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Title:	Studying the Effects of High Sugar Diet Associated Metabolic Changes on the Gut Homeostasis of <i>Drosophila melanogaster</i>
Authors:	Bose, Greeshma P. (/jspui/browse?type=author&value=Bose%2C+Greeshma+P.)
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Abstract:	Alterations in diet have profound impact on the health of an individual. Considering the fact that diet is the major modifiable determinant of chronic diseases, through this study, we are investigating the effects of high sugar diet associated metabolism on the gut homeostasis of <i>Drosophila melanogaster</i> . The experimental model adopted for this study is based on recent reports wherein the fruit fly has been used to develop a diet – induced disease model. The experimental flies were reared on media containing 1 M sugar while the control flies were fed with 0.15M sugar containing media. Our results demonstrate a significant perturbation in the gut homeostasis. This includes depletion of the intestinal stem cell (ISCs) population and the enteroendocrine (EE) cells and the enhancement of the absorptive enterocytes (EC). We also observed perturbation of the expression of JAK -STAT signaling pathway ligand Upd3 which constitutes the major mitogenic signal for the intestinal stem cell proliferation. The high sugar diet fed flies also exhibited higher glucose uptake and altered mitochondrial dynamics. The fatty acid oxidation (FAO) capabilities of these flies were also compromised suggestive of significant alteration in the metabolic landscape.
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