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Dr Leandro Quadrana, CR CNRS, IBENS, Paris

leandro.quadrana@bio.ens.psl.eu

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Transposon-induced loss of DNA methylation: Some new kids on the block

Transposable elements (TEs) are typically silenced by epigenetic mechanisms, including DNA methylation in plants and mammals. In response, some TEs have evolved sophisticated mechanisms to counteract this epigenetic silencing. Kakutani's lab (the University of Tokyo) uncovered two such anti-silencing system in *Arabidopsis thaliana*, which are based on VANC proteins encoded by DNA transposons belonging to the VANDAL superfamily (Fu et al, EMBO J 2013; Hosaka et al, Nat Commun 2017). Here, I will describe our recent collaborative efforts to characterize the complete set of VANC-dependent anti-silencing systems and their target sequences in *A. thaliana*. I will also discuss the evolutionary history of this anti-silencing systems and their implications for the invasive success of this class of TEs.

