

Differential *NudC* gene expression affects abiotic stress response in *Arabidopsis thaliana*

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NudC proteins are crucial for various aspects of organismal development and stress response, and have been found in all eukaryotes. Their functions include nuclear migration, cell division, and the folding and stabilization of other proteins. In this study, we explored the previously uncharacterized *Arabidopsis* orthologs of the *Aspergillus nidulans NudC* gene, namely *NMig1* and *BOB1*, which share similarities with other *NudC-like* genes present in plants and mammals. By overexpressing and downregulating *NMig1* and *BOB1*, we observed different effects on genome stability and plant growth under three types of abiotic stress, namely heat, drought, and high salinity. The growth of plants and the amount of induced DNA strand breaks were different between control and lines with variable expression of *NudC* genes. These findings suggest that the *NudC* genes may play a critical role in regulating *Arabidopsis* response to abiotic stress. Further research on the precise mechanisms by which *NudC* gene expression affects stress responses could provide valuable insights into how plants cope with environmental stress and inform the development of strategies for cultivating more stress-tolerant crops.

Acknowledgments: This study was supported by the National Science Fund of the Bulgarian Ministry of Education and Science, Grant No DN11/8/15.12.2017