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Pathway enrichment of up-regulated genes

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### 1  
### Pathway name: Cell cycle  
# Adjusted p-value: 1.06E-14  
# Differentially expressed genes in pathway: BUB1; BUB1B; CCNA1; CCNA2; CCNB1; CCNB2; CCND1; CCNE2; CDC20; CDC25A; CDC25C; CDC45; CDC6; CDK1; CDKN2C; DBF4; E2F1; E2F2; ESPL1; GADD45G; MAD2L1; MCM2; MCM3; MCM4; MCM5; ORC1; PKMYT1; PLK1; PTTG1; TTK;  
# The number of differentially expressed genes in pathway: 30  
# The total number of genes in pathway: 126  
# Pathway database: KEGG

### 2  
### Pathway name: Oocyte meiosis  
# Adjusted p-value: 7.92E-05  
# Differentially expressed genes in pathway: AURKA; BUB1; CCNB1; CCNB2; CCNE2; CDC20; CDC25C; CDK1; ESPL1; FBXO5; ITPR3; MAD2L1; PKMYT1; PLK1; PTTG1; SGOL1;  
# The number of differentially expressed genes in pathway: 16  
# The total number of genes in pathway: 114  
# Pathway database: KEGG

### 3  
### Pathway name: DNA replication  
# Adjusted p-value: 1.04E-04  
# Differentially expressed genes in pathway: FEN1; MCM2; MCM3; MCM4; MCM5; POLA1; POLE2; RFC3; RNASEH2A;  
# The number of differentially expressed genes in pathway: 9  
# The total number of genes in pathway: 37  
# Pathway database: KEGG

### 4  
### Pathway name: Progesterone-mediated oocyte maturation  
# Adjusted p-value: 1.70E-03  
# Differentially expressed genes in pathway: BUB1; CCNA1; CCNA2; CCNB1; CCNB2; CDC25A; CDC25C; CDK1; MAD2L1; PIK3CG; PKMYT1; PLK1;  
# The number of differentially expressed genes in pathway: 12  
# The total number of genes in pathway: 91  
# Pathway database: KEGG

### 5  
### Pathway name: p53 signaling pathway  
# Adjusted p-value: 2.40E-03  
# Differentially expressed genes in pathway: CCNB1; CCNB2; CCND1; CCNE2; CD82; CDK1; GADD45G; GTSE1; RRM2; STEAP3;  
# The number of differentially expressed genes in pathway: 10  
# The total number of genes in pathway: 68  
# Pathway database: KEGG

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### 6
### Pathway name: ECM-receptor interaction
# Adjusted p-value: 4.51E-03
# Differentially expressed genes in pathway: CD44; COL4A6; GP6; HMMR; ITGA2;
ITGB3; LAMA5; LAMB3; LAMC2; SDC1; TNC;
# The number of differentially expressed genes in pathway: 11
# The total number of genes in pathway: 88
# Pathway database: KEGG

### 7
### Pathway name: Small cell lung cancer
# Adjusted p-value: 4.51E-03
# Differentially expressed genes in pathway: CCND1; CCNE2; CKS1B; COL4A6; E2F1;
E2F2; ITGA2; LAMA5; LAMB3; LAMC2; PIK3CG;
# The number of differentially expressed genes in pathway: 11
# The total number of genes in pathway: 88
# Pathway database: KEGG

### 8
### Pathway name: Glycosaminoglycan biosynthesis
# Adjusted p-value: 1.53E-02
# Differentially expressed genes in pathway: HS3ST1; HS3ST3B1; HS6ST3; NDST1;
XYLT1;
# The number of differentially expressed genes in pathway: 5
# The total number of genes in pathway: 26
# Pathway database: KEGG

### 9
### Pathway name: Pathways in cancer
# Adjusted p-value: 1.66E-02
# Differentially expressed genes in pathway: BIRC5; CCNA1; CCND1; CCNE2; CKS1B;
COL4A6; E2F1; E2F2; ETS1; FGF1; FGF16; FOS; IL8; ITGA2; LAMA5; LAMB3; LAMC2;
MMP1; PGF; PIK3CG; RAC2; RAD51; RALB;
# The number of differentially expressed genes in pathway: 23
# The total number of genes in pathway: 329
# Pathway database: KEGG

### 10
### Pathway name: Hematopoietic cell lineage
# Adjusted p-value: 2.52E-02
# Differentially expressed genes in pathway: ANPEP; CD44; CD55; CSF3; IL11;
IL7R; ITGA2; ITGB3; MME;
# The number of differentially expressed genes in pathway: 9
# The total number of genes in pathway: 88
# Pathway database: KEGG

### 11
### Pathway name: One carbon pool by folate
# Adjusted p-value: 3.06E-02
# Differentially expressed genes in pathway: DHFR; SHMT1; ST20-MTHFS; TYMS;
# The number of differentially expressed genes in pathway: 4
# The total number of genes in pathway: 21
# Pathway database: KEGG

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### 12  
### Pathway name: VEGF signaling pathway  
# Adjusted p-value: 3.45E-02  
# Differentially expressed genes in pathway: MAPKAPK3; NFATC2; NOS3; PIK3CG;  
RAC2; SH2D2A; SPHK1;  
# The number of differentially expressed genes in pathway: 7  
# The total number of genes in pathway: 62  
# Pathway database: KEGG

### 13  
### Pathway name: Pancreatic cancer  
# Adjusted p-value: 4.79E-02  
# Differentially expressed genes in pathway: CCND1; E2F1; E2F2; PIK3CG; RAC2;  
RAD51; RALB;  
# The number of differentially expressed genes in pathway: 7  
# The total number of genes in pathway: 67  
# Pathway database: KEGG

### 14  
### Pathway name: Mitotic Prometaphase  
# Adjusted p-value: 4.30E-14  
# Differentially expressed genes in pathway:  
NDC80;BIRC5;CENPM;CENPI;NCAPG;SMC4;CENPA;CDC20;CENPF;NCAPH;KIF18A;ZWINT;CENPK;SG  
OL1;CCNB1;CDCA8;CASC5;CENPO;CENPE;KIF2C;NUF2;CDCA5;INCENP;CENPU;CENPH;SKA1;BUB1B  
;CCNB2;SPC24;SGOL2;MAD2L1;PLK1;TUBA1C;BUB1;CDK1;TUBB6;AURKB;ERCC6L;TUBB4B;SKA1;S  
PC25  
# The number of differentially expressed genes in pathway: 40  
# The total number of genes in pathway: 136  
# Pathway database: Reactome

