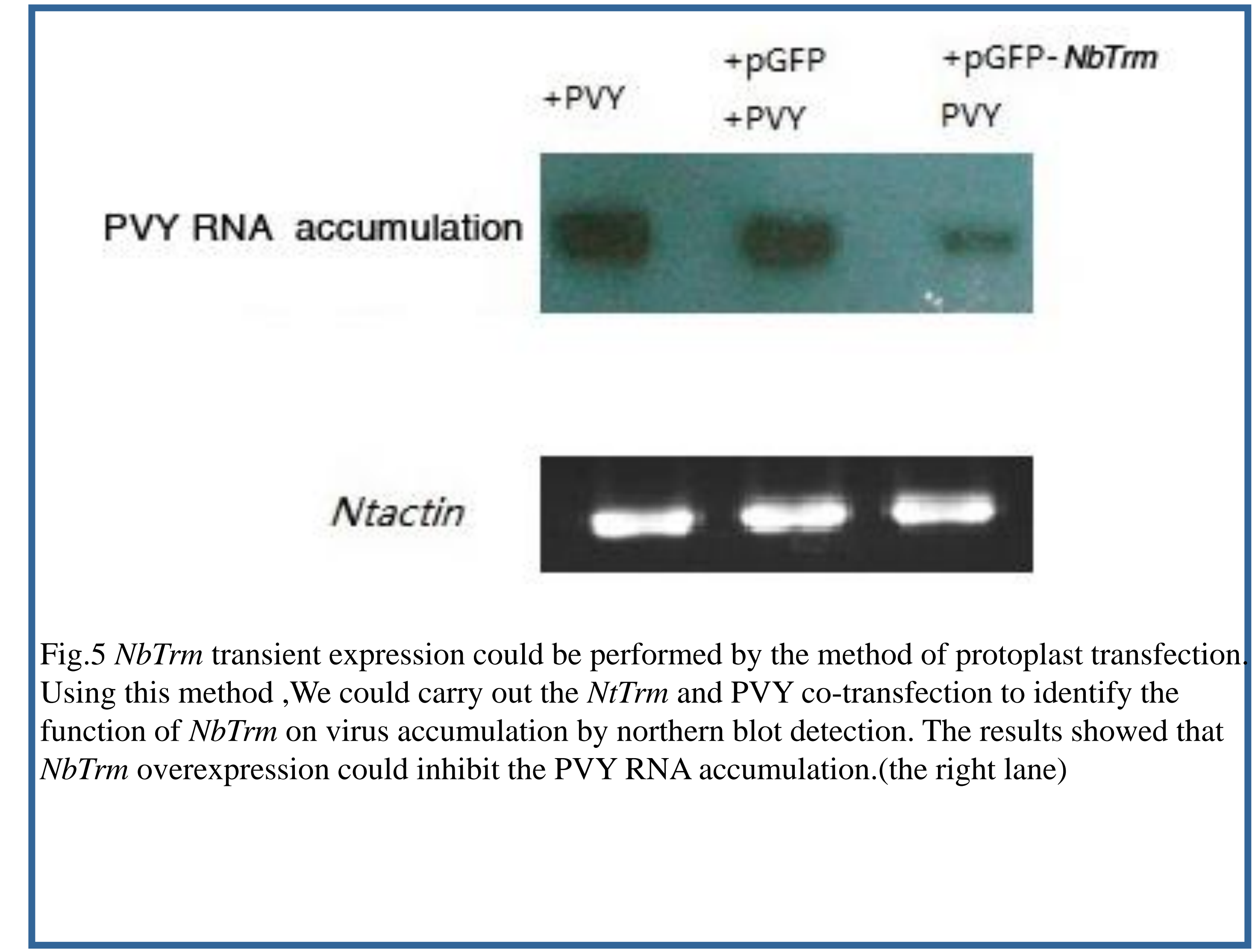
