A transcriptomic (RNA-seq) analysis of Drosophila melanogaster adult testes overexpressing microRNA-2b-1

ABSTRACT

MicroRNAs (miRNAs) are short non-coding single-stranded RNAs with approximately 22 nucleotides in length that neg- atively regulate the mRNA translation of a target gene. MiR-2b-1 belongs to the largest miR-2 family in Drosophila melanogaster with 8 members and this miRNA family is con- served in invertebrates. miRNAs play key roles in gene reg- ulation, cell proliferation, cell death, cell differentiation and cell developmental homeostasis in multicellular organisms. Its role in various human diseases is continuously being stud- ied. miRNAs also found out to be crucial in maintaining stem cell niche in D. melanogaster gonads. We have identified that ectopic overexpression of miR-2b-1 of D. melanogaster causes testicular bulging (a tumour like phenotype) in 3-5 days old adult flies. Hence, we have performed a transcriptomic (RNA- seq) analysis to understand the role of miR-2b-1 in the devel- opment, maintenance, and differentiation of D. melanogaster adult testis stem cells. Data are available from GEO (accession number GSE211399).