### 15  
### Pathway name: Cell Cycle; Mitotic  
# Adjusted p-value: 4.30E-14  
# Differentially expressed genes in pathway:  
PRKAR2B;DBF4;E2F2;SDCCAG8;NDC1;MCM10;HMMR;MCM2;GTSE1;NDC80;ORC1;AURKA;TPX2;BIRC5  
;CDC45;CDC6;CENPM;MCM5;POLE2;GINS1;MYBL2;E2F1;POLA1;CENPI;MCM4;NCAPG;CCND1;FOXM1  
;FBXO5;MCM3;KIF20A;LMNB1;SMC4;CENPA;CDC20;NEK2;CENPF;NCAPH;KIF18A;ZWINT;CDKN2C;C  
ENPK;PKMYT1;SGOL1;GINS2;TOP2A;CCNA1;RFC3;CCNB1;CDCA8;ESPL1;KIF23;CASC5;CENPO;CEN  
PE;PLK4;KIF2C;NUF2;CCNA2;CDCA5;NCAPG2;GINS4;INCENP;NCAPD3;CENPU;CENPH;SKA1;BUB1B  
;CCNB2;CDC25C;SPC24;SGOL2;CDC25A;MAD2L1;PTTG1;PLK1;CDT1;TUBA1C;FEN1;BUB1;CDK1;ES  
CO2;RRM2;CKS1B;UBE2C;CCNE2;TUBB6;TYMS;AURKB;ERCC6L;TUBB4B;H2AFX;DHFR;SKA1;SPC25  
# The number of differentially expressed genes in pathway: 99  
# The total number of genes in pathway: 526  
# Pathway database: Reactome

### 16  
### Pathway name: Cell Cycle  
# Adjusted p-value: 4.30E-14  
# Differentially expressed genes in pathway:  
PRKAR2B;DBF4;E2F2;BRCA1;RAD51;SDCCAG8;NDC1;MCM10;HMMR;MCM2;GTSE1;NDC80;ORC1;AURK  
A;TPX2;BIRC5;CLSPN;CDC45;CDC6;CENPM;MCM5;POLE2;GINS1;MYBL2;E2F1;POLA1;CENPI;OIP5  
;MCM4;NCAPG;CCND1;FOXM1;FBXO5;MCM3;KIF20A;LMNB1;SMC4;CENPA;CDC20;NEK2;CENPF;NCAP

H;MND1;KIF18A;ZWINT;CDKN2C;CENPK;HJURP;PKMYT1;SGOL1;GINS2;PSMC3IP;TOP2A;CCNA1;RFC3;CCNB1;CDCA8;ESPL1;BRIP1;KIF23;CASC5;CENPO;CENPE;PLK4;KIF2C;NUF2;CCNA2;CDCA5;NCAPG2;GINS4;INCENP;NCAPD3;CENPU;CENPH;SKA1;BUB1B;CCNB2;CDC25C;MIS18A;SPC24;SGOL2;CDC25A;MAD2L1;PTTG1;PLK1;CDT1;TUBA1C;FEN1;BUB1;CDK1;ESCO2;RRM2;CKS1B;EXO1;UBE2C;CCNE2;RMI2;TUBB6;TYMS;AURKB;ERCC6L;TUBB4B;H2AFX;BLM;CENPW;DHFR;SKA1;SPC25  
# The number of differentially expressed genes in pathway: 112  
# The total number of genes in pathway: 638  
# Pathway database: Reactome

### 17  
### Pathway name: Resolution of Sister Chromatid Cohesion  
# Adjusted p-value: 1.29E-13  
# Differentially expressed genes in pathway:  
NDC80;BIRC5;CENPM;CENPI;CENPA;CDC20;CENPF;KIF18A;ZWINT;CENPK;SGOL1;CCNB1;CDCA8;CASC5;CENPO;CENPE;KIF2C;NUF2;CDCA5;INCENP;CENPU;CENPH;SKA1;BUB1B;CCNB2;SPC24;SGOL2;MAD2L1;PLK1;TUBA1C;BUB1;CDK1;TUBB6;AURKB;ERCC6L;TUBB4B;SKA1;SPC25  
# The number of differentially expressed genes in pathway: 37  
# The total number of genes in pathway: 128  
# Pathway database: Reactome

### 18  
### Pathway name: RHO GTPases Activate Formins  
# Adjusted p-value: 1.03E-09  
# Differentially expressed genes in pathway:  
NDC80;BIRC5;CENPM;CENPI;CENPA;CDC20;CENPF;KIF18A;ZWINT;CENPK;SGOL1;CDCA8;CASC5;CENPO;CENPE;KIF2C;NUF2;INCENP;CENPU;CENPH;SKA1;BUB1B;SPC24;SGOL2;MAD2L1;PLK1;TUBA1C;BUB1;TUBB6;AURKB;ERCC6L;TUBB4B;SKA1;SPC25  
# The number of differentially expressed genes in pathway: 33  
# The total number of genes in pathway: 141  
# Pathway database: Reactome

### 19  
### Pathway name: M Phase  
# Adjusted p-value: 2.05E-09  
# Differentially expressed genes in pathway:  
NDC1;NDC80;BIRC5;CENPM;CENPI;NCAPG;FBXO5;KIF20A;LMNB1;SMC4;CENPA;CDC20;CENPF;NCAPH;KIF18A;ZWINT;CENPK;SGOL1;CCNB1;CDCA8;ESPL1;KIF23;CASC5;CENPO;CENPE;KIF2C;NUF2;CDCA5;NCAPG2;INCENP;NCAPD3;CENPU;CENPH;SKA1;BUB1B;CCNB2;SPC24;SGOL2;MAD2L1;PTTG1;PLK1;TUBA1C;BUB1;CDK1;UBE2C;TUBB6;AURKB;ERCC6L;TUBB4B;H2AFX;SKA1;SPC25  
# The number of differentially expressed genes in pathway: 51  
# The total number of genes in pathway: 319  
# Pathway database: Reactome

### 20  
### Pathway name: Mitotic Metaphase and Anaphase  
# Adjusted p-value: 2.66E-09  
# Differentially expressed genes in pathway:  
NDC80;BIRC5;CENPM;CENPI;FBXO5;LMNB1;CENPA;CDC20;CENPF;KIF18A;ZWINT;CENPK;SGOL1;CDCA8;ESPL1;CASC5;CENPO;CENPE;KIF2C;NUF2;CDCA5;INCENP;CENPU;CENPH;SKA1;BUB1B;SPC24;SGOL2;MAD2L1;PTTG1;PLK1;TUBA1C;BUB1;UBE2C;TUBB6;AURKB;ERCC6L;TUBB4B;SKA1;SPC25  
# The number of differentially expressed genes in pathway: 39  
# The total number of genes in pathway: 203  
# Pathway database: Reactome

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### 21
### Pathway name: G1/S-Specific Transcription
# Adjusted p-value: 2.66E-09
# Differentially expressed genes in pathway:
ORC1;CDC45;CDC6;E2F1;POLA1;FBXO5;CCNA1;CDC25A;CDT1;CDK1;RRM2;TYMS;DHFR
# The number of differentially expressed genes in pathway: 13
# The total number of genes in pathway: 17
# Pathway database: Reactome

