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Data Article

Data for characterization of SALK_084889, a T-DNA insertion line of *Arabidopsis thaliana*

Mingqi Zhou [a], Anna-Lisa Paul [a,*], Robert J. Ferl [a,b,*]

[a] *Department of Horticultural Sciences, Program in Plant Molecular and Cellular Biology, University of Florida, Gainesville, FL 32611, United States*
[b] *Interdisciplinary Center for Biotechnology Research, University of Florida, Gainesville, FL 32610, United States*

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ABSTRACT

In this article we report the identification of T-DNA (transfer DNA) insertion sites within two different gene regions in the genome of an Arabidopsis mutant line, SALK_084889. The T-DNA positions are in the 3′ UTR (untranslated region) of DREB2A (Dehydration-responsive element-binding protein 2A) (AT5G05410) and promoter of LOX1 (Lipoxygenase 1) (AT1G55020) as determined by DNA-PCR and sanger sequencing. The expression levels of DREB2A and LOX1 were also analyzed using quantitative realtime PCR (qPCR) in SALK_084889 and wild type Arabidopsis (Col, Columbia). Further, the comparison of drought and heat tolerance between Col and SALK_084889 were conducted by stress treatments. The present data indicate that in SALK_084889, the expression of DREB2A is not downregulated under normal growth conditions but can be affected only in roots under drought treatment, while LOX1 is significantly downregulated in both roots and shoots under all tested conditions. These data are original and have not been published elsewhere.

* Corresponding authors.
E-mail addresses: alp@ufl.edu (A.-L. Paul), robferl@ufl.edu (R.J. Ferl).

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Specifications Table

Subject area	*Biology*
More specific subject area	*Plant biology*
Type of data	*Figures, Tables*
How data was acquired	*DNA-PCR, Quantitative Realtime PCR (qPCR), Sanger sequencing, Stress treatments, Photograph for plant phenotypes*
Data format	*Raw, Analyzed*
Experimental factors	*SALK_084889 and Col Arabidopsis plants*
Experimental features	*DNA-PCR was employed to identify the T-DNA insertion sites in SALK_084889 genome within DREB2A 3′ UTR and LOX1 promoter region, respectively. Then SALK_084889 plants were subjected to qPCR to examine the expression levels of DREB2A and LOX1. The drought and heat responses of SALK_084889 were also performed.*
Data source location	*UF, Gainesville, USA*
Data accessibility	*Data is within this article.*

Value of the data

- T-DNA insertion lines provide important resource for genetic analysis based on mutagenesis in plant research. SALK lines are the most widely used T-DNA insertion lines for the model plant Arabidopsis. Accurate assessment of insertions is critical for understanding the value of the insertion lines.
- SALK_084889 is annotated as a T-DNA insertion line of *DREB2A*, a key regulator of drought and heat response in Arabidopsis. We characterized *DREB2A* expression in normal and drought conditions in this line, which is relevant for analysis of *DREB2A* mutants in further investigation.
- The *LOX1* gene plays a critical role in multiple bioprocesses associated with lipid peroxidation. Our data identified a T-DNA insertion within promoter of *LOX1* and showed the knock-out expression of *LOX1* in SALK_084889. These are valuable information for mutation analysis of *LOX1*.

1. Data

The dataset of this article provides information on T-DNA insertions in SALK_084889. Fig. 1 shows the T-DNA bands amplified within *DREB2A* (AT5G05410) and *LOX1* (AT1G55020) genes of SALK_084889 as well as T-DNA insertion sites determined by Sanger sequencing. Fig. 2A–B show *DREB2A* expression in both roots and shoots in normal conditions with or without drought treatment. Fig. 2C–D show *LOX1* expression in roots and shoots in normal conditions. Figs. 3 and 4 show the comparison of survival rates between Col and SALK_084889 plants in drought and heat treatments. Table 1 shows the sequences of primers used in experiments for Figs. 1 and 2.

2. Experimental design, materials and methods

Arabidopsis seeds of wild tyoe (Col) and SALK_084889 were obtained from Arabidopsis Biological Resource Center. SALK_084889 was reported as a T-DNA insertion line of *DREB2A* (AT5G05410) gene [1]. For identification of T-DNA insertion sites, Col and SALK_084889 seeds were grown in soil at 22 °C under constant light condition. Eight randomly selected SALK_084889 seedlings were subjected to DNA-PCR to confirm all seeds are homozygous. For *DREB2A*, the gene specific primers DREB2A-F and