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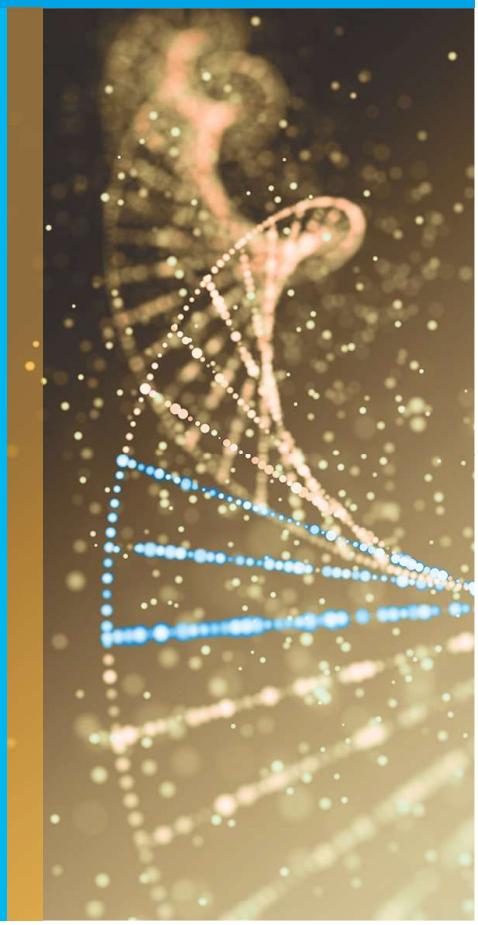
In Sight

Tumor genomic profiling with
Agilent SureSelect Cancer assays

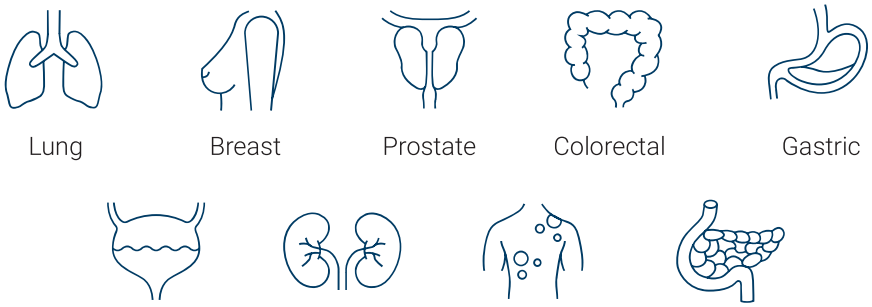


SureSelect Cancer assays

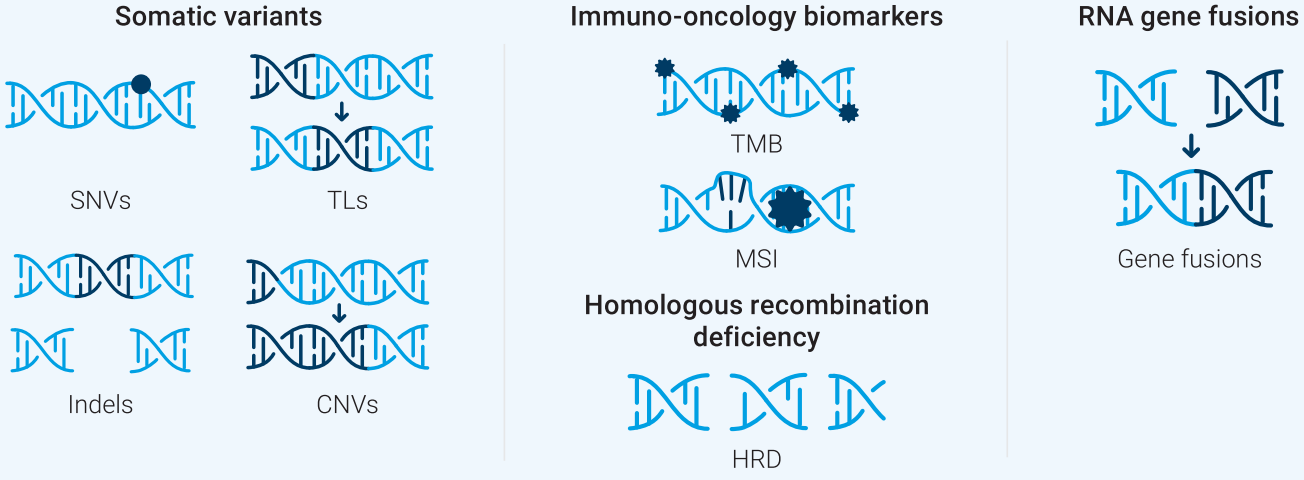
Unlock the full potential of comprehensive genomic profiling (CGP) to advance precision oncology with the Agilent SureSelect Cancer assays, a portfolio of targeted resequencing assays based on next-generation sequencing (NGS) technology. The SureSelect Cancer portfolio includes catalog and custom panels for mutation detection in cancer-associated genes from solid tumors. You'll have access to the most clinically relevant and up-to-date biomarkers with gene content curated globally in consultation with leading cancer researchers, and drawing from established clinical guidelines, ongoing clinical trials, and somatic cancer databases.