### 22
### Pathway name: Separation of Sister Chromatids
# Adjusted p-value: 3.95E-09
# Differentially expressed genes in pathway:
NDC80;BIRC5;CENPM;CENPI;CENPA;CDC20;CENPF;KIF18A;ZWINT;CENPK;SGOL1;CDCA8;ESPL1;C
ASC5;CENPO;CENPE;KIF2C;NUF2;CDCA5;INCENP;CENPU;CENPH;SKA1;BUB1B;SPC24;SGOL2;MAD2
L1;PTTG1;PLK1;TUBA1C;BUB1;UBE2C;TUBB6;AURKB;ERCC6L;TUBB4B;SKA1;SPC25
# The number of differentially expressed genes in pathway: 37
# The total number of genes in pathway: 188
# Pathway database: Reactome

### 23
### Pathway name: Mitotic Anaphase
# Adjusted p-value: 6.29E-09
# Differentially expressed genes in pathway:
NDC80;BIRC5;CENPM;CENPI;LMNB1;CENPA;CDC20;CENPF;KIF18A;ZWINT;CENPK;SGOL1;CDCA8;E
SPL1;CASC5;CENPO;CENPE;KIF2C;NUF2;CDCA5;INCENP;CENPU;CENPH;SKA1;BUB1B;SPC24;SGOL
2;MAD2L1;PTTG1;PLK1;TUBA1C;BUB1;UBE2C;TUBB6;AURKB;ERCC6L;TUBB4B;SKA1;SPC25
# The number of differentially expressed genes in pathway: 38
# The total number of genes in pathway: 202
# Pathway database: Reactome

### 24
### Pathway name: Polo-like kinase mediated events
# Adjusted p-value: 6.29E-09
# Differentially expressed genes in pathway:
MYBL2;FOXM1;CENPF;PKMYT1;CCNB1;CCNB2;CDC25C;CDC25A;PLK1
# The number of differentially expressed genes in pathway: 14
# The total number of genes in pathway: 23
# Pathway database: Reactome

### 25
### Pathway name: Mitotic G1-G1/S phases
# Adjusted p-value: 5.16E-08
# Differentially expressed genes in pathway:
DBF4;E2F2;MCM10;MCM2;ORC1;CDC45;CDC6;MCM5;POLE2;MYBL2;E2F1;POLA1;MCM4;CCND1;FBXO
5;MCM3;CDKN2C;PKMYT1;TOP2A;CCNA1;CCNB1;CCNA2;CDC25A;CDT1;CDK1;RRM2;CKS1B;CCNE2;T
YMS;DHFR
# The number of differentially expressed genes in pathway: 30
# The total number of genes in pathway: 143
# Pathway database: Reactome

### 26

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### Pathway name: G1/S Transition  
# Adjusted p-value: 3.00E-07  
# Differentially expressed genes in pathway:  
DBF4;MCM10;MCM2;ORC1;CDC45;CDC6;MCM5;POLE2;E2F1;POLA1;MCM4;CCND1;FBXO5;MCM3;PKMY  
T1;CCNA1;CCNB1;CCNA2;CDC25A;CDT1;CDK1;RRM2;CKS1B;CCNE2;TYMS;DHFR  
# The number of differentially expressed genes in pathway: 26  
# The total number of genes in pathway: 119  
# Pathway database: Reactome

### 27  
### Pathway name: E2F mediated regulation of DNA replication  
# Adjusted p-value: 4.79E-07  
# Differentially expressed genes in pathway:  
ORC1;CDC45;CDC6;E2F1;POLA1;FBXO5;CCNA1;CCNB1;CDC25A;CDT1;CDK1;RRM2;TYMS;DHFR  
# The number of differentially expressed genes in pathway: 14  
# The total number of genes in pathway: 33  
# Pathway database: Reactome

### 28  
### Pathway name: Signaling by Rho GTPases  
# Adjusted p-value: 1.31E-06  
# Differentially expressed genes in pathway:  
DEPDC1B;CYBA;NGEF;NDC80;BIRC5;CENPM;CENPI;CENPA;NCF2;CDC20;CENPF;KIF14;KIF18A;ZW  
INT;CIT;CENPK;RAC2;ARHGAP22;SGOL1;STARD8;STARD13;VAV3;CDCA8;CASC5;CENPO;ARHGAP24  
;CENPE;RHOF;KIF2C;NUF2;INCENP;CENPU;CENPH;SKA1;BUB1B;CDC25C;RACGAP1;SPC24;SGOL2;  
MAD2L1;PLK1;TUBA1C;BUB1;TUBB6;AURKB;IQGAP3;ERCC6L;TUBB4B;H2AFX;ARHGAP11A;PRC1;SK  
A1;SPC25  
# The number of differentially expressed genes in pathway: 53  
# The total number of genes in pathway: 422  
# Pathway database: Reactome

### 29  
### Pathway name: RHO GTPase Effectors  
# Adjusted p-value: 1.51E-06  
# Differentially expressed genes in pathway:  
CYBA;NDC80;BIRC5;CENPM;CENPI;CENPA;NCF2;CDC20;CENPF;KIF14;KIF18A;ZWINT;CIT;CENPK  
;RAC2;SGOL1;CDCA8;CASC5;CENPO;CENPE;KIF2C;NUF2;INCENP;CENPU;CENPH;SKA1;BUB1B;CDC  
25C;SPC24;SGOL2;MAD2L1;PLK1;TUBA1C;BUB1;TUBB6;AURKB;IQGAP3;ERCC6L;TUBB4B;H2AFX;P  
RC1;SKA1;SPC25  
# The number of differentially expressed genes in pathway: 43  
# The total number of genes in pathway: 307  
# Pathway database: Reactome

### 30  
### Pathway name: Kinesins  
# Adjusted p-value: 3.01E-06  
# Differentially expressed genes in pathway:  
KIF26A;KIF22;KIF4A;KIF20A;KIF18A;KIF23;KIF11;KIF20B;CENPE;KIF2C;RACGAP1;KIF15;TU  
BA1C;TUBB6;KIF18B;TUBB4B;KIF19;KIFC1;KIF15  
# The number of differentially expressed genes in pathway: 18  
# The total number of genes in pathway: 67  
# Pathway database: Reactome

### 31  
### Pathway name: Cell Cycle Checkpoints  
# Adjusted p-value: 4.22E-06  
# Differentially expressed genes in pathway:  
DBF4;BRCA1;MCM10;MCM2;GTSE1;ORC1;CLSPN;CDC45;CDC6;MCM5;MCM4;MCM3;CDC20;PKMYT1;CCNA1;RFC3;CCNB1;BRIP1;CCNA2;BUB1B;CCNB2;CDC25C;CDC25A;MAD2L1;CDK1;EXO1;UBE2C;CCNE2;RMI2;H2AFX;BLM  
# The number of differentially expressed genes in pathway: 31  
# The total number of genes in pathway: 188  
# Pathway database: Reactome

