



Functional characterization and analysis of the *Arabidopsis* UGT71C5 promoter region

Z. Liu^{1,2,4}, Q.H. Luo³, J.M. Wang¹, X.F. Li¹ and Y. Yang^{1,2}

¹Key Laboratory of Bio-Resources and Eco-Environment of the Ministry of Education, College of Life Sciences, Sichuan University, Chengdu, Sichuan, China

²State Key Laboratory of Hydraulics and Mountain River Engineering, Sichuan University, Chengdu, Sichuan, China

³Longquanyi District Bureau of Agriculture Development, Chengdu, Sichuan, China

⁴Department of Biotechnology, Chengdu Institute of Biological Products, Chengdu, Sichuan, China

Corresponding author: Y. Yang

E-mail: yangyi19620528@126.com

Genet. Mol. Res. 14 (4): 19173-19183 (2015)

Received August 25, 2015

Accepted October 31, 2015

Published December 29, 2015

DOI <http://dx.doi.org/10.4238/2015.December.29.27>

ABSTRACT. In the present study, we isolated an *Arabidopsis* promoter, UGT71C5, and analyzed its role in the regulation of the light response mechanism. We constructed a fusion vector pBI121-pU-GUS by integrating the UGT71C5 promoter upstream of the GUS reporter gene in pBI121, and then transferred this vector into *Arabidopsis* plants. The GUS activity of the transgenic plants was detected using a spectrophotometer under normal growth conditions as well as under light, drought, and ABA stress-treatments. The obtained results indicated that the GUS activity of transgenic plants ranged in between the activities observed in wild-type and 35S transgenic plants, which were used as positive control. Light stress for 8 and 12 h increased the GUS activity in transgenic plants by 3 and 4 times, respectively, compared to the activity in these plants under normal conditions. No such change in the GUS activity was observed under drought and ABA-treated conditions. This suggests that the UGT71C5 promoter is light inducible. Our study provides helpful insights into the elucidation of

inducible promoters in *Arabidopsis* and the molecular mechanisms of light response.

Key words: Light stress; Promoter; GUS activity; Transgenic plant; *Arabidopsis*