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**PB-Overexpression of OsZn15, a CCCH-tandem zinc finger protein, increases drought tolerance in rice**

So Yoon Seong<sup>1,2)</sup>, Harin Jung<sup>2)</sup>, Yang Do Choi<sup>2,3)</sup>, and Ju-Kon Kim<sup>1,2)\*</sup>

<sup>1)</sup> *Graduate School of International Agricultural Technology, Seoul National University, Pyeongchang 25324, Korea*

<sup>2)</sup> *Crop Biotechnology Institute, Green Bio Science and Technology, Seoul National University, Pyeongchang*

<sup>3)</sup> *Department of Agricultural Biotechnology, Seoul National University, Seoul 151-921, Korea*

**Abstract**

Zinc finger proteins constitute a large family which has been studied to have various functions in different organisms. Tandem CCCH zinc finger proteins (TZFs), members of the zinc finger protein family, are known to participate as post-transcriptional regulators of gene expression in eukaryotes. Here, we showed that the *OsZn15*, a gene for tandem CCCH zinc finger protein, is induced by abiotic stress and its overexpression in transgenic rice plants (*PGD1:OsZn15*) gains higher drought tolerance. Gene expression analysis of promoter:GFP plants revealed that *OsZn15* is specifically expressed in anther and embryo, but not in vegetative organs. In-field evaluation, grain yield was higher in the *PGD1:OsZn15* than nontransgenic plants under drought conditions. Interestingly, *OsZn15* is shown to not only localize at nucleus but also co-localize with both processing bodies (PB) and stress granules (SG), two messenger ribo-nucleoprotein complexes which are known to activate by forming cytoplasmic foci under stress conditions. In sum, these results suggest that *OsZn15* increases drought stress tolerance of rice probably by participating in RNA turnover in PB and SG..

Keywords: Tandem CCCH zinc finger, Rice, Drought tolerance, Processing bodies (PB), Stress granules (SG)

Corresponding author\*

Ju-Kon Kim

Address: 1447-1, Pyeongchang-daero, Daehwa-myeon, Pyeongchang-gun, Gangwon-do, Rep. of KOREA

Tel and Fax: 033-339-5823, 033-339-5547

E-mail: syseong7@snu.ac.kr