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REGULATION OF INFLORESCENCE MERISTEM FATE IN PEA

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We are using the garden pea (*Pisum sativum* L.) as a model system to study genes involved in determining inflorescence architecture. In pea, one to several flowers are produced from a secondary inflorescence meristem (I2) at each node. The extended indeterminacy of multi-flowered lines is useful for exploring the developmental genetics of legume inflorescences. Our work has been aimed at understanding the regulation of the number of flowers produced by the I2 meristem and several flowering mutants in pea reveal a network of genes involved in determining overall I2 fate. For example, *PIM*, a floral meristem identity gene, maintains determinacy in the third order axillaries of inflorescences and suppresses the outgrowth of secondary axillary buds in I2 axils. The extent of non-floral development in inflorescence branches of the *pim-1* mutant is under the influence of photoperiod, temperature and gibberellins. A thorough understanding of genes which contribute to variability in inflorescence structure could lead to novel inflorescence phenotypes in both agronomic and ornamental crops.