

DEG+Enrichment analysis on CTCs

We conducted DESeq on the CTC count data and identified 58 genes differentially expressed ($FDR < 0.02$) between 41 Naive cells and 36 resistant cells. Further, using Fisher's Exact Test, we sorted the pathway by their p-values of enrichment tests. The top 20 pathways are listed below:

path_id	p_nomial	description
200017	0.1414821	p73 transcription factor network
200186	0.2465277	Calcium signaling in the CD4+ TCR pathway
200230	0.2601980	IL12 signaling mediated by STAT4
200073	0.2736244	Arf6 signaling events
200141	0.3187580	ErbB2/ErbB3 signaling events
200064	0.3372465	Integrin-linked kinase signaling
200120	0.3472916	Direct p53 effectors
200108	0.3669707	FoxO family signaling
200090	0.3898032	Role of Calcineurin-dependent NFAT signaling in lymphocytes
200049	0.4063946	Coregulation of Androgen receptor activity
200045	0.4434030	IL12-mediated signaling events
200201	0.4434030	Validated targets of C-MYC transcriptional repression
200006	0.4535538	BCR signaling pathway
200086	0.4535538	Regulation of Telomerase
200216	0.4635226	Downstream signaling in naïve CD8+ T cells
200002	1.0000000	Fanconi anemia pathway
200003	1.0000000	Regulation of nuclear SMAD2/3 signaling
200004	1.0000000	Fc-epsilon receptor I signaling in mast cells
200005	1.0000000	Endothelins
200007	1.0000000	Signaling events mediated by PRL

Since there are only 58 DEGs when we use the FDR cutoff 0.2, we relaxed the FDR cutoff to 0.3 to include more genes in the following enrichment test. With 165 DEGs, we again sorted the pathway by their p-values of enrichment tests.

path_id	p_nomial	description
200017	0.1188354	p73 transcription factor network
200186	0.1899336	Calcium signaling in the CD4+ TCR pathway
200012	0.2664694	Aurora B signaling
200173	0.3619511	Hedgehog signaling events mediated by Gli proteins
200024	0.3918250	Degradation of beta catenin
200077	0.4075611	Canonical Wnt signaling pathway
200090	0.4080867	Role of Calcineurin-dependent NFAT signaling in lymphocytes
200111	0.4378293	C-MYC pathway
200169	0.4378293	Signaling events mediated by the Hedgehog family
200015	0.4525655	Notch signaling pathway
200086	0.5115237	Regulation of Telomerase
200032	0.5586589	E2F transcription factor network
200020	0.5676030	Noncanonical Wnt signaling pathway
200230	0.5788138	IL12 signaling mediated by STAT4
200072	0.5897357	ATM pathway
200073	0.6003760	Arf6 signaling events
200154	0.6231553	C-MYB transcription factor network
200091	0.6298574	Glucocorticoid receptor regulatory network

path_id	p_nomial	description
200003	0.6364671	Regulation of nuclear SMAD2/3 signaling
200141	0.6675583	ErbB2/ErbB3 signaling events