**Supplementary Table 14**: Roles of the top 4 differentially expressed genes.

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| *DNPH1* | It has been linked to cellular proliferation and c-Myc-mediated transformation (www.genecards.org/cgi-bin/carddisp.pl?gene=DNPH1) |
| *PARP1* | It encodes a chromatin-associated enzyme, poly(ADP-ribosyl)transferase involved in the regulation of several cellular processes such as differentiation, proliferation, and tumor transformation. Moreover, it plays an important role in the regulation of the molecular events involved in the recovery of cell from DNA damage. Both under normal physiological conditions and in response to DNA damage, PARP1 regulates EZH2 activity, indicating that a crosstalk exits between PARP activity and heterochromatin formation in the context of DNA damage. The immediate early inhibition of EZH2 by PARP1 prevents EZH2-mediated de-novo histone methylation and chromatin condensation, while the later inhibition may prevent EZH2 from repressing genes involved in DNA repair.  (www.genecards.org/cgi-bin/carddisp.pl?gene=PARP1) |
| *GFI1B* | It encodes a zinc-finger containing a transcriptional regulator that is primarily expressed in cells of hematopoietic lineage, implicated in the control of hematopoietic differentiation. It is known that GFI1B interacts with EZH2 in repressive complexes. Moreover, it interacts with LSD1, which has specific H3K4 demethylase activity. The actions of GFI1B, via LSD1, may be the initial step in reversing gene activation by removing H3K4 methylation at genes that are initially on during early erythroid development, such as GATA-2 and c-kit. A similar mechanism of action is played by SETBP1, that is able to recruit a HCF1/KMT2A/PHF8/PHF6 transcriptional activator complex causing activation of gene expression.  (www.genecards.org/cgi-bin/carddisp.pl?gene=GFI1) |