Accepted Manuscript

The conserved domain in MORF proteins has distinct affinities to the PPR and E elements in PPR RNA editing factors

Eszter Bayer-Császár, Sascha Haag, Anja Jörg, Franziska Glass, Barbara Härtel, Toshihiro Obata, Etienne H. Meyer, Axel Brennicke, Mizuki Takenaka

PII: S1874-9399(17)30082-2
DOI: doi:10.1016/j.bbagrm.2017.05.004
Reference: BBAGRM 1156

To appear in: *BBA - Gene Regulatory Mechanisms*

Received date: 3 March 2017
Revised date: 11 May 2017
Accepted date: 14 May 2017

Please cite this article as: Eszter Bayer-Császár, Sascha Haag, Anja Jörg, Franziska Glass, Barbara Härtel, Toshihiro Obata, Etienne H. Meyer, Axel Brennicke, Mizuki Takenaka, The conserved domain in MORF proteins has distinct affinities to the PPR and E elements in PPR RNA editing factors, *BBA - Gene Regulatory Mechanisms* (2017), doi:10.1016/j.bbagrm.2017.05.004

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

The conserved domain in MORF proteins has distinct affinities to the PPR and E elements in PPR RNA editing factors *

Eszter Bayer-Császár[1], Sascha Haag[1], Anja Jörg[1], Franziska Glass[1], Barbara Härtel[1], Toshihiro Obata[2], Etienne H Meyer[2], Axel Brennicke[1] and Mizuki Takenaka[1 #]

From the [1]Molekulare Botanik, Universität Ulm, 89069 Ulm and the [2]Max-Planck-Institut für Molekulare Pflanzenphysiologie, 14476 Potsdam-Golm, Germany

Running title: MEF - MORF protein interactome

* This work was supported by grants from the Deutsche Forschungsgemeinschaft (to M. T. and A. B.).
# To whom correspondence should be addressed. Tel.: 49-731-502-2624; Fax: 49-731-502-2626; E-mail: mizuki.takenaka@uni-ulm.de.

Keywords: RNA editing, mitochondria, chloroplast, MEF proteins, MORF proteins, protein-protein interaction, *Arabidopsis thaliana*

ABSTRACT

In plant organelles specific nucleotide motifs at C to U RNA editing sites are recognized by the PLS-class of pentatricopeptide repeat (PPR) proteins, which are additionally characterized by a C-terminal E domain. The PPR elements bind the nucleotides in the target RNA, while the function of the E domain has remained unknown. At most sites RNA editing also requires multiple organellar RNA editing factor (MORF) proteins. To understand how these two types of proteins are involved in RNA editing complexes, we systematically analyzed their protein-protein interactions. *In vivo* pull-down and yeast two-hybrid assays show that MORF proteins connect with selected PPR proteins. In a loss of function mutant of MORF1, a single amino acid alteration in the conserved MORF domain abrogates interactions with many PLS-class PPR proteins, implying the requirement of direct interaction to PPR proteins for the RNA editing function of MORF1. Subfragment analyses show that predominantly the N-terminal/central regions of the MORF domain in MORF1 and MORF3 bind the PPR proteins. Within the PPR proteins, the E domains in addition to PPR elements contact MORF proteins. In chimeric PPR proteins, different E domains alter the specificity of the interaction with MORF proteins. The selective interactions between E domain containing PPR and MORF proteins suggest

Download English Version:

https://daneshyari.com/en/article/5507754

Download Persian Version:

https://daneshyari.com/article/5507754

Daneshyari.com