Title:	Investigating role of miR-200 family during zebrafish retina regeneration and its interaction with regeneration associated genes
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Abstract:	Our eye is one of the most important sensory organs. We perceive 80% of the knowledge through eyes only. Diseases and mechanical insults can lead to vision loss. Although the field of retina regeneration is more than two decade old yet retina regeneration in mammals has still have a long way to go. But unlike mammals, Zebrafish, a teleost fish can regenerate its retina after injury. In zebrafish regenerative ability is attributed to a retinal cell type Muller glia which respond to injury and restore all lost retinal cell types. Muller glia are common to all vertebrates but in zebrafish only these cells undergo nucleus reprogramming upon injury to restore the vision. miRNA-200 family have been reported to regulate mesenchymal to epithelial transition (MET), cell proliferation, differentiation, cell cycle exit and their role in tumour suppression. Although lots of research studies have elucidated importance of various transcription factors and few micro-RNAs who are known to contribute to muller glia reprogramming, but microRNA-200 role in Zebrafish retina regeneration have not been studied. In this study, we have explored the role of miR-200 family and their interaction with regeneration associated genes during retina regeneration. We found that knockdown of miR-200a results in increased proliferation of MGPCs. We also explored interaction of miR-200 family with TGF-β signalling. Cyclopia condition was reported upon pharmacological inhibition of TGF-β signalling. We observed higher expression of miR-200a and miR-200b in TGF-β blocked condition in 48hpf embryos. So, may be TGF-β signalling is mediating its regulation through miR-200 family. Hence, this study sheds some light on miR-200 family role in zebrafish retina regeneration and their interaction with TFG-β signalling in embryo.
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