The SureSelect Cancer assays enable you to detect key classes of somatic variants and assess immuno-oncology biomarkers and homologous recombination deficiency. Have confidence in high-performance results optimized with error-correcting molecular barcodes, convenient enzymatic fragmentation and minimum sample input. The workflow solution is configurable to meet the needs of your lab with options to incorporate sample and NGS library QC, automation, and data analysis solutions.

Gain insight into cancer types



Detect key classes of mutations



Comprehensive pan-cancer panel

DNA assay
679 genes

RNA assay
80 genes

SureSelect Cancer CGP assay

Perform CGP with a pan-cancer catalog panel. You can sequence DNA and RNA in parallel to detect key classes of somatic alterations.

Tumor-specific panels

DNA assay
~50 genes

SureSelect Cancer Tumor-Specific assays

Perform tumor genomic profiling at lower cost with focused panels, based on subsets of gene content from the SureSelect Cancer CGP panel.

Customized panels

DNA assay
750* genes

SureSelect Cancer Custom panels

Incorporate new and emerging biomarkers by customizing your gene content with SureDesign software. Based on your laboratory requirements, leverage gene content from SureSelect Cancer catalog DNA panels.

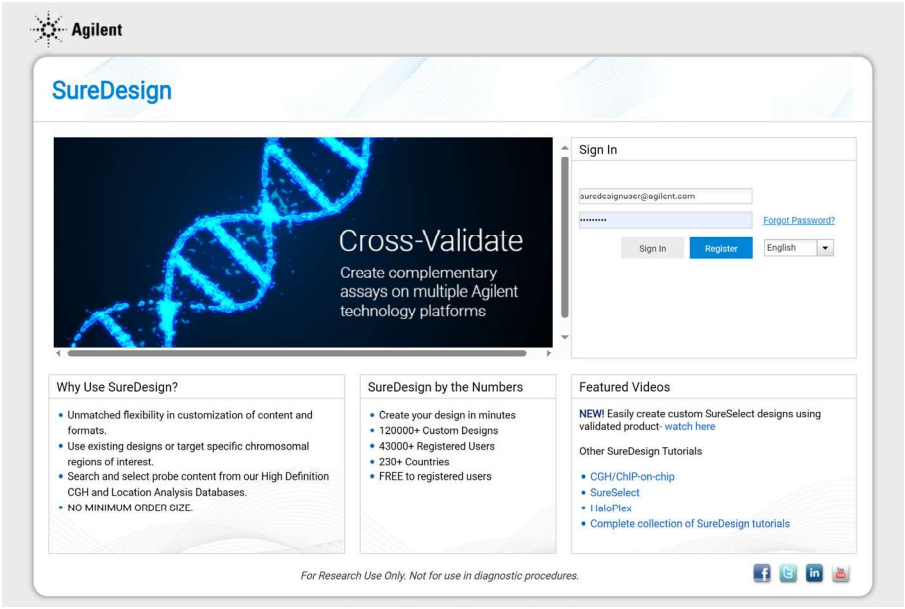
Table 1. Somatic alterations detected by SureSelect Cancer assays.

