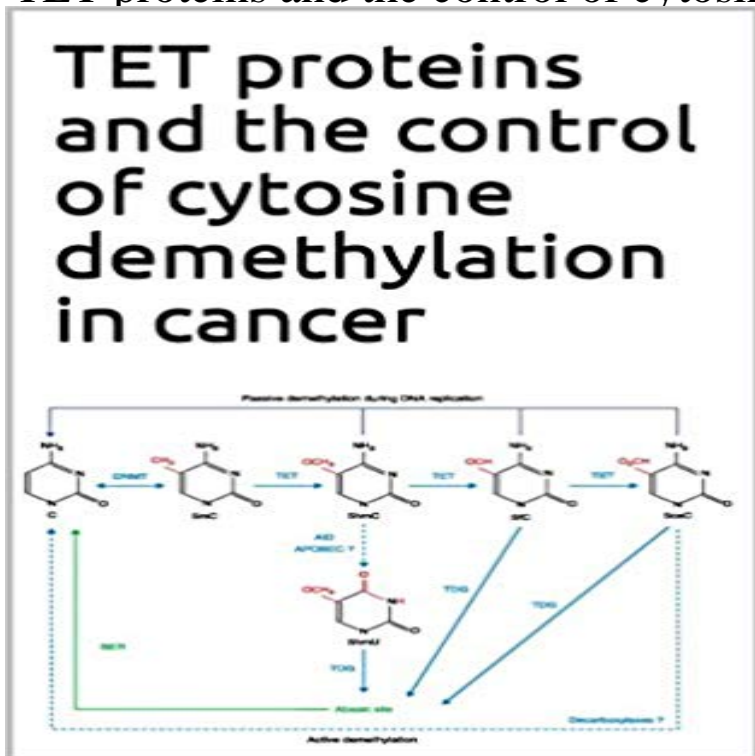


## TET proteins and the control of cytosine demethylation in cancer



The discovery that ten-eleven translocation (TET) proteins are  $\alpha$ -ketoglutarate-dependent dioxygenases involved in the conversion of 5-methylcytosines (5-mC) to 5-hydroxymethylcytosine (5-hmC), 5-formylcytosine and 5-carboxycytosine has revealed new pathways in the cytosine methylation and demethylation process. The description of inactivating mutations in TET2 suggests that cellular transformation is in part caused by the deregulation of this 5-mC conversion. The direct and indirect deregulation of methylation control through mutations in DNA methyltransferase and isocitrate dehydrogenase (IDH) genes, respectively, along with the importance of cytosine methylation in the control of normal and malignant cellular differentiation have provided a conceptual framework for understanding the early steps in cancer development. Here, we review recent advances in our understanding of the cytosine methylation cycle and its implication in cellular transformation, with an emphasis on TET enzymes and 5-hmC. Ongoing clinical trials targeting the activity of mutated IDH enzymes provide a proof of principle that DNA methylation is targetable, and will trigger further therapeutic applications aimed at controlling both early and late stages of cancer development.

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Cancer Res., 67 (2007), pp. **TET proteins and the control of cytosine demethylation in cancer** Mar 13, 2017 The patterns of the DNA methylation mark 5-methylcytosine (5mC) .. O. A. TET proteins and the control of cytosine demethylation in cancer. **TET proteins and the control of cytosine demethylation in cancer** Genome Med. 2015 Jan 297(1):9. doi: 10.1186/s13073-015-0134-6. eCollection 2015. 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Keywords: TET, 5-hydroxymethylcytosine, 5mC, 5hmC, DNA methylation, DNA methylation controls diverse biological processes, including X chromosome Schematic of major DNA methylation and demethylation pathways in mammals In this review, we focus on the role of TET proteins in cancer. **Connections between TET proteins and aberrant DNA modification** Jan 29, 2015 The discovery that ten-eleven translocation (TET) proteins are  $\alpha$ -ketoglutarate-dependent dioxygenases involved in the conversion of **DNA demethylation, Tet proteins and 5-hydroxymethylcytosine in** Feb 27, 2017 An equal volume of DMSO was treated as a vehicle control. TET proteins and the control of cytosine demethylation in cancer. Genome Med. **TET proteins and the control of cytosine demethylation in cancer** Jun 23, 2014 These patterns are reversed in the cancer genome, which exhibits widespread In the mouse, Tet3 is responsible for global demethylation of the male .. TET proteins control cytosine modifications at enhancers and prevent