

A putative ortholog for *AGL-20* and *FT* in *Magnolia virginiana*

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To better understand floral evocation in *Magnolia virginiana*, the putative floral pathway integrator genes are being studied. In Arabidopsis, it has been determined that *AGAMOUS-LIKE 20* [*AGL-20*], a MADS box transcription factor, is the major integrator of floral induction signals. Recently, it has been shown that *FLOWERING LOCUS T* [*FT*], which is found in long-day induced leaves, also plays an important role in the transition to flowering. It has been hypothesized that FT could be a component of the universal flowering signal, florigen. In Arabidopsis, FT along with FD activates the expression of *AGL-20*.

A putative *AGL-20* ortholog has been isolated in *Magnolia virginiana*. When aligned with the BLASTn database program, the putative *AGL-20* ortholog has a sequence similarity of 74% for the gene and 65% for the protein. Additionally, a putative *FT* fragment has been isolated. Complementation studies are being carried out with these putative genes. Concurrent with these studies, qRT-PCR will be utilized to determine the relative gene expression levels of these genes in juvenile and adult reproductive plants.

I hypothesize that the heterologous expression of the Magnolia orthologs in mutant Arabidopsis lines lacking either gene will restore the wildtype phenotypes for both genes. Additionally, the putative orthologs for *FT* and *AGL-20* will complement the mutant thereby assigning a similar role to these orthologs in the induction of flowering in *Magnolia virginiana*. This study represents the first step in understanding the transition to flowering in *Magnolia virginiana*.