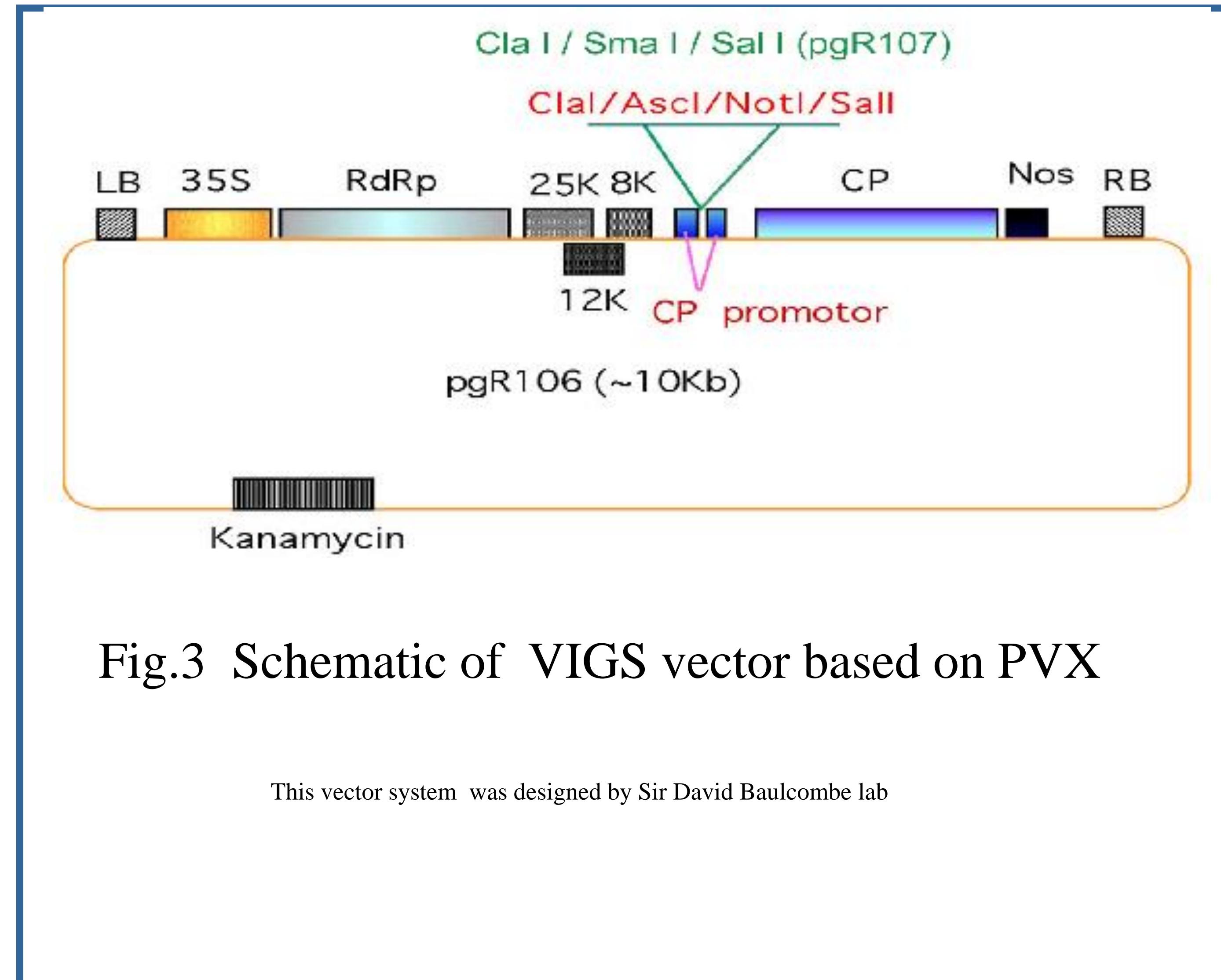


