Regulation of Transcription Activity of *MAKR4* in *Arabidopsis thaliana* L.

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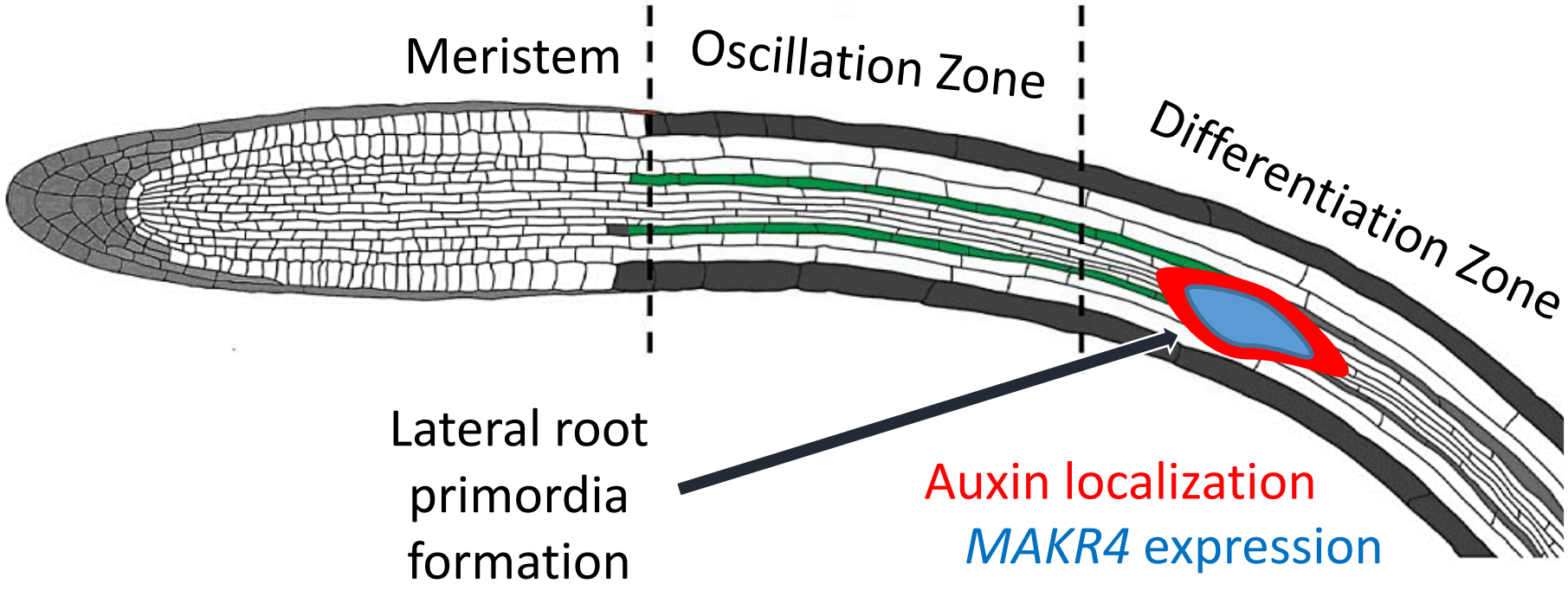
MEMBRANE-ASSOCIATED KINASE REGULATOR4 is involved in the gene regulatory network of lateral root initiation in *Arabidopsis thaliana*

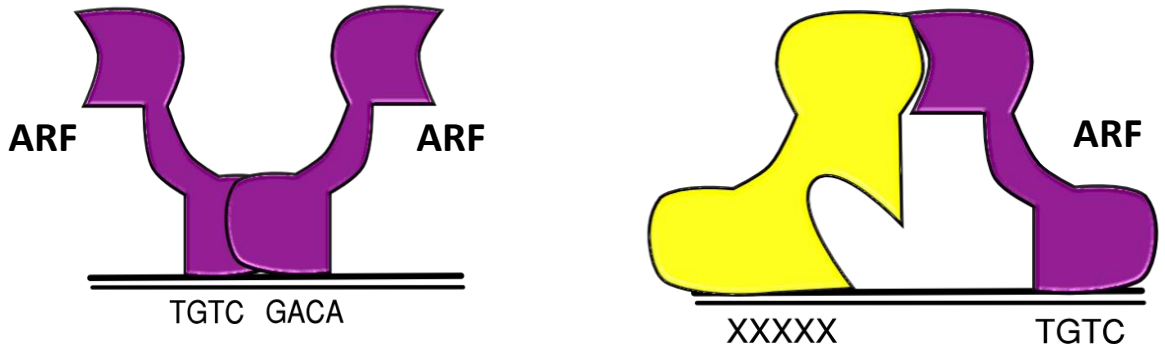
MAKR4 acts downstream of auxin oscillations to transform prebranch sites into lateral roots