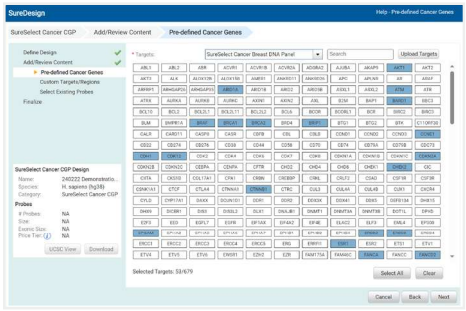
	Variant class	SureSelect Cancer CGP assay	SureSelect Cancer Tumor-Specific assays	SureSelect Cancer Custom assays
Somatic variants (DNA)	Single nucleotide variants (SNVs)	✓	✓	✓
	Insertions / Deletions (Indels)	✓	✓	✓
	Copy number variants (CNV)	✓	✓	✓
	Translocations (TLs)	✓	✓	✓
Somatic variants (RNA)	Gene fusions	✓	**	**
Immuno-oncology biomarkers (DNA)	Tumor mutational burden (TMB)	✓		✓
	Microsatellite instability (MSI)	✓		✓
Homologous recombination deficiency (DNA)	Homologous recombination deficiency (HRD)	✓		✓

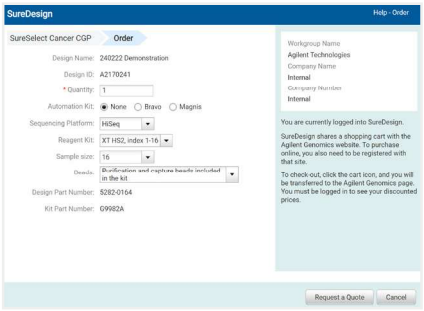
** The number shown here is for illustrative purposes only. The number of genes in a SureSelect Cancer Custom panel depends on the user design requirements, with panel sizes ranging from 1 Kb to 24 Mb.*
*** Assays can be paired with the SureSelect Cancer CGP RNA assay for gene fusion detection.*

Customize your panels with Agilent SureDesign

Create your SureSelect Cancer Custom panels for comprehensive genomic profiling of tumor samples to fit your lab's specific requirements, including the assessment of new and emerging biomarkers and immuno-oncology biomarkers TMB and MSI.







User friendly software

Easy panel customization with SureDesign, a next-generation web design portal for probe design powered by machine learning

Leverage curated content

Draw on globally curated genes from SureSelect Cancer catalog DNA panels to add or subtract genes for your custom panel design

Go from design to quote

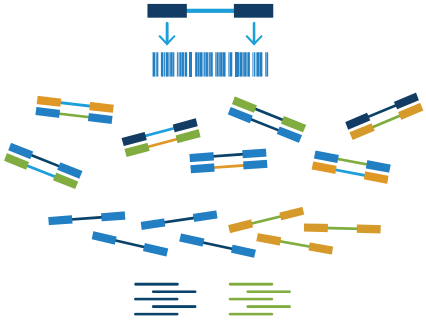
Rapid design for your custom panels with convenient quoting in SureDesign software

Reliable target enrichment chemistry

SureSelect Cancer assays are powered by proven, high-performance library prep and target enrichment chemistry (SureSelect XT HS2), which delivers optimal target coverage and high-complexity libraries for detection of low-frequency variant alleles and robust coverage of difficult to sequence, GC-rich genes, such as CEBPA.

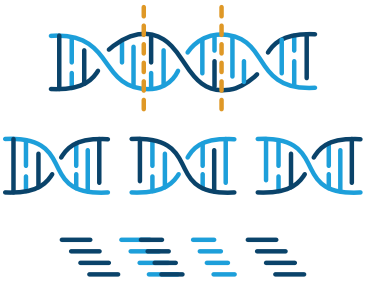
Fast hybridization

Only 90 minutes for target capture, enabling a faster workflow resulting in sequencing-ready libraries in nine hours.



Error correcting molecular barcodes

Unique molecular identifiers (UMIs) detect low-frequency variant alleles with sensitivity and accuracy and unique dual index (UDIs) correct for index hopping.



Enzymatic fragmentation

Optional enzymatic fragmentation eliminates the need for physical shearing equipment for optimal convenience, and may improve library complexity and read coverage.

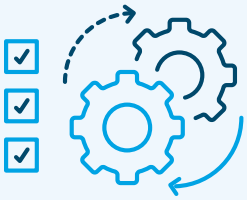
Low sample input

Start with as little as 10 ng (recommended 50 ng) to as much as 200 ng nucleic acid from formalin-fixed, paraffin-embedded (FFPE) or fresh-frozen tissues, enabling more samples to be profiled.

