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Title:	Dual regulation of lin28a by Myc is necessary during zebrafish retina regeneration
Authors:	Mitra, Simran (/jspui/browse?type=author&value=Mitra%2C+Simran) Sharma, Poonam (/jspui/browse?type=author&value=Sharma%2C+Poonam) Kaur, Simran (/jspui/browse?type=author&value=Kaur%2C+Simran) Khursheed, M.A. (/jspui/browse?type=author&value=Khursheed%2C+M.A.) Gupta, Shivangi (/jspui/browse?type=author&value=Gupta%2C+Shivangi) Chaudhary, M. (/jspui/browse?type=author&value=Chaudhary%2C+M.) Kurup, A.J. (/jspui/browse?type=author&value=Kurup%2C+A.J.) Ramachandran, Rajesh (/jspui/browse?type=author&value=Ramachandran%2C+Rajesh)
Keywords:	Cellular Reprogramming Muller glia-derived progenitor cells
Issue Date:	2019
Publisher:	Rockefeller University Press
Citation:	Journal of Cell Biology, 218, pp. 489-507.
Abstract:	Cellular reprogramming leading to induction of Muller glia-derived progenitor cells (MGPCs) with stem cell characteristics is essential for zebrafish retina regeneration. Although several regeneration-specific genes are characterized, the significance of MGPC-associated Mycb induction remains unknown. Here, we show that early expression of Mycb induces expression of genes like ascl1a, a known activator of lin28a in MGPCs. Notably, mycb is simultaneously activated by Ascl1a and repressed by Insm1a in regenerating retina. Here, we unravel a dual role of Mycb in lin28a expression, both as an activator through Ascl1a in MGPCs and a repressor in combination with Hdac1 in neighboring cells. Myc inhibition reduces the number of MGPCs and abolishes normal regeneration. Myc in collaboration with Hdac1 inhibits her4.1, an effector of Delta-Notch signaling. Further, we also show the repressive role of Delta-Notch signaling on lin28a expression in post-injured retina. Our studies reveal mechanistic understanding of Myc pathway during zebrafish retina regeneration, which could pave way for therapeutic intervention during mammalian retina regeneration.
URI:	<a href="https://rupress.org/jcb/article/218/2/489/120504/Dual-regulation-of-lin28a-by-Myc-is-necessary">https://rupress.org/jcb/article/218/2/489/120504/Dual-regulation-of-lin28a-by-Myc-is-necessary</a> ( <a href="https://rupress.org/jcb/article/218/2/489/120504/Dual-regulation-of-lin28a-by-Myc-is-necessary">https://rupress.org/jcb/article/218/2/489/120504/Dual-regulation-of-lin28a-by-Myc-is-necessary</a> ) <a href="http://hdl.handle.net/123456789/2234">http://hdl.handle.net/123456789/2234</a> ( <a href="http://hdl.handle.net/123456789/2234">http://hdl.handle.net/123456789/2234</a> )
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