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Turning off a transgene

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DNA methylation is thought to play an important role in gene silencing and epigenetic regulation in plants. In the Early Edition of the *Proceedings of the National Academy of Sciences*, Kloti *et al.* describe a useful transgenic model for investigating the link between methylation and silencing. They studied a line of transgenic rice plants in which a β -glucuronidase (*GUS*) reporter gene, under control of the rice tungro bacilliform virus (RTBV) promoter, becomes inactivated in a progressive and tissue-specific manner. Some transgenic lines showed reproducible loss of *GUS* gene expression in vascular cells in the first homozygous generation. The methylation spread in subsequent generations, causing complete repression. The transgene could be re-activated by treatment with the methylation inhibitor 5-azacytidine. Kloti *et al.* found that methylation of the RTBV promoter resulted in the association of a sequence- and methylation-specific DNA-binding protein.

References

1. Gene silencing and DNA methylation processes
2. *Proceedings of the National Academy of Sciences*, [<http://www.pnas.org>]