A flexible NGS workflow solution

Achieve high-complexity NGS libraries with a flexible and efficient workflow. Opt for automated library preparation and target enrichment to go from nucleic acid sample QC to sequencing results in less than four days. Match your sample throughput to a range of compatible sequencers from Illumina, Element Biosciences, Pacific Biosciences, and MGI. Assess clinically relevant variants with the data analysis and annotation solution best suited to your lab.

3.5 days to sequencing results



Automation options

Data analysis options

Sample & library QC

High-quality results depend on high-quality sample input. **Agilent TapeStation systems** are automated electrophoresis solutions for quality control of a wide range of DNA and RNA samples. Proven ScreenTape technology guarantees superior ease-of-use, and lets you analyze size, quantity, and integrity of your sample.

Automation for library prep and target enrichment

Prepare high-quality, sequencing-ready libraries with more consistency and lab efficiency using automation solutions for library preparation and target enrichment. Choose between two automation platforms from Agilent, both of which support enzymatic fragmentation of DNA, reverse transcription for RNA, and bead cleanup. These automation platforms offer a reagent rental program for SureSelect reagents to offset capital equipment expense.

The Magnis NGS Prep system is an easy-to-use, fully automated benchtop platform that requires minimal staff and NGS expertise to run. The pre-aliquoted reagents and preset protocols enable set up with only 15 min hands-on time for walkaway convenience. Onboard quality assurance capabilities include a UV light for decontamination between runs, and automated barcode scanning for correct consumables placement. The Magnis NGS Prep system can prepare up to 8 libraries per run, and up to two runs per day (2 shifts).

The Bravo NGS Workstation is a liquid handling platform for increased throughput, allowing the user to scale and prepare up to 96 libraries simultaneously, while maintaining reproducibility and quality. The open automation platform provides user flexibility in applications to adjust and optimize other assays in development.

Data analysis solutions

Data analysis options for the SureSelect Cancer assays include software solutions that are optimized for Agilent NGS chemistries with Agilent Alissa Reporter and compatible with customer's inhouse or third-party software, such as SOPHiA GENETICS.

Table 2. Gene content (DNA) in the SureSelect Cancer CGP assay, which are also available for use in designing SureSelect Cancer Custom panels.

