

Determining molecular functions of the loci controlling synthesis of flavonoids in barley (*Hordeum vulgare* L.)

Shoeva O.Y., Mukhanova M.A.*, Zedgenizova V.D., Kukoeva T.V., Totsky I.V., Li R.*, Denisov A.A.*, Shmakov N.A., Zakhrabekova S.***, Stuard D.***, Hansson M.***, Khlestkina E.K.******



Kurchatov Center for Genome Research of the Institute of Cytology and Genetics, Siberian Branch of RAS, Novosibirsk, Russia,

*Faculty of Natural Sciences, Novosibirsk State University, Novosibirsk, Russia,

**Institute of Cytology and Genetics, Siberian Branch of Russian Academy of Sciences,

***Department of Biology, Lund University, Lund, Sweden,

****N. I. Vavilov Institute of Plant Genetic Resources, St. Petersburg, Russia

E-mail: olesya_ter@bionet.nsc.ru

Flavonoid compounds are secondary metabolites, having important functions in plant physiology. In barley, they are synthesized in grain envelopes and in addition to important role in seed dormancy and in protection of seeds against adverse environments they have a significant impact on the quality characteristics of grain, determining its intended use. Thirty *Anthocyanin-less* (*Ant*) loci that control synthesis of flavonoids in barley have been revealed, but molecular functions have been determined only for some of them. In the current study, the molecular functions of *Ant1*, *Ant2*, *Ant5*, *Ant13*, *Ant25*, and *Ant27* participating in genetic control of anthocyanins and proanthocyanidins synthesis in vegetative tissues and grain were revealed. The natural and induced allelic diversity of the candidate genes of these loci was studied as well. The results obtained are of fundamental importance and also contribute to the solution of practical problems related to efficient breeding new barley cultivars with given profiles of flavonoid compounds in grain. The study was supported by Kurchatov Genomic Center of ICG SB RAS (No. 075-15-2019-1662).

The main publications of authors on the subject of the abstract:

Shoeva O.Yu., et al. Genes determining the synthesis of flavonoid and melanin pigments in barley // Vavilovskii Zhurnal Genetiki i Selektii = Vavilov Journal of Genetics and Breeding (2018) 22(3):333-342. doi 10.18699/VJ18.369

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Take-home message:

Molecular functions and allelic diversity of some loci controlling flavonoid compounds biosynthesis in barley were studied. It is a basis for further identification of genes and breeding new cultivars with given profiles of flavonoids in grain.