# M-type thioredoxin affect potyvirus infection in tobacco cell

Meng-ao JIA., Ning LU., Xingjiang CHEN., Hancheng Wang  
Key Laboratory of Molecular Genetics (CNTC), Guizhou Academy of Tobacco Science

## Abstract

We had obtained the CDS of a gene, designated as *NbTrm*, which encodes m-type thioredoxin in tobacco cell, by the method of in silico cloning and homology cloning. The CDS of *NbTrm* contains 549 bp, and could encode a protein with thioredoxin super family conserved domain in C terminus. In the study of Potato virus Y infection in *Nicotina benthamiana*, we observed that the expression of *NbTrm* was up-regulated at about 10 days post-inoculation (dpi) by semi-quantitative PCR. We also found that *NbTrm* silencing in tobacco by virus-induced gene silencing(VIGS) using pgR106 vector system significantly enhanced PVY accumulation by northern blot detection. In contrast, transient over-expression of *NbTrm* in tobacco protoplast by PEG mediated transfection showed that increasing *NbTrm* could inhibit the amplification of PVY viral RNA. Our tentative data suggested that *NbTrm* which encode m-type thioredoxin could be up-regulated by *potyvirus* infection and play an inhibitory role during infection of tobacco by *potyvirus*.



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1      ATGGCTGGTT TGCTGGAAC CATTAAAGTC CCACGCGCCT CGGCTCTGCC GTCGTCATCC
61     CTGGCTCCGG TAGCCGGTTT TTCCTCTCA AGCCCTCGTT CCTCCGTTAG ATTCTCTCA
121    TTCAGAGGCC TTAAGATCCA GCTAACTCGC TCATCCGCTC CCAATACCTC ATGCTCAAA
181    TTCATTCCCC GAGGAGTCC AATCGTCTGC GAAGCGCAGA ATACTGCCCT TGAAGTGGG
241    GCTGTTAATG ATAAACATG GAAGTCACTT GTTGTAGAGT CTGATATAAC TGTACTGGT
301    GAATTTTGGG CTCGTTGGT TGGTCCATGC CGAATGATCC ACCCGGTGAT TGATGAATC
361    GCAAAGGAAT ATGCTGGCAA GCTTAAATTC TTCAGCTAA ACACGGACGA AAGCCCTTC
421    ACAGCAACCG AATTGGGGAT TCGAAGCATC CCAACTGTGA TGATTTTCAA GAATGGAGA
481    AAGAAAGATG CAGTCATTGG TGCAGTTCCT AAATCTACAC TAACCACCTG CATAGAGAA
541    TTCTTGTA
    
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Fig.1 By the method of in silico cloning and homology cloning, the CDS of *NbTrm* had been obtained.

