

## **The Agrobacterium protein VirD5 is required for efficient Agrobacterium infection (Abstract)**

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### **ABSTRACT**

Agrobacterium exports at least five virulence proteins (VirE2, VirE3, VirF, VirD2, VirD5) into host cells and hijacks some host plant factors to facilitate its transformation process. We found that Agrobacterium VirD5 exhibits transcriptional activation activity in yeast, is located in the plant cell nucleus, and forms homodimers. A specific VirD5-bound DNA element designated D5RE (VirD5 response element) was identified. We also found that VirD5 interacted directly with Arabidopsis AtVIP1 and AtVIP2 (VirE2 Interacting Protein 1 & 2); competes with VBF for binding to AtVIP1 and stabilizes AtVIP1 and VirE2 in the cell-free degradation system; affects cap-binding proteins (CBP20 and CBP80) for binding to VIP2. Deleting virD5 from Agrobacterium reduced its tumor formation ability and stable transformation efficiency but did not affect the transient transformation efficiency. The tumorigenesis efficiency for cbp80 mutant was not significantly changed, but that for cbp20, cbp20cbp80 mutants were significantly increased. This work experimentally demonstrated that VirD5 is required for efficient Agrobacterium infection.

**Keywords:** Agrobacterium, virulence proteins, cap-binding proteins.

