MICROPROJECTILE-MEDIATED GENETIC TRANSFORMATION OF LONGLEAF, LOBLOLLY AND EASTERN WHITE PINE

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Abstract. Embryogenic tissue cultures derived from immature zygotic embryos of longleaf, loblolly and eastern white pine were maintained in culture for up to two years, then bombarded with gold particles coated with a gene construct containing the GUS Reporter gene fused to an algal virus adenine methyltransferase promoter gene. Physiological expression 0f genetic transformation was identified in cultures of all three pine species within 48 hours, but not at 7 days. Expression of GUS activity was recorded in somatic embryonal heads of varied stages of development, suspensor cells and others of unidentified ontogeny. Collective expression of GUS in small clusters of cells suggested inheritance of the reporter gene through mitosis of the transformed progenitor. Multiple discrete sites of GUS expression were common in individual somatic embryos. This indicated densely associated multiple transformation events, which was enhanced by reducing the sample distance.

Keywords: Pinus *palustris* Mill., P. *strobus* L., P. *taeda* L., GUS, biolistics, gene promoter