**Tables in the Manuscript**

Table 1. Clustering of functional enrichment analysis

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| --- | --- | --- | --- |
| Functional Component | Term ID | Biological Function | Log10(p-Value) |
| MCODE\_1 | GO:0051301 | Cell division | -24.8 |
| GO:1903047 | mitotic cell cycle process | -24.7 |
| GO:0000278 | mitotic cell cycle | -23.5 |
| MCODE\_2 | R-HSA-2500257 | Resolution of Sister Chromatid Cohesion | -26.8 |
| R-HSA-68877 | Mitotic Prometaphase | -24.2 |
| R-HSA-68882 | Mitotic Anaphase | -23.5 |
| MCODE\_3 | R-HSA-2500257 | Resolution of Sister Chromatid Cohesion | -22.9 |
| R-HSA-141444 | Amplification of signal from unattached kinetochores via a MAD2 inhibitory signal | -20.9 |
| R-HSA-141424 | Amplification of signal from the kinetochores | -20.9 |
| MCODE\_4 | GO:1903047 | mitotic cell cycle process | -9.8 |
| R-HSA-69278 | Cell Cycle, Mitotic | -9.6 |
| GO:0000278 | mitotic cell cycle | -9.3 |
| MCODE\_5 | R-HSA-1650814 | Collagen biosynthesis and modifying enzymes | -16.0 |
| R-HSA-1474290 | Collagen formation | -15.2 |
| M3005 | NABA COLLAGENS | -13.5 |
| MCODE\_6 | WP4946 | DNA repair pathways, full network | -11.3 |
| R-HSA-5693616 | Presynaptic phase of homologous DNA pairing and strand exchange | -10.4 |
| R-HSA-5693579 | Homologous DNA Pairing and Strand Exchange | -10.3 |
| MCODE\_7 | WP129 | Matrix metalloproteinases | -12.1 |
| R-HSA-1592389 | Activation of Matrix Metalloproteinases | -11.9 |
| GO:0030574 | collagen catabolic process | -11.5 |
| MCODE\_8 | R-HSA-176974 | Unwinding of DNA | -10.3 |
| GO:0006268 | DNA unwinding involved in DNA replication | -9.5 |
| R-HSA-69190 | DNA strand elongation | -9.0 |

Table 2. Potential drugs with three or more target genes

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| Drug | Number of interacting nodes (genes) | Target gene |
| Fluorouracil | 8 | TOP2A, AURKA, SELE, TYMS, HMMR, BIRC5, CHEK1, EXO1 |
| Methotrexate | 5 | IL2, TYMS, BIRC5, BMP7, HMMR |
| Etoposide | 5 | CHEK1, TYMS, GMNN, TOP2A, AURKB |
| Vincristine | 5 | TYMS, GMNN, BIRC5, BMPT, TOP2A |
| Tamoxifen | 4 | TYMS, CCNA2, AURKA, AURKB |
| Sorafenib | 4 | AURKA, GMNN, PLK4, AURKB |
| Doxorubicin | 4 | EZH2, HMMR, BIRC5, BMPT |
| Collagenase Clostridium Histolyticum | 4 | COL11A1, COL4A3, COL5A2, MMP1 |
| Ocriplasmin | 3 | COL11A1, COL4A3, COL5A2 |
| Doxycycline | 3 | MMP13, MMP7, MMP1 |
| Doxycycline calcium | 3 | MMP13, MMP7, MMP1 |
| Cisplastin | 3 | CHEK1, TYMS, AURKA |
| Daunorubicin | 3 | TYMS, TOP2A, BMP7 |
| Paclitaxel | 3 | GMNN, AURKA, EZH2 |
| Vorinostat | 3 | GMNN, EZH2, BIRC5 |
| Pazopanib | 3 | NEK2, AURKA, CCNA2 |
| Clotrimazole | 3 | GMNN, CXCR2, CDK1 |
| Capecitabin | 3 | TYMS, SELE, EXO1 |
| Cytarabine | 3 | RRM2, BMP7, TYMS |