### 32  
### Pathway name: Activation of ATR in response to replication stress  
# Adjusted p-value: 1.88E-05  
# Differentially expressed genes in pathway:  
DBF4;MCM10;MCM2;ORC1;CLSPN;CDC45;CDC6;MCM5;MCM4;MCM3;RFC3;CDC25C;CDC25A  
# The number of differentially expressed genes in pathway: 13  
# The total number of genes in pathway: 39  
# Pathway database: Reactome

### 33  
### Pathway name: Unwinding of DNA  
# Adjusted p-value: 2.17E-05  
# Differentially expressed genes in pathway:  
MCM2;CDC45;MCM5;GINS1;MCM4;MCM3;GINS2;GINS4  
# The number of differentially expressed genes in pathway: 8  
# The total number of genes in pathway: 12  
# Pathway database: Reactome

### 34  
### Pathway name: Activation of the pre-replicative complex  
# Adjusted p-value: 3.13E-05  
# Differentially expressed genes in pathway:  
DBF4;MCM10;MCM2;ORC1;CDC45;CDC6;MCM5;POLE2;POLA1;MCM4;MCM3;CDT1  
# The number of differentially expressed genes in pathway: 12  
# The total number of genes in pathway: 35  
# Pathway database: Reactome

### 35  
### Pathway name: Cyclin A/B1 associated events during G2/M transition  
# Adjusted p-value: 9.37E-05  
# Differentially expressed genes in pathway:  
FOXM1;PKMYT1;CCNA1;CCNB1;CCNA2;CCNB2;CDC25C;CDC25A;PLK1;CDK1  
# The number of differentially expressed genes in pathway: 10  
# The total number of genes in pathway: 26  
# Pathway database: Reactome

### 36  
### Pathway name: Mitotic G2-G2/M phases  
# Adjusted p-value: 1.07E-04  
# Differentially expressed genes in pathway:  
PRKAR2B;SDCCAG8;HMMR;GTSE1;AURKA;TPX2;MYBL2;E2F1;FOXM1;NEK2;CENPF;PKMYT1;CCNA1;CCNB1;PLK4;CCNA2;CCNB2;CDC25C;CDC25A;PLK1;TUBA1C;CDK1;TUBB6;TUBB4B

# The number of differentially expressed genes in pathway: 29  
# The total number of genes in pathway: 201  
# Pathway database: Reactome

### 37  
### Pathway name: DNA Replication  
# Adjusted p-value: 1.51E-04  
# Differentially expressed genes in pathway:  
DBF4;E2F2;MCM10;MCM2;ORC1;CDC45;CDC6;MCM5;POLE2;GINS1;E2F1;POLA1;MCM4;MCM3;GINS2  
;CCNA1;RFC3;CCNA2;GINS4;CDT1;FEN1  
# The number of differentially expressed genes in pathway: 21  
# The total number of genes in pathway: 120  
# Pathway database: Reactome

### 38  
### Pathway name: S Phase  
# Adjusted p-value: 1.97E-04  
# Differentially expressed genes in pathway:  
MCM2;ORC1;CDC45;CDC6;MCM5;POLE2;GINS1;POLA1;MCM4;CCND1;MCM3;GINS2;CCNA1;RFC3;CCN  
A2;CDCA5;GINS4;CDC25A;CDT1;FEN1;ESCO2;CKS1B;CCNE2  
# The number of differentially expressed genes in pathway: 23  
# The total number of genes in pathway: 143  
# Pathway database: Reactome

### 39  
### Pathway name: G2/M Checkpoints  
# Adjusted p-value: 2.03E-04  
# Differentially expressed genes in pathway:  
DBF4;BRCA1;MCM10;MCM2;GTSE1;ORC1;CLSPN;CDC45;CDC6;MCM5;MCM4;MCM3;PKMYT1;RFC3;CCN  
B1;BRIP1;CCNB2;CDC25C;CDC25A;CDK1;EXO1;RMI2;H2AFX;BLM  
# The number of differentially expressed genes in pathway: 24  
# The total number of genes in pathway: 154  
# Pathway database: Reactome

### 40  
### Pathway name: G2/M Transition  
# Adjusted p-value: 2.16E-04  
# Differentially expressed genes in pathway:  
PRKAR2B;SDCCAG8;HMMR;GTSE1;AURKA;TPX2;MYBL2;FOXM1;NEK2;CENPF;PKMYT1;CCNA1;CCNB1;  
PLK4;CCNA2;CCNB2;CDC25C;CDC25A;PLK1;TUBA1C;CDK1;TUBB6;TUBB4B  
# The number of differentially expressed genes in pathway: 28  
# The total number of genes in pathway: 199  
# Pathway database: Reactome

### 41  
### Pathway name: DNA strand elongation  
# Adjusted p-value: 3.31E-04  
# Differentially expressed genes in pathway:  
MCM2;CDC45;MCM5;GINS1;POLA1;MCM4;MCM3;GINS2;RFC3;GINS4;FEN1  
# The number of differentially expressed genes in pathway: 11  
# The total number of genes in pathway: 38  
# Pathway database: Reactome



### 42  
### Pathway name: Deposition of new CENPA-containing nucleosomes at the centromere  
# Adjusted p-value: 4.23E-04  
# Differentially expressed genes in pathway:  
CENPM;CENPI;OIP5;CENPA;CENPK;HJURP;CASC5;CENPO;CENPU;CENPH;MIS18A;H2AFX;CENPW  
# The number of differentially expressed genes in pathway: 13  
# The total number of genes in pathway: 55  
# Pathway database: Reactome

### 43  
### Pathway name: Nucleosome assembly  
# Adjusted p-value: 4.23E-04  
# Differentially expressed genes in pathway:  
CENPM;CENPI;OIP5;CENPA;CENPK;HJURP;CASC5;CENPO;CENPU;CENPH;MIS18A;H2AFX;CENPW  
# The number of differentially expressed genes in pathway: 13  
# The total number of genes in pathway: 55  
# Pathway database: Reactome

### 44  
### Pathway name: G0 and Early G1  
# Adjusted p-value: 6.64E-04  
# Differentially expressed genes in pathway:  
CDC6;MYBL2;E2F1;TOP2A;CCNA1;CCNA2;CDC25A;CDK1;CCNE2  
# The number of differentially expressed genes in pathway: 9  
# The total number of genes in pathway: 27  
# Pathway database: Reactome

