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Author Correction: Tomato 26S Proteasome subunit RPT4a regulates ToLCNDV transcription and activates hypersensitive response in tomato

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This Article contains errors.

In Fig. 1H, “RNA Pol-II (-SIRPT4)” is incorrectly labelled as “RNA Pol-II”. The correct Fig. 1 and accompanying legend appear below.

In Fig. 2A, upper panel, the representative image corresponding to $H^{TRV:SIRPT4}$ is inadvertently duplicated for $H^{TRV:00}$. The representative image of $H^{TRV:00}$ is also erroneously included as the control. Furthermore, the control condition is not defined in the accompanying figure legend. The correct Fig. 2 and revised legend appear below.

In Figure S3B, the “*Slds*” blot is incorrect and is a duplication of the “ToLCNDV-Rep” blot of Fig. 1G. Additionally, the control condition is not defined in the accompanying figure legend. The correct Figure S3 and revised legend are provided in the Supplementary Information file linked to this notice.

In Figure S5A, the $H^{TRV:SIRPT4+T}$ plant is erroneously labelled as $H^{TRV:SIRPT4}$. The lower leaf image provided for $H^{TRV:SIRPT4+T}$ is also incorrect and is an inadvertent duplication of the day 14 image of H^T shown in the upper panel of Fig. 2A. The correct Figure S5 is included in the linked Supplementary Information file.

These changes do not affect the conclusions of the Article.