Adapted from Xuan et al., 2015

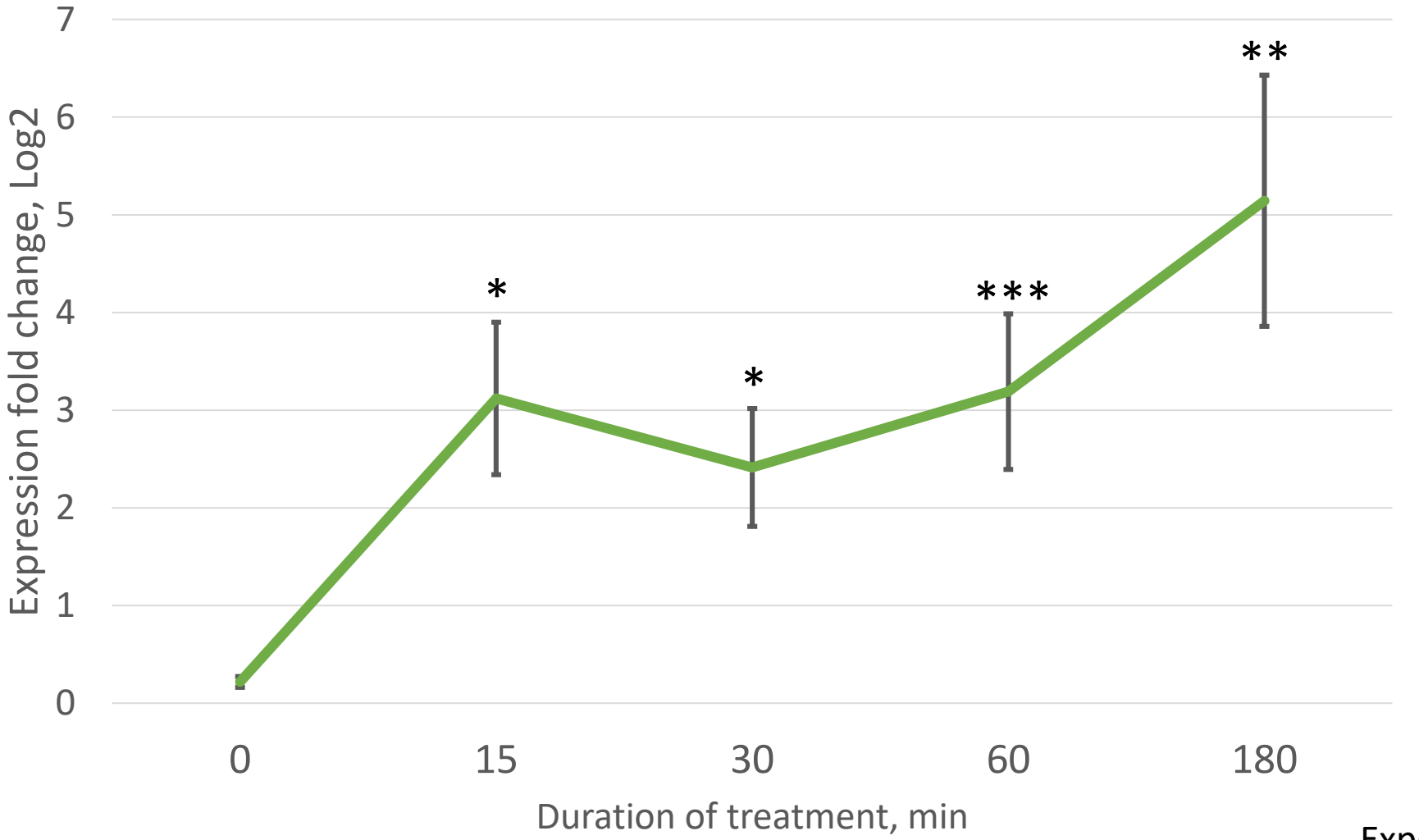
Composite cis-regulatory element involved in the transcriptional response to auxin was detected in the promoter of the *MAKR4* gene with the consensus-based bioinformatics package *metaRE*

