

The Translationally controlled tumor protein is a protein that supports the infection of unrelated plant viruses

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The translationally controlled tumor protein (TCTP) is a protein present in all eukaryotes. It was initially isolated from human tumor cells and since then several TCTP homologues have been cloned and characterized for an increasing number of organisms. This protein is involved in different regulation processes such as apoptosis cell cycle progression, stress protection and cell growth. However, the precise mode of action in the different cellular processes is still not fully understood. The gene encoding TCTP is regulated at the post-transcriptional level and post-transcriptional gene silencing is a process that occurs in all eukaryotes as a form of regulation of gene expression and as a defense response to viruses. The effect of TCTP gene silencing by VIGS (Virus Induced Gene Silence) (TRV-TCTP) in *Nicotiana benthamiana* on the infection process of the potyvirus *Pepper yellow mosaic virus* (PepYMV), shows that a reduction in TCTP expression leads to less viral accumulation in the early stages of infection. TCTP was also identified as an induced protein during the infection of tomato by PepYMV, and other analysis showed that TCTP expression is necessary for plant infection by different potyviruses. Given the effect of TCTP on potyviruses, we now want to know if this effect is specific for this type of virus or whether TCTP might be involved in regulation of other types of viruses in plants. To check this, an experiment was carried out where we silenced *N. benthamiana* plants for TCTP by VIGS and after 14 days the begomovirus Tomato yellow spot virus (ToYSV), a circular ssDNA virus, was sap inoculated. TCTP expression was analyzed by qPCR, qRT-PCR and western blot, in samples collected 96 hours after inoculation. Results show TCTP silencing having a strong negative effect in ToYSV accumulation, suggesting that TCTP is necessary by both RNA and DNA viruses to infect plants and may be involved in general plant processes that support the infection of unrelated plant viruses.