Cytoplasmic A3 Actin Gene Intronic Promoter Structure in Susceptible and Resistant Silkworms Strains to Multiple *Bombyx mori* Nucleopolyhedrovirus

Tavares, J., Gimenes, F., Bravo, J. P., Takeda, K. I. and Fernandez, M.A.

Departamento de Biologia Celular e Genética, Universidade Estadual de Maringá, Avenida Colombo, 5790, 87020-900, Maringá Paraná, Brasil.

Actin is necessary to nucleocapsid transport and viral gene expression for the success of infection. Previous results in our research group indicates that the silkworm strain C24A is more resistant (22% lethality) than M11A strain (95% lethality) by multiple *Bombyx mori* nucleopolyhedrovirus, BmMNPV, infection. These strains showed also different size and composition of the A3 actin gene first intron. This intron was previously described as the cryptic promoter for a rare isoform of A3 actin. Our proposal is investigate a correlation between resistance to BmMNPV and the promoter's structural features. The analysis of the intrinsically bent DNA sites in these sequences, which determine curved structures, were analyzed by electrophoretic mobility assays and the helical parameters ENDS ratio, roll and twist were estimated by Map15a and 3D15m1 software. Results show that both fragments have non-centralized bent DNA sites (faster mobility in polyacrylamide gels). Twist angles >34.00° and negative roll indicate bent segments with left-handed superhelical writhe. However, differences exist between ENDS ratio values and position. BmMNPV sensitive strain, M11A, showed a main ENDS ratio peak in the initial segment of intron (base pairs position 104; value 1.11), whereas C24A present a stronger peak only in 3' terminal end with 1.30 value (position 414). Two-dimensional analysis also showed distinct structures among these sequences. Further experiments with expression cassettes in BmMNPV-infected *B. mori* culture cells may indicate the participation of each promoter structure in viral resistance.

Keywords: Bombyx mori; A3 actin gene; BmMNPV; intrinsically bent DNA sites

Supported by: CAPES, CNPq, TWAS, FINEP; Fundação Araucária; Secretaria de Estado da Ciência, Tecnologia e Ensino Superior, SETI, FUNDO PARANA; Science and Innovation Santander Banespa 2006 Prize and Complexo de Centrais de Apoio à Pesquisa, COMCAP, UEM.