### 45  
### Pathway name: Chromosome Maintenance  
# Adjusted p-value: 2.07E-03  
# Differentially expressed genes in pathway:  
CENPM;POLE2;POLA1;CENPI;OIP5;CENPA;CENPK;HJURP;RFC3;CASC5;CENPO;CENPU;CENPH;MIS18A;FEN1;H2AFX;CENPW  
# The number of differentially expressed genes in pathway: 17  
# The total number of genes in pathway: 104  
# Pathway database: Reactome

### 46  
### Pathway name: COPI-dependent Golgi-to-ER retrograde traffic  
# Adjusted p-value: 2.07E-03  
# Differentially expressed genes in pathway:  
KIF26A;KIF22;KIF4A;KIF20A;KIF18A;KIF23;KIF11;KIF20B;CENPE;KIF2C;RACGAP1;KIF15;TUBA1C;TUBB6;KIF18B;TUBB4B;KIF19;KIF15  
# The number of differentially expressed genes in pathway: 17  
# The total number of genes in pathway: 104  
# Pathway database: Reactome

### 47  
### Pathway name: Phosphorylation of Emil  
# Adjusted p-value: 2.50E-03  
# Differentially expressed genes in pathway: FBXO5;CDC20;CCNB1;PLK1;CDK1

# The number of differentially expressed genes in pathway: 5  
# The total number of genes in pathway: 8  
# Pathway database: Reactome

### 48  
### Pathway name: TP53 Regulates Transcription of Genes Involved in G1 Cell Cycle Arrest  
# Adjusted p-value: 2.62E-03  
# Differentially expressed genes in pathway: E2F1;CCNA1;CCNA2;E2F7;CCNE2  
# The number of differentially expressed genes in pathway: 7  
# The total number of genes in pathway: 19  
# Pathway database: Reactome

### 49  
### Pathway name: Synthesis of DNA  
# Adjusted p-value: 4.02E-03  
# Differentially expressed genes in pathway:  
MCM2;ORC1;CDC45;CDC6;MCM5;POLE2;GINS1;POLA1;MCM4;MCM3;GINS2;CCNA1;RFC3;CCNA2;GINS4;CDT1;FEN1  
# The number of differentially expressed genes in pathway: 17  
# The total number of genes in pathway: 111  
# Pathway database: Reactome

### 50  
### Pathway name: Condensation of Prometaphase Chromosomes  
# Adjusted p-value: 5.00E-03  
# Differentially expressed genes in pathway: NCAPG;SMC4;NCAPH;CCNB1;CCNB2;CDK1  
# The number of differentially expressed genes in pathway: 6  
# The total number of genes in pathway: 15  
# Pathway database: Reactome

### 51  
### Pathway name: TP53 Regulates Transcription of Cell Cycle Genes  
# Adjusted p-value: 6.15E-03  
# Differentially expressed genes in pathway:  
AURKA;E2F1;CCNA1;CCNB1;CCNA2;CDC25C;E2F7;CDK1;CCNE2  
# The number of differentially expressed genes in pathway: 12  
# The total number of genes in pathway: 64  
# Pathway database: Reactome

### 52  
### Pathway name: M/G1 Transition  
# Adjusted p-value: 8.92E-03  
# Differentially expressed genes in pathway:  
DBF4;E2F2;MCM10;MCM2;ORC1;CDC45;CDC6;MCM5;POLE2;E2F1;POLA1;MCM4;MCM3;CDT1  
# The number of differentially expressed genes in pathway: 14  
# The total number of genes in pathway: 88  
# Pathway database: Reactome

### 53  
### Pathway name: DNA Replication Pre-Initiation  
# Adjusted p-value: 8.92E-03

# Differentially expressed genes in pathway:  
DBF4;E2F2;MCM10;MCM2;ORC1;CDC45;CDC6;MCM5;POLE2;E2F1;POLA1;MCM4;MCM3;CDT1  
# The number of differentially expressed genes in pathway: 14  
# The total number of genes in pathway: 88  
# Pathway database: Reactome

### 54  
### Pathway name: Regulation of mitotic cell cycle  
# Adjusted p-value: 1.06E-02  
# Differentially expressed genes in pathway:  
AURKA;FBXO5;CDC20;NEK2;CCNA1;CCNB1;CCNA2;BUB1B;MAD2L1;PTTG1;PLK1;CDK1;UBE2C;AURK  
B  
# The number of differentially expressed genes in pathway: 14  
# The total number of genes in pathway: 90  
# Pathway database: Reactome

### 55  
### Pathway name: APC/C-mediated degradation of cell cycle proteins  
# Adjusted p-value: 1.06E-02  
# Differentially expressed genes in pathway:  
AURKA;FBXO5;CDC20;NEK2;CCNA1;CCNB1;CCNA2;BUB1B;MAD2L1;PTTG1;PLK1;CDK1;UBE2C;AURK  
B  
# The number of differentially expressed genes in pathway: 14  
# The total number of genes in pathway: 90  
# Pathway database: Reactome

### 56  
### Pathway name: G2/M DNA replication checkpoint  
# Adjusted p-value: 1.39E-02  
# Differentially expressed genes in pathway: PKMYT1;CCNB1;CCNB2;CDK1  
# The number of differentially expressed genes in pathway: 4  
# The total number of genes in pathway: 7  
# Pathway database: Reactome

### 57  
### Pathway name: Resolution of D-loop Structures through Holliday Junction Intermediates  
# Adjusted p-value: 1.87E-02  
# Differentially expressed genes in pathway:  
BRCA1;RAD51;RAD51AP1;BRIP1;EME1;EXO1;RMI2;BLM  
# The number of differentially expressed genes in pathway: 8  
# The total number of genes in pathway: 36  
# Pathway database: Reactome