SNVs/Indels												CNV	Translocations
ABL1	*BRAF*	*CRBN*	*EPHB2*	*FLI1*	*HNF1A*	*KRAS*	*MYH9*	*PIAS3*	*RAB35*	*SIN3A*	*TFE3*	*ALK*	*ALK: [18, 19]*
ABL2	*BRCA1*	*CREBBP*	*EPHB4*	*FLT1*	*HNRNPK*	*LAMP1*	*MYOD1*	*PIAS4*	*RAC1*	*SLC34A2*	*TFEB*	*AR*	*BRAF: [8, 9, 10]*
ABR	*BRCA2*	*CRKL*	*ERBB2*	*FLT3*	*HOXB13*	*LATS1*	*NAB2*	*PIK3C2B*	*RAD21*	*SLIT2*	*TFRC*	*BARD1*	*CIC: [18, 19]*
ACVR1	*BRD4*	*CRLF2*	*ERBB3*	*FLT4*	*HOXC6*	*LATS2*	*NBN*	*PIK3C2G*	*RAD50*	*SLX4*	*TGFBR1*	*BRAF*	*EGFR: [24, 25, 26]*
ACVR1B	*BRIP1*	*CSAD*	*ERBB4*	*FOXA1*	*HRAS*	*LMO1*	*NCOA2*	*PIK3C3*	*RAD51*	*SMAD2*	*TGFBR2*	*BRCA1*	*FGFR1: [3, 4, 5, 6, 7, 8, 9]*
ACVR2A	*BTG1*	*CSF1R*	*ERCC1*	*FOXA2*	*HSD3B1*	*LRP1B*	*NCOA3*	*PIK3CA*	*RAD51B*	*SMAD3*	*TIPARP*	*BRCA2*	*FGFR2: [17]*
ADGRA2	*BTG2*	*CSF3R*	*ERCC2*	*FOXL2*	*HSP90AA1*	*LTK*	*NCOR1*	*PIK3CB*	*RAD51C*	*SMAD4*	*TLR4*	*BRIP1*	*FGFR3: [17, 18]*
AJUBA	*BTK*	*CSNK1A1*	*ERCC3*	*FOXO1*	*ICOSLG*	*LYN*	*NCOR2*	*PIK3CD*	*RAD51D*	*SMARCA4*	*TMEM127*	*CCND1*	*NTRK1: [8, 9, 10, 11]*
AKAP9	*C11ORF30*	*CTCF*	*ERCC4*	*FOXP1*	*ID3*	*LZTR1*	*NEGR1*	*PIK3CG*	*RAD52*	*SMARCB1*	*TMPRSS2*	*CCND2*	*RAF1: [7, 8, 9]*
AKT1	*CALR*	*CTLA4*	*ERCC5*	*FRS2*	*IDH1*	*MAF*	*NF1*	*PIK3R1*	*RAD54L*	*SMARCD1*	*TNFAIP3*	*CCNE1*	*RET: [7, 10, 11]*
AKT2	*CARD11*	*CTNNA1*	*ERG*	*FUBP1*	*IDH2*	*MAGEC3*	*NF2*	*PIK3R2*	*RAF1*	*SMARCE1*	*TNFRSF14*	*CD274*	*ROS1: [31, 33, 34, 35]*
AKT3	*CASP8*	*CTNNB1*	*ERRFI1*	*FYN*	*IDO1*	*MAGI2*	*NFE2L2*	*PIK3R3*	*RANBP2*	*SMC1A*	*TOP1*	*CDK4*	*TMPRSS2: [1, 2, 3, 4]*
ALK	*CASR*	*CTRC*	*ESR1*	*GABRA6*	*IDO2*	*MALT1*	*NFKB2*	*PIM1*	*RARA*	*SMC3*	*TOP2A*	*CDK6*	
ALOX12B	*CBFB*	*CUL3*	*ESR2*	*GATA1*	*IFNGR1*	*MAML2*	*NFKBIA*	*PIM2*	*RASA1*	*SMG1*	*TP53*	*CDKN2A*	
ALOX15B	*CBL*	*CUL4A*	*ETS1*	*GATA2*	*IFNGR2*	*MAP2K1*	*NKX2-1*	*PIM3*	*RB1*	*SMO*	*TP53BP1*	*EGFR*	
AMER1	*CBLB*	*CUL4B*	*ETV1*	*GATA3*	*IGF1*	*MAP2K2*	*NKX3-1*	*PLCG1*	*RBM10*	*SNCAIP*	*TP63*	*ERBB2*	
ANKRD11	*CCND1*	*CUX1*	*ETV4*	*GATA4*	*IGF1R*	*MAP2K4*	*NLRC5*	*PLCG2*	*RECQL4*	*SOCS1*	*TP73*	*FGFR1*	
ANKRD26	*CCND2*	*CXCR4*	*ETV5*	*GATA6*	*IGF2*	*MAP3K1*	*NOTCH1*	*PLK2*	*REL*	*SOS1*	*TRAF2*	*FGFR2*	