Auxin response factors (ARFs) bind to Auxin responsive elements (AuxRE) in upstream regions of auxin-sensitive genes as homo- or heterodimers



Predicted TF binding sites in the promoter of the MAKR4 gene

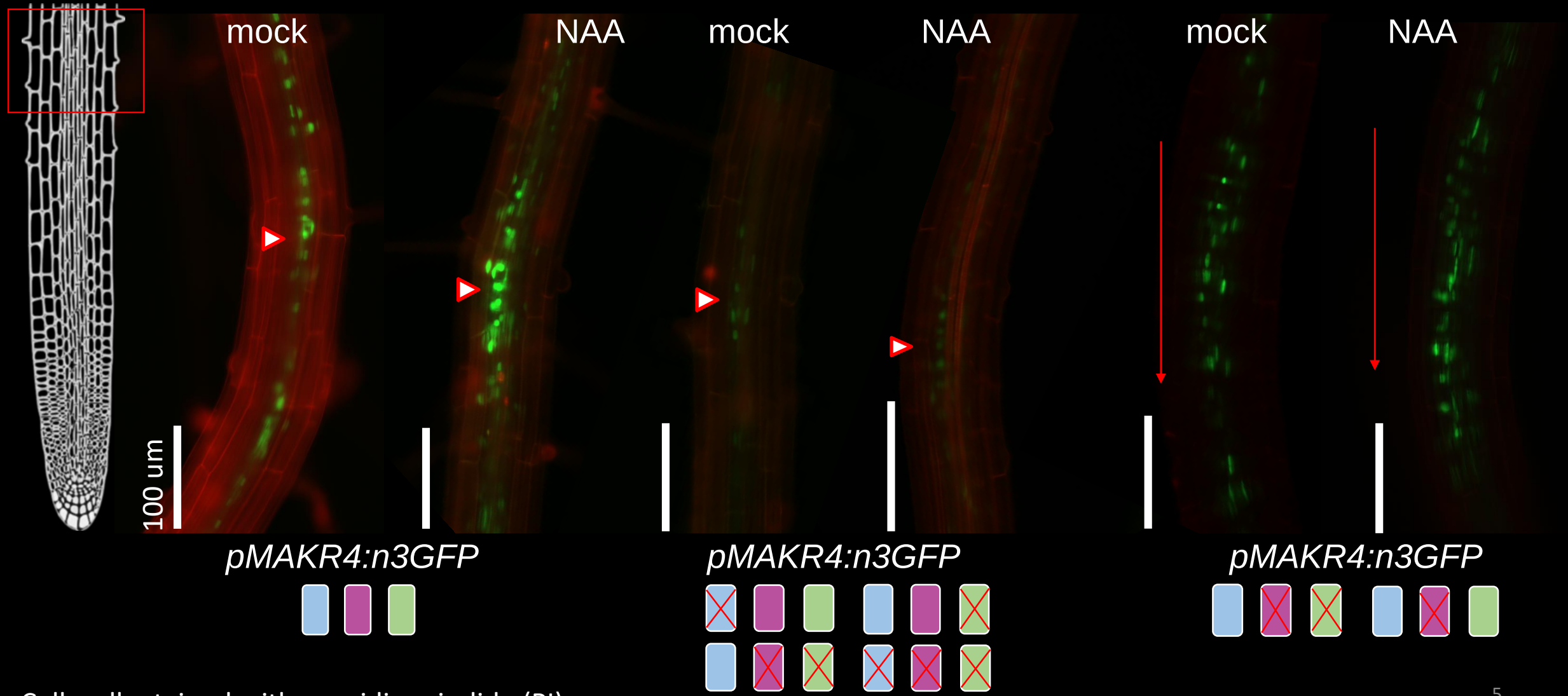
Expression of the *MAKR4* in the *A.thaliana* root changes with different duration of auxin treatment



Student's *t*-test, significance level: * – *p*-value < 0,05;
** – *p*-value < 0,005; *** – *p*-value <0,001

Experimental conditions: NAA treatment concentration is 1 µM.