### 58  
### Pathway name: Resolution of D-Loop Structures  
# Adjusted p-value: 2.22E-02  
# Differentially expressed genes in pathway:  
BRCA1;RAD51;RAD51AP1;BRIP1;EME1;EXO1;RMI2;BLM  
# The number of differentially expressed genes in pathway: 8  
# The total number of genes in pathway: 37  
# Pathway database: Reactome

```

### 59
### Pathway name: Regulation of DNA replication
# Adjusted p-value: 2.64E-02
# Differentially expressed genes in pathway:
E2F2;MCM10;MCM2;ORC1;CDC6;MCM5;E2F1;MCM4;MCM3;CCNA1;CCNA2;CDT1
# The number of differentially expressed genes in pathway: 12
# The total number of genes in pathway: 78
# Pathway database: Reactome

### 60
### Pathway name: Resolution of D-loop Structures through Synthesis-Dependent
Strand Annealing (SDSA)
# Adjusted p-value: 2.71E-02
# Differentially expressed genes in pathway:
BRCA1;RAD51;RAD51AP1;BRIP1;EXO1;RMI2;BLM
# The number of differentially expressed genes in pathway: 7
# The total number of genes in pathway: 30
# Pathway database: Reactome

### 61
### Pathway name: Factors involved in megakaryocyte development and platelet
production
# Adjusted p-value: 2.71E-02
# Differentially expressed genes in pathway:
PRKAR2B;KIF26A;KIF22;KIF4A;SH2B3;KIF20A;KIF18A;KIF23;KIF11;KIF20B;CENPE;KIF2C;RA
CGAP1;KIF15;TUBA1C;TUBB6;KIF18B;TUBB4B;KIF19;KIFC1;KIF15
# The number of differentially expressed genes in pathway: 20
# The total number of genes in pathway: 173
# Pathway database: Reactome

### 62
### Pathway name: Association of licensing factors with the pre-replicative
complex
# Adjusted p-value: 2.84E-02
# Differentially expressed genes in pathway: E2F2;ORC1;CDC6;E2F1;CDT1
# The number of differentially expressed genes in pathway: 5
# The total number of genes in pathway: 15
# Pathway database: Reactome

### 63
### Pathway name: Cyclin B2 mediated events
# Adjusted p-value: 2.89E-02
# Differentially expressed genes in pathway: CCNB2;CDC25C;CDC25A;CDK1
# The number of differentially expressed genes in pathway: 4
# The total number of genes in pathway: 9
# Pathway database: Reactome

### 64
### Pathway name: Activation of NIMA Kinases NEK9; NEK6; NEK7
# Adjusted p-value: 2.89E-02
# Differentially expressed genes in pathway: CCNB1;CCNB2;PLK1;CDK1
# The number of differentially expressed genes in pathway: 4

```

# The total number of genes in pathway: 9  
# Pathway database: Reactome

### 65  
### Pathway name: Golgi-to-ER retrograde transport  
# Adjusted p-value: 3.47E-02  
# Differentially expressed genes in pathway:  
KIF26A;KIF22;KIF4A;KIF20A;KIF18A;KIF23;KIF11;KIF20B;CENPE;KIF2C;RACGAP1;KIF15;TU  
BA1C;TUBB6;KIF18B;TUBB4B;KIF19;KIF15  
# The number of differentially expressed genes in pathway: 17  
# The total number of genes in pathway: 140  
# Pathway database: Reactome

### 66  
### Pathway name: Homology Directed Repair  
# Adjusted p-value: 3.87E-02  
# Differentially expressed genes in pathway:  
BRCA1;RAD51;POLQ;CLSPN;POLE2;RAD51AP1;CCNA1;RFC3;BRIP1;CCNA2;EME1;FEN1;EXO1;RMI2  
;H2AFX;BLM  
# The number of differentially expressed genes in pathway: 16  
# The total number of genes in pathway: 130  
# Pathway database: Reactome

### 67  
### Pathway name: E2F-enabled inhibition of pre-replication complex formation  
# Adjusted p-value: 4.01E-02  
# Differentially expressed genes in pathway: ORC1;CCNB1;CDC25A;CDK1  
# The number of differentially expressed genes in pathway: 4  
# The total number of genes in pathway: 10  
# Pathway database: Reactome

### 68  
### Pathway name: Phosphorylation of proteins involved in the G2/M transition by  
Cyclin A:Cdc2 complexes  
# Adjusted p-value: 4.70E-02  
# Differentially expressed genes in pathway: CCNA1;CCNA2;CDK1  
# The number of differentially expressed genes in pathway: 3  
# The total number of genes in pathway: 5  
# Pathway database: Reactome

### 69  
### Pathway name: Homologous DNA Pairing and Strand Exchange  
# Adjusted p-value: 4.98E-02  
# Differentially expressed genes in pathway:  
BRCA1;RAD51;RAD51AP1;RFC3;BRIP1;EXO1;RMI2;BLM  
# The number of differentially expressed genes in pathway: 8  
# The total number of genes in pathway: 44  
# Pathway database: Reactome

### 70  
### Pathway name: Mitotic Roles of Polo-Like Kinase  
# Adjusted p-value: 1.02E-07

# Differentially expressed genes in pathway:  
KIF23;CDC25C;ESPL1;CDC20;PTTG1;PRC1;CCNB2;PLK1;CDK1;CCNB1;PLK4;PKMYT1;FBXO5;KIF1  
1;CDC25A  
# The number of differentially expressed genes in pathway: 15  
# The total number of genes in pathway: 66  
# Pathway database: IPA

### 71  
### Pathway name: Cell Cycle Control of Chromosomal Replication  
# Adjusted p-value: 5.37E-06  
# Differentially expressed genes in pathway:  
MCM5;MCM3;CDC45;MCM2;CDT1;CDC6;MCM4;DBF4;ORC1  
# The number of differentially expressed genes in pathway: 9  
# The total number of genes in pathway: 27  
# Pathway database: IPA

### 72  
### Pathway name: Estrogen-mediated S-phase Entry  
# Adjusted p-value: 2.14E-05  
# Differentially expressed genes in pathway:  
CCNA2;CCNE2;CCNA1;E2F1;CCND1;CDK1;E2F2;CDC25A  
# The number of differentially expressed genes in pathway: 8  
# The total number of genes in pathway: 24  
# Pathway database: IPA

### 73  
### Pathway name: ATM Signaling  
# Adjusted p-value: 5.50E-05  
# Differentially expressed genes in pathway:  
RAD51;CDC25C;FANCD2;GADD45G;H2AFX;CCNB2;BLM;BRCA1;CDK1;CDC25A;CCNB1  
# The number of differentially expressed genes in pathway: 11  
# The total number of genes in pathway: 59  
# Pathway database: IPA

### 74  
### Pathway name: Cell Cycle: G2/M DNA Damage Checkpoint Regulation  
# Adjusted p-value: 6.03E-05  
# Differentially expressed genes in pathway:  
CDC25C;CKS1B;TOP2A;CCNB2;PKMYT1;PLK1;AURKA;BRCA1;CDK1;CCNB1  
# The number of differentially expressed genes in pathway: 10  
# The total number of genes in pathway: 49  
# Pathway database: IPA

