Eleven publications acknowledge DOE funding. Publications 1, 8, 9 most directly relate to our original proposal "Structural, genetic, and molecular analyses of gynoecium development in Arabidopsis", and detail wild type gynoecium development in comparison to a particular mutant, ettin, that dramatically alters patterning of several tissues in the gynoecium. (see abstract on form 241.1)

Publications 3 and 4 describe research initiated under the previous DOE support, and focus on the TOUSLED gene, that affects the number and morphology of all floral organs. The TSL gene sequence suggests it encodes a protein kinase. Publication 3 documents and characterizes the protein kinase activity of TSL. Publication 4 documents how the tsI mutation strongly affects gynoecium development, and demonstrates a synergistic phenotype in the tsl ett double mutant, reinforcing their respective roles in gynoecium specification.

Publications 2, 5, and 6 also describe research initiated under previous DOE support. A cloned sequence from the maize KNOTTED (KN) homeobox containing gene was used to identify genes in Arabidopsis with homeoboxes. As KN was the first plant gene identified encoding a homeodomain, it was of interest to characterize the frequency and function of this class of gene in other plants. Publications 2, 5, and 6 describe such genes in Arabidopsis.

Publications 7 and 10 are related to the proposed research, as they analyze the transition from vegetative to reproductive development. Light treatments that induce flowering were used to assess the expression patterns of the floral regulatory genes LEAFY and AGAMOUS-LIKE in the shoot apex. Their expression during the transition to flowering is consistent with genetic data, and support that these genes are important components of the first steps in floral initiation. Expression of the floral meristem identity gene APETALA1 during photoinduction indicates that it is transcriptionally activated in primordia with a leaf/paraclade bias, and in primordia committed to leaf/paraclade development. Thus, primordium fate can be modified after primordium initiation, and that developing primordia respond quantitatively to floral induction signals.

Publication 11 is a commentary that points out the increasing evidence that auxin signaling is critical in flower development in Arabidopsis. Genes originally identified as giving dramatic morphological alterations in the flower, such as MONOPTEROS (MP) or our own work on mutations at the ETTIN locus, are now found to encode factors, likely transcriptional, that are involved in early responses to auxin.

Publications since 1995 acknowledging DOE funding:


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