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## Methylcytosine and mutation

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**MBD4** is a methyl-CpG-binding protein with thymine-DNA-glycolase activity that can remove T bases from T-G mismatches within a CpG context. In the July 19 *Science*, Millar *et al.* describe analysis of mice lacking the *Mbd4* gene (*Science* 2002, **297**:403-405). They generated *Mbd4*<sup>-/-</sup> knockout mice and bred them with the 'Big Blue' reporter strain to measure mutation frequency. They found that the knockout mice had a three-fold higher frequency of C to T transitions at CpG sites. Then Millar *et al.* tested the effect of *Mbd4* mutation on cancer susceptibility. They crossed *Mbd4*<sup>-/-</sup> knockout mice with animals carrying the **Min allele** of the adenomatous polyposis coli gene (*ApcMin*). They observed increased tumor formation in the colon and C to T mutations in the *Apc* gene. These results provide further evidence for the role of MBD4 in tumor suppression.

## References

1. Role of *MED1* (*MBD4*) Gene in DNA repair and human cancer
2. *Science*, [<http://www.sciencemag.org>]
3. Multiple intestinal neoplasia caused by a mutation in the murine homolog of the APC gene.