### 75  
### Pathway name: Cyclins and Cell Cycle Regulation  
# Adjusted p-value: 9.77E-05  
# Differentially expressed genes in pathway:  
CCNA2;CCNE2;CCNA1;SUV39H1;E2F1;CCNB2;CDKN2C;CCND1;CDK1;E2F2;CDC25A;CCNB1  
# The number of differentially expressed genes in pathway: 12  
# The total number of genes in pathway: 78  
# Pathway database: IPA

```

### 76
### Pathway name: GADD45 Signaling
# Adjusted p-value: 4.27E-04
# Differentially expressed genes in pathway:
CCNE2;GADD45G;BRCA1;CCND1;CDK1;CCNB1
# The number of differentially expressed genes in pathway: 6
# The total number of genes in pathway: 19
# Pathway database: IPA

### 77
### Pathway name: Hereditary Breast Cancer Signaling
# Adjusted p-value: 4.27E-04
# Differentially expressed genes in pathway:
CDC25C;GADD45G;CCND1;CDK1;CCNB1;RAD51;FANCB;FANCD2;H2AFX;PIK3CG;E2F1;BLM;BRCA1;FANCA;RFC3
# The number of differentially expressed genes in pathway: 15
# The total number of genes in pathway: 142
# Pathway database: IPA

### 78
### Pathway name: Role of BRCA1 in DNA Damage Response
# Adjusted p-value: 4.27E-04
# Differentially expressed genes in pathway:
RAD51;FANCB;FANCD2;E2F1;PLK1;BRIP1;BLM;BRCA1;FANCA;E2F2;RFC3
# The number of differentially expressed genes in pathway: 11
# The total number of genes in pathway: 78
# Pathway database: IPA

### 79
### Pathway name: Role of CHK Proteins in Cell Cycle Checkpoint Control
# Adjusted p-value: 7.24E-04
# Differentially expressed genes in pathway:
CDC25C;E2F1;CLSPN;PLK1;BRCA1;CDK1;E2F2;CDC25A;RFC3
# The number of differentially expressed genes in pathway: 9
# The total number of genes in pathway: 55
# Pathway database: IPA

### 80
### Pathway name: DNA damage-induced 14-3-3 $\sigma$  Signaling
# Adjusted p-value: 4.90E-03
# Differentially expressed genes in pathway: CCNE2;CCNB2;BRCA1;CDK1;CCNB1
# The number of differentially expressed genes in pathway: 5
# The total number of genes in pathway: 19
# Pathway database: IPA

### 81
### Pathway name: Chondroitin Sulfate Biosynthesis
# Adjusted p-value: 6.17E-03
# Differentially expressed genes in pathway:
HS3ST3B1;CHST1;CHST7;XYLT1;HS3ST1;HS6ST3;CSGALNACT1;NDST1
# The number of differentially expressed genes in pathway: 8
# The total number of genes in pathway: 58
# Pathway database: IPA

```

```

### 82
### Pathway name: dTMP De Novo Biosynthesis
# Adjusted p-value: 6.17E-03
# Differentially expressed genes in pathway: TYMS;SHMT1;DHFR
# The number of differentially expressed genes in pathway: 3
# The total number of genes in pathway: 5
# Pathway database: IPA

### 83
### Pathway name: Dermatan Sulfate Biosynthesis
# Adjusted p-value: 6.76E-03
# Differentially expressed genes in pathway:
HS3ST3B1;CHST1;CHST7;XYLT1;HS3ST1;HS6ST3;CSGALNACT1;NDST1
# The number of differentially expressed genes in pathway: 8
# The total number of genes in pathway: 60
# Pathway database: IPA

### 84
### Pathway name: Chondroitin Sulfate Biosynthesis (Late Stages)
# Adjusted p-value: 1.00E-02
# Differentially expressed genes in pathway:
HS3ST3B1;CHST1;CHST7;HS3ST1;HS6ST3;CSGALNACT1;NDST1
# The number of differentially expressed genes in pathway: 7
# The total number of genes in pathway: 49
# Pathway database: IPA

### 85
### Pathway name: Notch Signaling
# Adjusted p-value: 1.41E-02
# Differentially expressed genes in pathway: NOTCH4;HEY2;HES7;JAG1;DLL4;HEY1
# The number of differentially expressed genes in pathway: 6
# The total number of genes in pathway: 38
# Pathway database: IPA

### 86
### Pathway name: Heparan Sulfate Biosynthesis
# Adjusted p-value: 2.51E-02
# Differentially expressed genes in pathway:
HS3ST3B1;AADAC;CHST1;CHST7;XYLT1;HS3ST1;HS6ST3;NDST1
# The number of differentially expressed genes in pathway: 8
# The total number of genes in pathway: 75
# Pathway database: IPA

### 87
### Pathway name: IL-8 Signaling
# Adjusted p-value: 2.69E-02
# Differentially expressed genes in pathway:
CXCL8;RAC2;ANGPT2;GNG2;CCND1;PGF;EIF4EBP1;ITGB3;FOS;PIK3CG;NCF2;CXCL1;RHOF;MAP4K
4
# The number of differentially expressed genes in pathway: 14
# The total number of genes in pathway: 197

```



# Pathway database: IPA

### 88

### Pathway name: Dermatan Sulfate Biosynthesis (Late Stages)

# Adjusted p-value: 3.31E-02

# Differentially expressed genes in pathway:

HS3ST3B1;CHST1;CHST7;HS3ST1;HS6ST3;NDST1

# The number of differentially expressed genes in pathway: 6

# The total number of genes in pathway: 46

# Pathway database: IPA

### 89

### Pathway name: Cell Cycle: G1/S Checkpoint Regulation

# Adjusted p-value: 3.80E-02

# Differentially expressed genes in pathway:

CCNE2;SUV39H1;E2F1;CDKN2C;CCND1;E2F2;CDC25A

# The number of differentially expressed genes in pathway: 7

# The total number of genes in pathway: 64

# Pathway database: IPA

### 90

### Pathway name: Heparan Sulfate Biosynthesis (Late Stages)

# Adjusted p-value: 4.68E-02

# Differentially expressed genes in pathway:

HS3ST3B1;AADAC;CHST1;CHST7;HS3ST1;HS6ST3;NDST1

# The number of differentially expressed genes in pathway: 7

# The total number of genes in pathway: 67

# Pathway database: IPA

### 91

### Pathway name: Coagulation System

# Adjusted p-value: 4.68E-02

# Differentially expressed genes in pathway: PLAUR;THBD;F3;PLAT;SERPIND1

# The number of differentially expressed genes in pathway: 5

# The total number of genes in pathway: 35

# Pathway database: IPA

### 92

### Pathway name: Bladder Cancer Signaling

# Adjusted p-value: 4.90E-02

# Differentially expressed genes in pathway:

FGF16;CXCL8;SUV39H1;E2F1;CCND1;MMP1;PGF;FGF1

# The number of differentially expressed genes in pathway: 8

# The total number of genes in pathway: 87

# Pathway database: IPA

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Pathway enrichment of down-regulated genes

=====

### 1  
### Pathway name: ECM-receptor interaction  
# Adjusted p-value: 3.63E-04  
# Differentially expressed genes in pathway: COL1A2; COL3A1; COL5A1; COL5A2;  
FN1; ITGA10; ITGA4; ITGAV; SDC4; THBS1; VWF;  
# The number of differentially expressed genes in pathway: 11  
# The total number of genes in pathway: 88  
# Pathway database: KEGG

