

**S2 Method. Finding COSMIC variants in dbSNP.** The rsIDs of COSMIC variants predicted to be germline were collected using build 141 of dbSNP, using the variants listed in the All.vcf available from dbSNP's FTP server ([ftp://ftp.ncbi.nih.gov/snp/organisms/human\\_9606\\_b141\\_GRCh37p13/VCF/](ftp://ftp.ncbi.nih.gov/snp/organisms/human_9606_b141_GRCh37p13/VCF/)). Common SNPs were labeled in the All.vcf file, and were defined as SNPs with a minor allele frequency of at least 1% observed in two or more founders in any population studied in the 1000 Genomes Project.