

ANALYSIS OF THE FUNCTION OF *CmNACP1* IN PUMPKIN (*Cucurbita maxima*)

Emma Oliva Fuentes Ramírez, Beatriz Xoconostle Cázares, Roberto Ruiz Medrano, CINVESTAV-IPN. Department of Biotechnology and Bioengineering. Mexico, D.F., C.P. 07360.

rmedrano@cinvestav.ipn

Key words: phloem, mRNA, *CmNACP1*

Introduction. The function of the phloem in vascular plants is the transport of nutrients from the source to the sink tissues, as well as the transport of macromolecules such as different kinds of RNAs and proteins⁽¹⁾; it is known that the transport of these is related to developmental processes of the plant and responses to environmental stimuli. This suggests that these macromolecules could act as long-distance signals through the phloem. *CmNACP1* belongs to the NAC family gene⁽³⁾ present only in plants and exclusively encoding transcription factors. It has been reported that *CmNACP1* mRNA is transported through the phloem in pumpkin and intriguingly accumulates in meristematic tissues in heterograft scions⁽³⁾.

In this work we report a functional analysis of this gene in pumpkin through post-transcriptional gene silencing (PTGS) as well as an overexpression (OE) of *CmNACP1*.

Methodology. Binary vectors were constructed for the transformation of pumpkin following a procedure developed in our group (manuscript in preparation). For the PTGS construct, a 200 bp corresponding to the C-terminal region was amplified and sub-cloned in the pB7GWIWG2(II) vector. For the OE construct the ORF from the cDNA of *CmNACP1* was amplified and sub-cloned in the pB7FWG2 vector.

Results. The constructs with which will be transformed the pumpkin plants were obtained. The PTGS construct was confirmed by a restriction digest, while the OE construct was confirmed by a PCR. Both constructs were confirmed by sequencing. The results of plant transformation will be discussed.

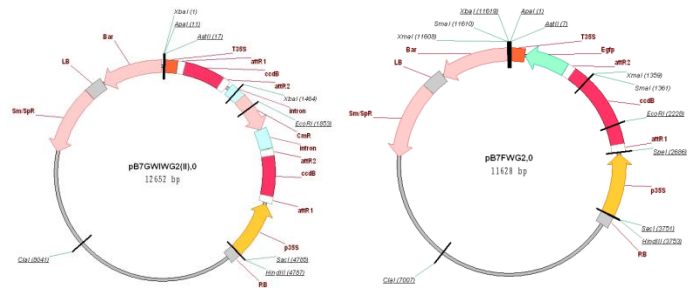


Fig. 1 Vectors for the PTGS (left) and OE (right) constructs

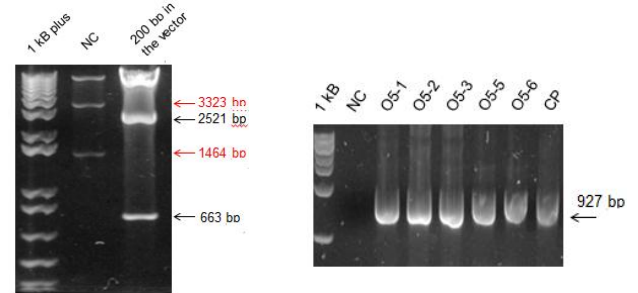


Fig. 2 Electrophoretic analysis on agarose gel of the PTGS (left) and OE (right) constructs

Conclusions. The constructs were developed and confirmed by sequencing.

Acknowledgements. EOFR is a fellow of CONACyT. This work is supported by CONACyT grant no. to RRM.

Bibliography.

- (1) Kehr J, Buhtz A, (2008). Journal of experimental botany, 59(1), pp.85–92
- (3) Aida M., Ishida T, Fukaki H, Fujisawa H, Tasaka M, (1997). The Plant cell, 9(6), pp.841–857
- (3) Ruiz-Medrano R, Xoconostle-Cázares B, Lucas WJ, 1999. Development, Vol. 126(20), pp.4405–4419