

Abstract

RNA-directed DNA methylation (RdDM) is an important pathway that regulates gene expression by inducing DNA methylation and is involved in regulation of gene expression and defence against invading DNA elements (especially transposons). Argonaut (AGO) proteins with small RNAs (sRNAs) that have sequence complementarity to the target DNA play a key role in the RdDM pathway. Domains called AGO-hooks are able to interact with Argonaut proteins. In plants, two proteins with AGO-hook domains are involved in the RdDM pathway: NRPE1 and SPT5L. Recently, a third protein, SPT6L, has been discovered at the investigator's site to be part of the Pol V complex (as well as the two proteins mentioned above). The role of SPT6L has not yet been described, but we hypothesize that it also plays a role in the RdDM pathway.

This work focuses on the study of all three AGO-hook domains in Pol V complex and their involve in the RdDM pathway in *Arabidopsis thaliana*, from the preparation of mutants lacking different combinations of these AGO-hook domains to the study of their role and substitution in DNA methylation at different loci.

Key words

AGO-hook, *Arabidopsis thaliana*, NRPE1, SPT5L, SPT6L, siRNA, epigenetic chromatin labelling, Argonaut protein