APC	*CCND3*	*CYLD*	*ETV6*	*GEN1*	*IKBKE*	*MAP3K13*	*NOTCH2*	*PMAIP1*	*REST*	*SOX10*	*TRAF3*	*FGFR3*	
APLNR	*CCNE1*	*CYP17A1*	*EWSR1*	*GID4*	*IKZF1*	*MAP3K14*	*NOTCH3*	*PML*	*RET*	*SOX17*	*TRAF7*	*KEAP1*	
AR	*CD22*	*DAXX*	*EZH2*	*GLI1*	*IKZF3*	*MAP3K4*	*NOTCH4*	*PMS1*	*RFWD2*	*SOX2*	*TSC1*	*KRAS*	
ARAF	*CD274*	*DCUN1D1*	*EZR*	*GNA11*	*IL10*	*MAP3K7*	*NPM1*	*PMS2*	*RFX5*	*SOX9*	*TSC2*	*MDM2*	
ARFRP1	*CD276*	*DDR1*	*FAM175A*	*GNA13*	*IL6R*	*MAPK1*	*NR3C1*	*PNRC1*	*RFXAP*	*SPEN*	*TSHR*	*MET*	
ARHGAP26	*CD38*	*DDR2*	*FAM46C*	*GNAI2*	*IL6ST*	*MAPK3*	*NRAS*	*POLD1*	*RHEB*	*SPINK1*	*TYR*	*MYC*	
ARHGAP35	*CD44*	*DDX3X*	*FANCA*	*GNAQ*	*IL7R*	*MAX*	*NRG1*	*POLE*	*RHOA*	*SPOP*	*TYRO3*	*MYCN*	
ARID1A	*CD58*	*DDX41*	*FANCC*	*GNAS*	*ING1*	*MC1R*	*NSD1*	*POLQ*	*RICTOR*	*SPTA1*	*U2AF1*	*PALB2*	
ARID1B	*CD70*	*DDX5*	*FANCD2*	*GPC3*	*INHA*	*MCL1*	*NT5C2*	*POT1*	*RIT1*	*SRC*	*UGT1A1*	*PIK3CA*	
ARID2	*CD74*	*DEFB134*	*FANCE*	*GPS2*	*INHBA*	*MDC1*	*NTHL1*	*PPARG*	*RNASEL*	*SRSF2*	*UVRAG*	*PTEN*	
ARID5B	*CD79A*	*DHX15*	*FANCF*	*GRB2*	*INPP4A*	*MDM2*	*NTRK1*	*PPM1D*	*RNF43*	*STAG1*	*VEGFA*	*RAD51C*	
ASXL1	*CD79B*	*DHX9*	*FANCG*	*GREM1*	*INPP4B*	*MDM4*	*NTRK2*	*PPP2R1A*	*ROS1*	*STAG2*	*VHL*	*RAD51D*	
ASXL2	*CDC73*	*DICER1*	*FANCI*	*GRIN2A*	*INSR*	*MECOM*	*NTRK3*	*PPP2R2A*	*RPL22*	*STAT1*	*VTCN1*	*STK11*	
ATM	*CDH1*	*DIS3*	*FANCL*	*GRM3*	*IRF1*	*MED12*	*NUP93*	*PPP4R2*	*RPL5*	*STAT3*	*WHSC1*	*TP53*	
ATR	*CDK12*	*DIS3L2*	*FANCM*	*GSK3B*	*IRF2*	*MEF2B*	*NUTM1*	*PPP6C*	*RPS6KA4*	*STAT4*	*WHSC1L1*		
ATRX	*CDK2*	*DLX1*	*FAS*	*H3F3A*	*IRF4*	*MEN1*	*P2RY8*	*PRAME*	*RPS6KB1*	*STAT5A*	*WISP3*		
AURKA	*CDK4*	*DNAJB1*	*FAT1*	*H3F3B*	*IRS1*	*MERTK*	*PAK1*	*PRC1*	*RPS6KB2*	*STAT5B*	*WRN*		
AURKB	*CDK6*	*DNMT1*	*FBXO11*	*H3F3C*	*IRS2*	*MET*	*PAK3*	*PRDM1*	*RPTOR*	*STAT6*	*WT1*		
AURKC	*CDK7*	*DNMT3A*	*FBXW7*	*HDAC1*	*JAK1*	*MGA*	*PAK7*	*PREX2*	*RRM1*	*STK11*	*XBP1*		
AXIN1	*CDK8*	*DNMT3B*	*FGF1*	*HGF*	*JAK2*	*MGMT*	*PALB2*	*PRKAR1A*	*RSPO2*	*STK40*	*XIAP*		
AXIN2	*CDKN1A*	*DOT1L*	*FGF10*	*HIF1A*	*JAK3*	*MITF*	*PARK2*	*PRKCI*	*RUNX1*	*SUFU*	*XPO1*		
AXL	*CDKN1B*	*DPYD*	*FGF12*	*HIST1H1C*	*JUN*	*MKNK1*	*PARP1*	*PRKDC*	*RUNX1T1*	*SUZ12*	*XRCC2*		