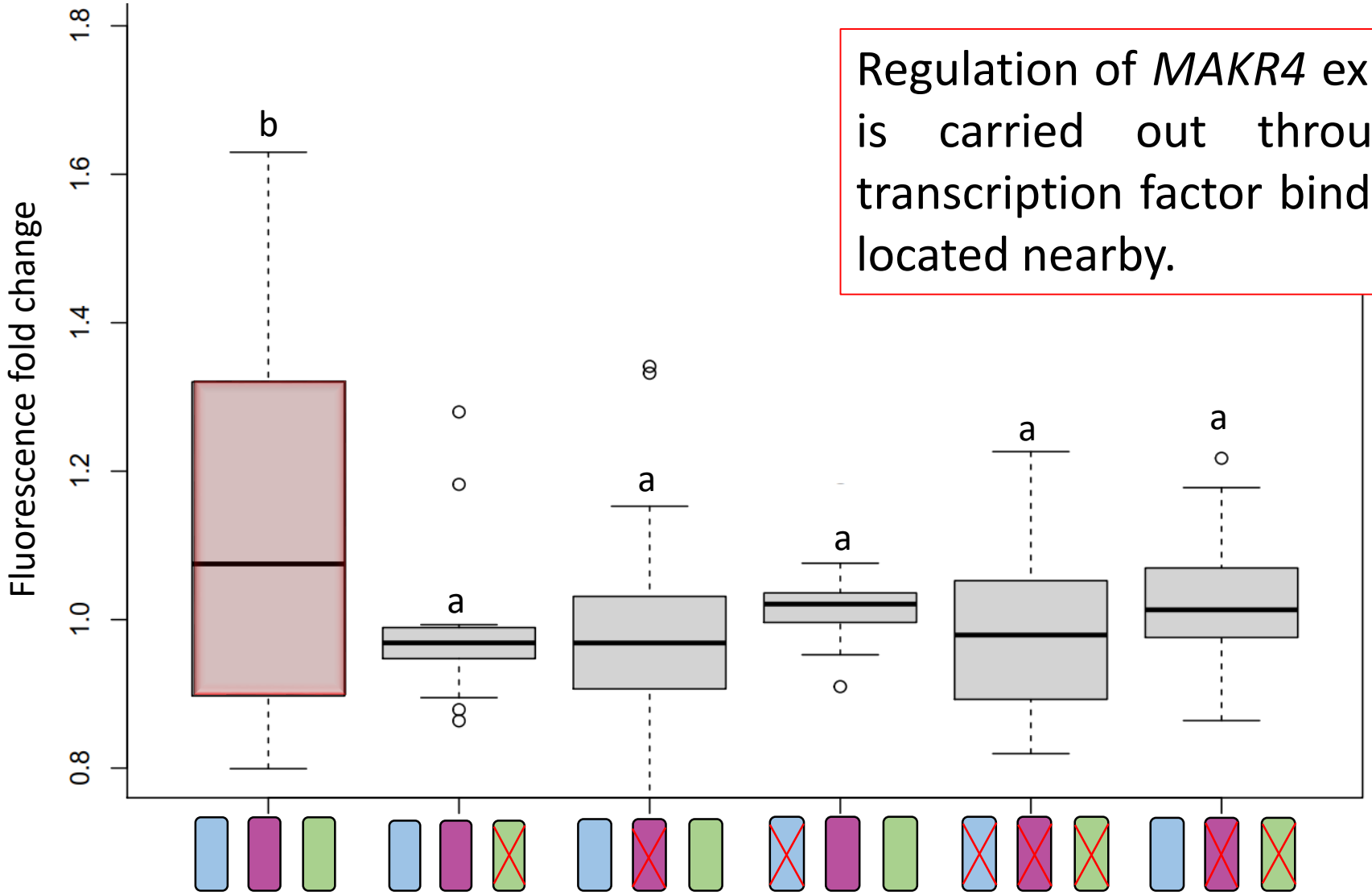
GFP expression under different variants of the *MAKR4* promoters varies



Cell walls stained with propidium iodide (PI)

Functionality of the predicted sites of the composite cis-regulatory element confirmed quantitatively

Regulation of *MAKR4* expression is carried out through the transcription factor binding sites located nearby.



ANOVA
a differs from b, p <0,05