

# **Graphical Modeling of Genetic Associations and Viability in CEPH Cell Lines under Chemotherapeutic Selection Pressure**

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## ***Abstract***

Graphical modeling is a robust procedure for the generation of hypotheses related to the pharmacogenomics of chemotherapeutic agents. In analyzing genotype-phenotype associations in the presence of such agents, graphical modeling suggested that chromosome 9 contains 88 genes related to viability under docetaxel and 92 genes related to viability under 5-fluorouracil. Statistical testing revealed that the 3 SNPs in the 88 proposed candidate genes for docetaxel response and that the 1 SNP in the 92 proposed candidate genes for 5-fluorouracil response were significant at an experiment-wise level. A detailed investigation of rs870272 in C9orf18 and rs3217992 in CDKN2A demonstrated that graphical models produce results consistent with known biology.