diptera. Cloning of 3xP3EGFP outside the JcDNV sequence did not affect the somatic transformation rate. Removal of coding sequences for some JcDNV nonstructural proteins or the 3′ inverted terminal repeat (ITR) had no effect on the transformation rate. Removal of 177 bp from the 5′ ITR did not decrease somatic transformation rates. However, removal of a 680-bp region within the 3′ terminus of the nonstructural protein coding sequence eliminated most transcriptional activity directed by the P9 promoter. Addition of the 680-bp DNV-enhancer to JcDNV vectors lacking this sequence restored transcriptional activity. Together with previously published results, these modifications demonstrate that the somatic transformation activity is dependent upon sequences of the 3′ ITR and influenced by sequences internal to the densovirus genome. Bossin et al. (2003) J. Virology. 77: 11060–11071 Royer et al. (2001) Insect Mol. Biol. 10: 275–280. Research supported in part by USDA ARS, Exelixis Inc. & CSREES NRI to PDS.