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In addition to WUSinvolving another gene, SHOOTMERISTEMLESS (STM), which suppresses the differentiation in the meristematic dome itself, can inhibit the differentiation of stem cells but allowing its division into daughter cells that do that will differentiate, giving rise to different organs.

Architecture of the flower

The anatomy of the flower, as defined by the presence of a number of organs (sepals, petals, stamens, carpels) located in a particular pattern, enables theflowering of sexual reproduction . This structure arises from the activity of three classes of genes that regulate flower development, the meristem identity genes, genes for floral organ identity and cadastral genes .

? Meristem identity genes. Encoding transcription factors necessary to start by induction of gene identity. They are positive regulators of organ identity during flower development.

? Organ identity genes. Directly control organ identity . Also encode transcription factors that control the expression of other genes whose products are involved in the formation or function of various organs of the flower.

? Cadastral genes. Are those that act as regulators of the activity space of the organ identity genes, resulting in expression boundaries. In this way, you control or interference between genes that should not intervene in the same place and time.

The ABC model of floral development was proposed as an explanatory model of the entire genetic mechanisms that lead to the establishment of organ identityin Arabidopsis thaliana , as a representative of the RÃ³sidas , and Antirrhinum majus , the lineage of Asteras . Both species have four whorls (sepals, petals, stamens and carpels), defined by the differential expression in each whorl of a series of homeotic genes . Thus, the sepals are characterized by the expression of genes A exclusively, in the petals, however, are coexpressed genes A and B, in the stamens, genes B and C function establish their identity, and in the carpels , only requires the activity of genes function C. In addition, genes A and C are mutual antagonists.

The fact that these homeotic genes determine organ identity is revealed when a representative of a particular gene function, such as A, is not expressed: thus, in Arabidopsis that loss causes the appearance of a flower composed of a whorl of carpels, stamens another, another of stamens and carpels another. 9The methodology for the study of gene function, consistent with reverse genetics , is usually achieved by generating transgenic plants harboring a construction of gene silencing by RNA interference . In other cases, as an approach to direct genetic , is the analysis of phenotypes of flowers anomalous structure (possessing an allele nonfunctional or overexpressed for the aforementioned gene) that leads, through techniques of genetic mapping , to the cloningof the gene interest.

It has been proposed, in addition to those functions A, B and C, the existence of additional, D and E. The function D specify the identity of egg , as a reproductive function separately from development of the carpels and later in appearance to their determination. The E corresponds to a physiological requirement inherent in all floral whorls, although in the beginning, was described as necessary for the development of the three innermost whorls (function Esensu stricto). However, its meaning

sensu lato suggests that it is required in all four whorls. Thus, when you lose the function D, eggs become like structures leaves , and when you lose the E sensu stricto , the floral organs of the three innermost whorls are transformed into sepals, while missing the function E sensu lato , all the whorls are similar to leaves. It is interesting to note that the gene products of genes D and E function are also MADS-box genes

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