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Jaclyn N.M. Nguyen

*Indiana University - Purdue University Fort Wayne*

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Chromosome walking using *Arabidopsis thaliana* identifies a new locus affecting the inter- and intra-cellular transport of uracil

Jaclyn N.M. Nguyen

Dr. George S. Mourad

Biology

Indiana University-Purdue University Fort Wayne

Screening of an EMS-mutagenized population of *Arabidopsis thaliana* has revealed a fluoroarotic acid (FOA)-resistant mutant. Genetic analysis has shown that FOA resistance was due to a nuclear recessive gene, *for1-1*. Assays of key regulatory enzymes of the *de novo* synthesis and salvage of pyrimidines, and also uptake studies using radiolabelled purines and pyrimidines have revealed that *for1-1/for1-1* plants were defective in the uptake of free uracil and uracil-like bases. FOA sensitivity was able to be restored using uracil transporter gene *uraA* from *Escherichia coli*. Genetic mapping using visible markers as well as molecular mapping using co-dominant amplified polymorphic site (CAPS) markers placed *FOR1* in chromosome 5. Fine tune mapping using PCR polymorphic deletion markers has mapped *FOR1* to an area ~300kb northbound in chromosome 5. T-DNA insertion lines are available to test putative genes in this area that should identify the nature of *FOR1*. Results will ultimately contribute to precisely understanding the uptake, regulation, and intra- and inter-cellular recycling of uracil within the plant system.