

***NF-Y* genes in the somatic embryo development**

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For many important legumes, protocols for their efficient transformation and regeneration have not yet been developed. Somatic embryogenesis (SE) — the embryo development from somatic cells — has an important application in biotechnology: reproduction and obtaining of transgenic plants.

There are transcription factors involved in embryogenesis processes, which can stimulate the development of somatic embryos, such as the *LEC1* gene in *Arabidopsis thaliana*.

The *LEC1* belongs to the *NF-YB* family. *NF-YB* together with *NF-YA* and *NF-YC* subunits form heterotrimeric complex *NF-Y*. In plants, each subunit is encoded by several genes, and combinations of different subunits are able to regulate various processes in plant.

We hypothesized that the *LEC1* orthologues in legumes can stimulate SE in combination with specific *NF-YA* and *C* subunits. The aim of our study was to find new SE regulators among *NF-Y* genes in legumes.

In the model legume object *Medicago truncatula* we find *NF-Y* genes highly expressed during SE. Among these genes, potential *LEC1* partners were selected with the use of the yeast two-hybrid system. Analysis of calli with overexpression of *LEC1* orthologues didn't demonstrate increased SE capacity, but overexpression of one of the *NF-YA* genes increased callus weight.

We are planning to investigate the effect of co-overexpression of *NF-YA*, *B* and *C* genes on the regeneration processes.

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