Molecular Mapping of a Gene Involved in the Uptake of Nucleotides, The DNA of Building Blocks

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MOLECULAR MAPPING OF A GENE INVOLVED IN THE UPTAKE OF NUCLEOTIDES, THE DNA BUILDING BLOCKS
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A putative uracil transporter in *Arabidopsis thaliana* is encoded by a nuclear gene *FOR1*. This study will attempt to map and characterize *FOR1* to a particular locus in the *Arabidopsis thaliana* genome. Here we use a fluoroorotic acid (FOA) resistant mutant, *for1*, of *Arabidopsis thaliana* that is defective in the uptake of uracil. Our mapping strategy will utilize cleaved amplified polymorphic sequences (CAPS) markers using the technique of polymerase chain reaction (PCR). CAPS markers are ecotype specific sequences that show different patterns of amplification in the *Colombia* and *Landsberg erecta* ecotypes of *Arabidopsis*. A cross between fluoroorotic acid resistant *for1*/*for1* *Colombia* with *Landsberg erecta* led to *F*₁ plants which show banding patterns of both *Colombia* and *Landsberg* ecotypes. The banding patterns of PCR amplified DNA that was extracted from fifty *for1*/*for1* *F*₂ mutants resistant to FOA will be analyzed. The map position of *FOR1* will be determined using recombination frequencies between each of the CAPS markers and the fluoroorotic acid resistant mutant encoded by *for1*.