Title:	Role of DNA Methyl Transferases (Dnmts) during retina regeneration in zebrafish and its interactions with other epigenetic modifiers.
Authors:	Kurup, A.J. (/jspui/browse?type=author&value=Kurup%2C+A.J.)
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Abstract:	The anatomical structure of zebrafish and mammalian retina are highly similar. However, the reason why mammalian retina fails to regenerate when zebrafish shows a robust regenerative response has been a paradox. The conundrum has been perceived as an opportunity by the scientific community. Endavours form the last two decades have unravelled wealth of information regulating retina regeneration in zebrafish with the hope of restoring mammalian vision following injury. However, the role of epigenetic factors regulating retina regeneration remains less understood. Here, we have investigated the role of an important epigenetic modifier DNA Methyl Transferases (Dnmts) in zebrafish retina regeneration. Dnmts are known to cause down-regulation of gene expression through methylating promoters. Regulation of dnmts during regeneration was explored. It was also revealed that Dnmts have a proliferation-inhibitory role. However, the increased proliferation was not sustained at later time points on dnmt inhibition. Regulation of some of the regeneration associated genes like Ascl1a, Sox2, mmp9 through Dnmts were also revealed. It was also deciphered that the Dnmts regulate expression of other epigenetic modifiers like Ezh2 and Hdacs. Finally, to assess how global methylation levels impact regenerative programme whole genome bisulfite sequencing was also performed.
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