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Short Communication

Functional Analysis of a Rice Putative Voltage-Dependent Ca²⁺ Channel, OsTPC1, Expressed in Yeast Cells Lacking its Homologous Gene *CCH1*

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Abstract

We isolated a cDNA (*OsTPC1*) from rice that was homologous to *AtTPC1*, a putative voltage-dependent Ca²⁺ channel (VDCC) gene of *Arabidopsis thaliana*. The hydropathy profile of its deduced amino acid sequence showed significant structural features of the $\alpha 1$ -subunit of animal VDCCs. Functional analysis using a heterologous yeast expression system showed that OsTPC1 facilitates Ca²⁺ permeation. The K_m value for Ca²⁺ of OsTPC1, 47.5 μ M, was comparable to that of intrinsic CCH1, a candidate VDCC in yeast. Ca²⁺ permeation by OsTPC1 was inhibited by verapamil, a VDCC blocker. These findings indicate for

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the first time that OsTPC1 is a putative VDCC in rice.


Footnotes


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