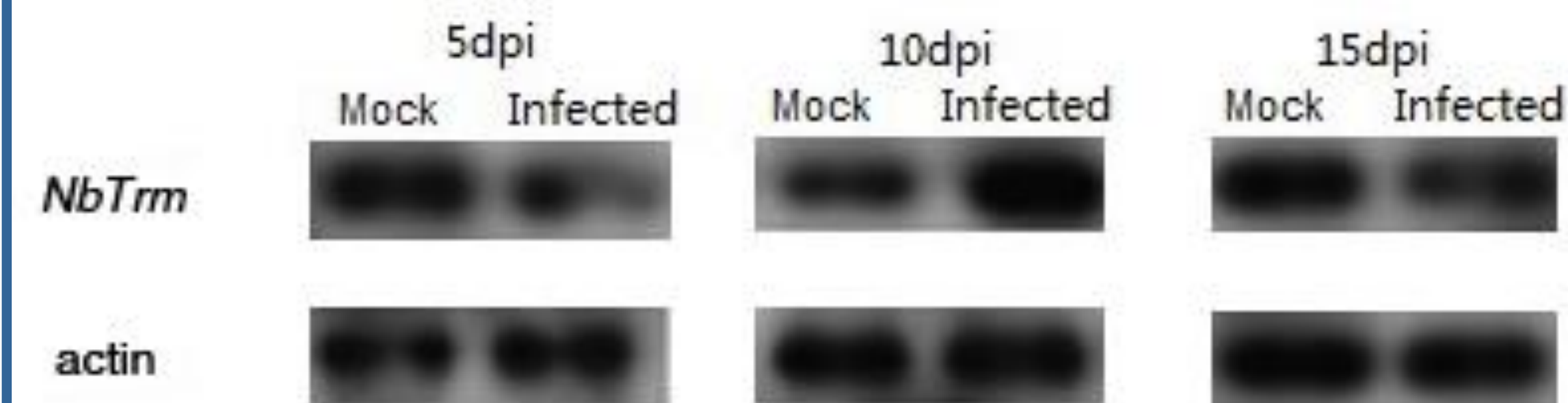
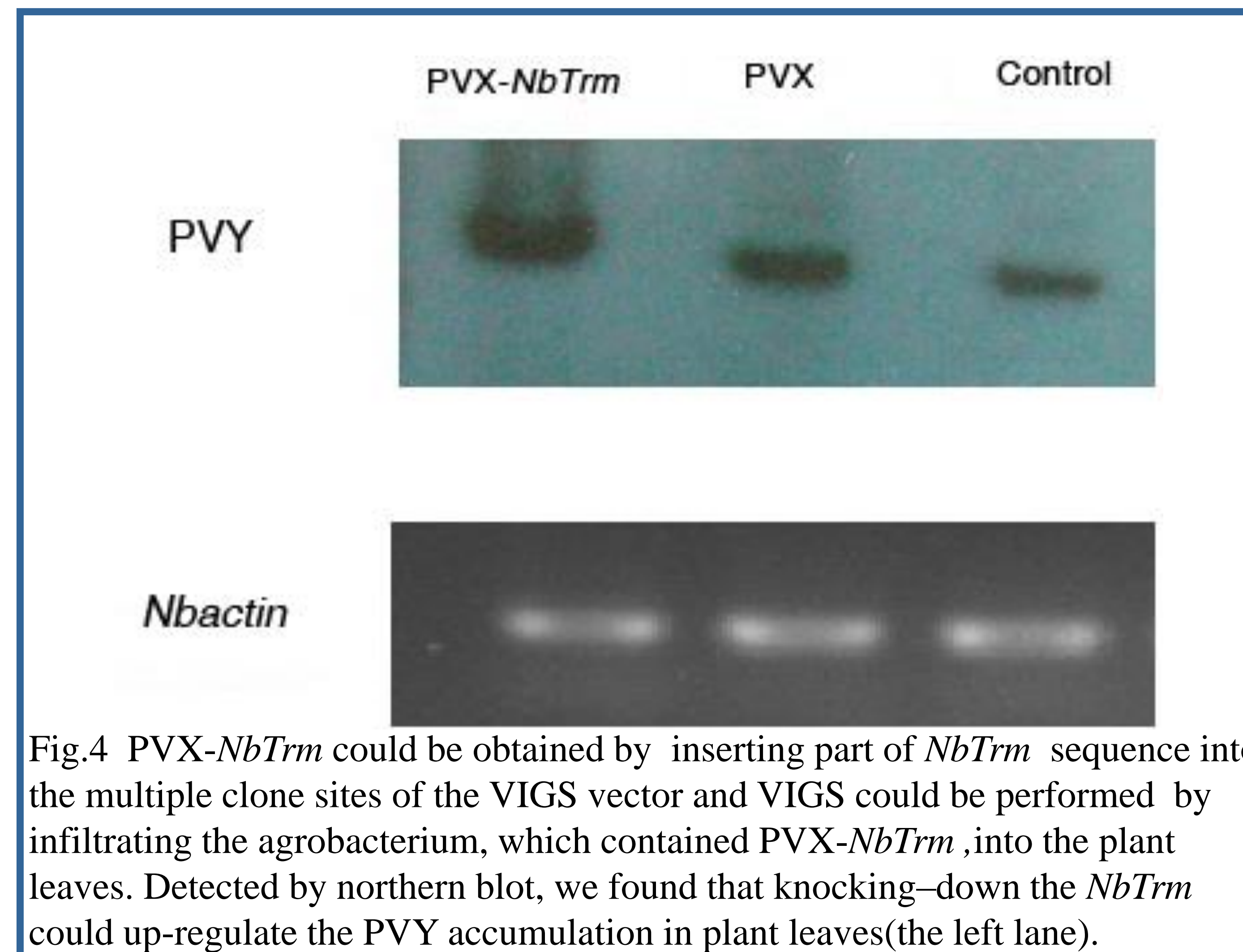


Fig.2 In the PVY-infected *Nicotina benthamiana*, the expression of *NbTrm* was found to alter continuously by semi-quantitative PCR detection. At about 10 days post-inoculation (dpi), the expression of *NbTrm* was up-regulated significantly.



## Conclusion

*Nbtrm* which encode m-type thioredoxin could be up-regulated by *potyvirus* infection and play an inhibitory role during infection of tobacco by *potyvirus*

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