

PRODUCTION OF AN HIV MICROBICIDE BY STABLE AND TRANSIENT EXPRESSION IN PLANTS

Madeira, L.M.¹; Lacorte, C.¹; Vianna, G.R.¹; Verza, N.C.¹; Souto, B.M.¹;
Oliveira, P.F.¹; Sexton, A.²; Ma, J.K-C²; Rech, E.L.¹

¹Laboratório de Transferência de Genes, EMBRAPA Recursos Genéticos e Biotecnologia, Brasília, Brazil; ²Centre for Infection, Department of Cellular and Molecular Medicine, St. George's University of London, London, UK.

Cyanovirin-N (CV-N) is a cyanobacterium protein that can irreversibly inactivate a wide range of HIV strains, and has been demonstrated efficient as a topical vaginal or rectal microbicide gel in macaque monkeys. Production of rCV-N needs to be at extremely high concentrations to be used as a topical microbicide, and the use of transgenic plants would be suitable for its production at low costs. Two different strategies were utilized for the production of CV-N in plants. The first involves nuclear transformation via biobalistics of soybean embryos using the β -conglucinin promoter and its signal peptide. The presence of the transgene has been detected in the regenerated plants by PCR and will be further analyzed for the presence of the transcript and its activity. The other strategy involves the transient expression via *Agrobacterium tumefaciens* with plasmid vectors. The expression and activity of the recombinant CV-N after agroinfiltration in *Nicotiana benthamiana* leaves were confirmed by a gp120 binding ELISA. The functionality of the protein extracts will be further evaluated by HIV assays, and it is expected that the recombinant molecule will protect the T-cells from in vitro HIV infection.

Supported by CNPq, grant: 486492/2006-0.