Title:	Studying Retina and Fin Regeneration in Hyperglycemic Zebrafish
Authors:	Singh, Himanshi
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Abstract:	Type 2 diabetes is a sweet silent killer which is estimated to afflict over 780 million people by 2045. It is marked by chronic elevated levels of blood glucose level and other micro/macro vascular disorders such as ulcers, retinopathy, nephropathy, neuropathy, and even foot gangrene which ultimately leads to foot amputation or death Despite the advancement in science and medical facilities available to control the hyperglycemic state, their role on the secondary symptoms of diabetes is not yet known. Type 2 Diabetes essentially accelerates ageing and prevents the proper signaling for cell proliferation and repair, which also affects the regeneration ability of the organism. Although all organisms are capable of regenerating to certain extent, model organism like Zebrafish (Danio rerio) are able to regrow their amputated appendages, injured retina, brain, spinal cord, and other organs. This magnificent ability is made possible due to specific cells, which are able to dedifferentiate into stem cells in response to any injury and leads to scar free tissue repair. These capabilities are diminished as organism becomes more complex; mammals like humans can regenerate liver, skin, intestinal lining, but these abilities too are lost as one ages. Metabolic disorders like Type 2 diabetes play significant role in disturbing the insulin homeostasis and hence leads to various symptoms with deadly consequences. Here zebrafish, which share similar metabolic circuits with human, serve as a good model to study Type 2 diabetes. The purpose of this study is to mimic Type-2 diabetes in zebrafish and observe its effect on the regeneration competence of zebrafish. Unraveling of the molecular pathways and gene regulatory networks behind this metabolic disorder can contribute towards understanding the restricted regeneration in complex vertebrates.
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