### 2  
### Pathway name: Cell adhesion molecules (CAMs)  
# Adjusted p-value: 3.84E-04  
# Differentially expressed genes in pathway: ALCAM; CD34; CLDN11; CLDN1; ICAM1;  
ITGA4; ITGAV; NEGR1; OCLN; PTPRF; SDC2; SDC4; SELE; VCAM1;  
# The number of differentially expressed genes in pathway: 14  
# The total number of genes in pathway: 144  
# Pathway database: KEGG

### 3  
### Pathway name: Focal adhesion  
# Adjusted p-value: 4.45E-03  
# Differentially expressed genes in pathway: BIRC3; COL1A2; COL3A1; COL5A1;  
COL5A2; FN1; IGF1; ITGA10; ITGA4; ITGAV; MYLK2; PDGFB; PDGFD; THBS1; VWF;  
# The number of differentially expressed genes in pathway: 15  
# The total number of genes in pathway: 210  
# Pathway database: KEGG

### 4  
### Pathway name: Malaria  
# Adjusted p-value: 4.59E-03  
# Differentially expressed genes in pathway: CCL2; ICAM1; SDC2; SELE; TGFB2;  
THBS1; VCAM1;  
# The number of differentially expressed genes in pathway: 7  
# The total number of genes in pathway: 49  
# Pathway database: KEGG

### 5  
### Pathway name: Axon guidance  
# Adjusted p-value: 1.85E-02  
# Differentially expressed genes in pathway: ABLIM1; EFNA1; NTN4; RGS3; RND1;  
SEMA3D; SEMA3G; SEMA5A; SEMA6C; SEMA6D;  
# The number of differentially expressed genes in pathway: 10  
# The total number of genes in pathway: 128  
# Pathway database: KEGG

### 6  
### Pathway name: Regulation of actin cytoskeleton  
# Adjusted p-value: 3.39E-02  
# Differentially expressed genes in pathway: CD14; CHRM2; F2R; FN1; IQGAP2;  
ITGA10; ITGA4; ITGAV; MYH10; MYLK2; PDGFB; PDGFD; SSH1;  
# The number of differentially expressed genes in pathway: 13

# The total number of genes in pathway: 217  
# Pathway database: KEGG

### 7  
### Pathway name: Syndecan interactions  
# Adjusted p-value: 2.20E-03  
# Differentially expressed genes in pathway:  
FN1;SDC4;COL5A1;THBS1;ITGAV;COL1A2;COL3A1;SDC2;COL5A2  
# The number of differentially expressed genes in pathway: 9  
# The total number of genes in pathway: 29  
# Pathway database: Reactome

### 8  
### Pathway name: Non-integrin membrane-ECM interactions  
# Adjusted p-value: 2.62E-03  
# Differentially expressed genes in pathway:  
NTN4;PDGFB;FN1;SDC4;COL5A1;THBS1;ITGAV;COL1A2;COL3A1;SDC2;DMD;COL5A2  
# The number of differentially expressed genes in pathway: 12  
# The total number of genes in pathway: 61  
# Pathway database: Reactome

### 9  
### Pathway name: Integrin cell surface interactions  
# Adjusted p-value: 2.86E-03  
# Differentially expressed genes in pathway:  
ICAM1;VWF;ITGA4;FN1;COL5A1;THBS1;ITGAV;ITGA10;COL8A1;VCAM1;COL1A2;FBN1;COL3A1;COL5A2  
# The number of differentially expressed genes in pathway: 14  
# The total number of genes in pathway: 87  
# Pathway database: Reactome

### 10  
### Pathway name: Extracellular matrix organization  
# Adjusted p-value: 5.19E-03  
# Differentially expressed genes in pathway:  
ELN;NTN4;MMP2;ICAM1;P3H2;TGFB2;PDGFB;VWF;COL12A1;ITGA4;EFEMP1;FN1;SDC4;BMP4;COL5A1;THBS1;ITGAV;ITGA10;COL8A1;VCAM1;FBLN2;COL1A2;FBN1;COL3A1;SDC2;BGN;COL25A1;DMD;COL5A2  
# The number of differentially expressed genes in pathway: 29  
# The total number of genes in pathway: 320  
# Pathway database: Reactome

### 11  
### Pathway name: Molecules associated with elastic fibres  
# Adjusted p-value: 2.38E-02  
# Differentially expressed genes in pathway:  
ELN;TGFB2;EFEMP1;FN1;BMP4;ITGAV;FBLN2;FBN1  
# The number of differentially expressed genes in pathway: 8  
# The total number of genes in pathway: 38  
# Pathway database: Reactome

### 12

### Pathway name: Hepatic Fibrosis / Hepatic Stellate Cell Activation  
# Adjusted p-value: 2.45E-08  
# Differentially expressed genes in pathway:  
MYH10;VCAM1;COL5A2;CTGF;ICAM1;FN1;COL12A1;COL8A1;MMP2;PDGFB;COL1A2;COL5A1;CCL2;IGF1;EDN1;CSF1;TGFB2;CD14;PDGFD;COL25A1;COL3A1  
# The number of differentially expressed genes in pathway: 21  
# The total number of genes in pathway: 183  
# Pathway database: IPA

### 13  
### Pathway name: Atherosclerosis Signaling  
# Adjusted p-value: 3.09E-05  
# Differentially expressed genes in pathway:  
VCAM1;SELE;ICAM1;PLA2G4C;PDGFB;COL1A2;APOL1;CCL2;LCAT;CSF1;PDGFD;CLU;ITGA4;COL3A1  
# The number of differentially expressed genes in pathway: 14  
# The total number of genes in pathway: 127  
# Pathway database: IPA

### 14  
### Pathway name: Axonal Guidance Signaling  
# Adjusted p-value: 8.13E-03  
# Differentially expressed genes in pathway:  
SEMA3G;RND1;ADAMTS13;RGS3;BMP4;BDNF;SEMA5A;MMP2;HHIP;ABLIM1;SEMA6C;PDGFB;EFNA1;SEMA6D;SEMA3D;IGF1;SDC2;SMO;PDGFD;FZD2;GDF7;ITGA4  
# The number of differentially expressed genes in pathway: 22  
# The total number of genes in pathway: 448  
# Pathway database: IPA

### 15  
### Pathway name: PCP pathway  
# Adjusted p-value: 1.82E-02  
# Differentially expressed genes in pathway:  
CELSR1;RSPO3;SDC2;SMO;SDC4;PRICKLE1;FZD2  
# The number of differentially expressed genes in pathway: 7  
# The total number of genes in pathway: 63  
# Pathway database: IPA

### 16  
### Pathway name: Agranulocyte Adhesion and Diapedesis  
# Adjusted p-value: 2.29E-02  
# Differentially expressed genes in pathway:  
MYH10;SELE;VCAM1;CLDN11;ICAM1;FN1;CCL2;CLDN1;MMP2;SDC4;CD34;ITGA4  
# The number of differentially expressed genes in pathway: 12  
# The total number of genes in pathway: 189  
# Pathway database: IPA