SCREENING CDNA CLONES FOR USE AS PROBES IN FLUORESCENT *IN SITU* HYBRIDIZATION

Brooke L. Embrey, Mary E. Mason, Robert L. Doudrick

Southern Institute of Forest Genetics, USDA Forest Service, Harrison Experimental Forest, 23332 Hwy 67, Saucier MS 39574.

Abstract. Fluorescent *in situ* hybridization (FISH) is a promising technique for physical mapping in southern pines. The technique will allow mapping of cDNAs to known linkage groups even if the cDNAs are not polymorphic or are not segregating in the mapping population. Physical mapping will also allow determination and confirmation of synteny between maps in different pedigrees, and produced by different research laboratories.
Physical mapping is at an early stage of development in pines and is limited by a lack of good physical markers. For example, sequences of single to low copy number are needed to use as chromosome and chromosome arm markers. We are currently developing a methodology to screen candidate sequences for their utility as molecular cytogenetic markers. Known and anonymous cDNAs are being analyzed for sequence complexity and copy number using southern and dot blot analysis, with particular emphasis on identification of single and low copy number sequences. cDNAs, or complementary genomic clones, will then be used as probes for FISH in an attempt to correlate southern and dot blot data to FISH probe utility. cDNAs are also being sequenced to determine if they have homology to known genes. These cDNAs will also be used as probes in FISH to determine the amount of inference about sequence complexity, copy number, and distribution in pine, that may be drawn from knowledge of these characters in other angiosperm and gymnosperm species.

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