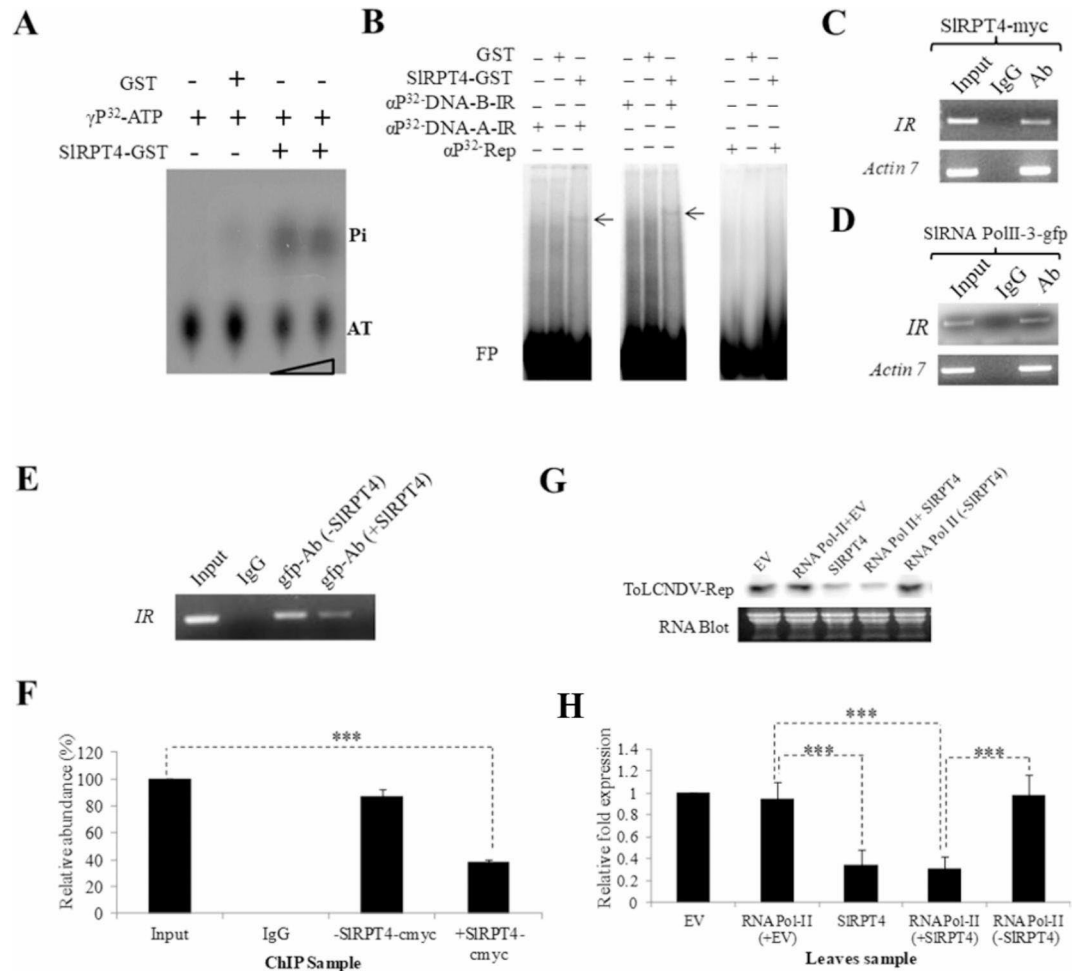


Fig. 1. Molecular characterization of SIRPT4 protein. (A) Thin-layer chromatography (TLC) to evaluate ATPase activity. Figure shows dissociation of Pi from γP^{32} -labelled ATP. Level of Pi was enriched upon increasing the amount of protein. GST protein was used as a negative control of the experiment. (B) DNA binding activity of SIRPT4-GST protein. Binding of SIRPT4 protein onto αP^{32} -dCTP-labelled corresponding fragment of DNA-A-IR, DNA-B-IR and Rep regions are shown by retarded DNA-protein complex through EMSA on 6% native polyacrylamide gel. Signs, + / - represent the presence/absence of components. GST protein was used as a control substrate. In vivo binding assay was performed by transiently overexpressing SIRPT4 (C); SIRNA PolII subunit-3-gfp construct (D); and SIRPT4 and SIRNA PolII subunit-3 co-infiltration (E), in ToLCNDV infected leaves. Figures depict the amplification of IR fragments from the chromatin immuno-precipitated from the sample by using tag-corresponding to *c-myc* and *gfp*. (E) Relative abundance of IR specific fragments in the experimental samples. (F) Accumulation of *Tomato leaf curl New Delhi virus* ToLCNDV specific *Rep* transcripts in H^{T} (ToLCNDV infected cultivar H-88-78-1) and $\text{H}^{\text{SIRPT4+T}}$ (*SIRPT4* silenced H-88-78-1 infected with ToLCNDV), (G) Northern hybridization showing the accumulation of *Rep* transcripts, (H) Relative accumulation of *Rep* transcripts in the leaf samples infiltrated with empty vector (EV), *SIRPT4-myc* and RNA Pol II-3-gfp construct alone, and co-infiltrated with RNA Pol II-3-gfp and SIRPT4-myc construct. Fragment corresponding to ToLCNDV-*Rep* gene was used as probe. Total RNA is shown as equivalent loading in the experiment. Data depicts means \pm SD of three independent experiments ($n=3$); * $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$.

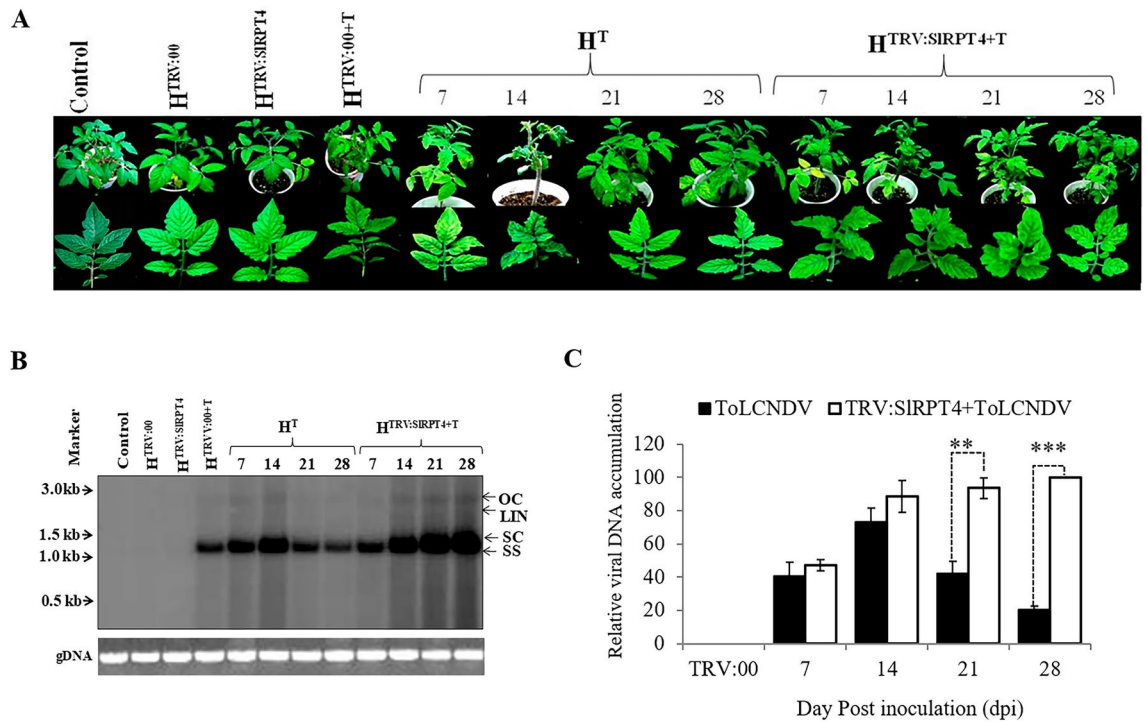


Fig. 2. Plant phenotyping and molecular analysis of SIRPT4 silenced tomato plants. **(A)** phenotype of experimental tomato plants. ToLCNDV tolerant cultivar H-88-78-1 plants were infiltrated with *Agrobacterium* containing the TRV:SIRPT4 construct (H^{SIRPT4}). Subsequent to *SIRPT4* silencing process, ToLCNDV infection was performed. The photographs of the plants were taken at 7, 14, 21 and 28 days post inoculation (dpi). Control, cv. H-88-78-1 without virus, mock or silencing treatments, H^{SIRPT4}, SIRPT4 silenced H-88-78-1; H^{TRV:00}, vector infiltrated control plant; H^{TRV:00+T} vector infiltrated control plant infected with ToLCNDV; H^{SIRPT4+T}, *SIRPT4* silenced H-88-78-1 infected with ToLCNDV; H^T, cultivar H-88-78-1 agroinfiltrated with ToLCNDV. Level of viral DNA in H^T (ToLCNDV infected cultivar H-88-78-1) and H^{TRV:SIRPT4+T} (*SIRPT4* silenced H-88-78-1 infected with ToLCNDV) at different dpi. **(B)** Southern blot of tomato genomic DNA from all experimental plants were hybridized with ToLCNDV-coat protein gene specific probe. Replicative forms of ToLCNDV genome are designated as open circular (OC), linear (Lin), supercoiled (SC) and single strand (SS). TRV:00 infiltrated H-88-78-1 was taken as a mock control. Ethidium bromide-stained DNA from each experiment were shown as equivalent loading. **(C)** Relative accumulation of viral DNA in the samples H^T and H^{SIRPT4+T} at different time points. Data depicts means ± SD of three independent experiments (n = 3); *P < 0.05; **P < 0.01; ***P < 0.001.

Additional information

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1038/s41598-024-75420-2>.

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