B2M	*CDKN1C*	*E2F3*	*FGF14*	*HIST1H2BD*	*KAT6A*	*MLH1*	*PARP2*	*PRSS1*	*RXRA*	*SYK*	*YAP1*		
BAP1	*CDKN2A*	*EED*	*FGF19*	*HIST1H3A*	*KDM5A*	*MLLT3*	*PARP3*	*PRSS8*	*RYBP*	*TAF1*	*YES1*		
BARD1	*CDKN2B*	*EGFL7*	*FGF2*	*HIST1H3B*	*KDM5C*	*MPL*	*PAX3*	*PSIP1*	*SDC4*	*TAF3*	*ZBTB2*		
BBC3	*CDKN2C*	*EGFR*	*FGF23*	*HIST1H3C*	*KDM6A*	*MRE11A*	*PAX5*	*PSMA1*	*SDHA*	*TAP1*	*ZBTB7A*		
BCL10	*CEBPA*	*EIF1AX*	*FGF3*	*HIST1H3D*	*KDR*	*MSH2*	*PAX7*	*PSMB5*	*SDHAF2*	*TAP2*	*ZFHX3*		
BCL2	*CENPA*	*EIF4A2*	*FGF4*	*HIST1H3E*	*KEAP1*	*MSH3*	*PAX8*	*PSMD1*	*SDHB*	*TAPBP*	*ZFP36L1*		
BCL2L1	*CFTR*	*EIF4E*	*FGF5*	*HIST1H3F*	*KEL*	*MSH6*	*PBRM1*	*PSMG2*	*SDHC*	*TBL1XR1*	*ZMYM2*		
BCL2L11	*CHD2*	*ELAC2*	*FGF6*	*HIST1H3G*	*KIAA1549*	*MST1*	*PCBP1*	*PTCH1*	*SDHD*	*TBX3*	*ZMYM3*		
BCL2L2	*CHD4*	*ELF3*	*FGF7*	*HIST1H3H*	*KIF5B*	*MST1R*	*PDCD1*	*PTEN*	*SERPINB3*	*TCEB1*	*ZNF217*		
BCL6	*CHD8*	*EML4*	*FGF8*	*HIST1H3I*	*KIT*	*MTAP*	*PDCD1LG2*	*PTK2*	*SERPINB4*	*TCF12*	*ZNF703*		
BCOR	*CHEK1*	*EP300*	*FGF9*	*HIST1H3J*	*KLF2*	*MTOR*	*PDGFRA*	*PTPN11*	*SETBP1*	*TCF3*	*ZNF750*		
BCORL1	*CHEK2*	*EPCAM*	*FGFR1*	*HIST2H3C*	*KLF4*	*MUTYH*	*PDGFRB*	*PTPRD*	*SETD2*	*TCF7L2*	*ZRSR2*		
BCR	*CIC*	*EPHA2*	*FGFR2*	*HIST2H3D*	*KLHL6*	*MYB*	*PDK1*	*PTPRO*	*SF3B1*	*TEK*			
BIRC2	*CIITA*	*EPHA3*	*FGFR3*	*HIST3H3*	*KMT2A*	*MYC*	*PDPK1*	*PTPRS*	*SGK1*	*TERC*			
BIRC3	*CKS1B*	*EPHA5*	*FGFR4*	*HLA-A*	*KMT2B*	*MYCL*	*PGR*	*PTPRT*	*SH2B3*	*TERT*			
BLM	*COL17A1*	*EPHA7*	*FH*	*HLA-B*	*KMT2C*	*MYCN*	*PHF6*	*QKI*	*SH2D1A*	*TET1*			
BMPR1A	*CPA1*	*EPHB1*	*FLCN*	*HLA-C*	*KMT2D*	*MYD88*	*PHOX2B*	*QSER1*	*SHQ1*	*TET2*			

Table 3. Gene content (RNA) in the SureSelect Cancer CGP assay.

Fusion Genes									
ABL1	*BRCA1*	*EML4*	*ETV6*	*FLT1*	*MAML2*	*MYB*	*NTRK3*	*PKN1*	*RPS6KB1*
AKT3	*BRCA2*	*ERBB2*	*EWSR1*	*FLT3*	*MAST1*	*MYC*	*NUMBL*	*PPARG*	*RSPO2*
ALK	*BRD3*	*ERG*	*FGFR1*	*INSR*	*MAST2*	*NOTCH1*	*NUTM1*	*PRKCA*	*RSPO3*
AR	*BRD4*	*ESR1*	*FGFR2*	*JAK2*	*MET*	*NOTCH2*	*PAX3*	*PRKCB*	*TERT*
ARHGAP26	*CDK4*	*ETS1*	*FGFR3*	*KDR*	*MLLT3*	*NOTCH3*	*PAX7*	*RAF1*	*TFE3*
AXL	*CIC*	*ETV1*	*FGFR4*	*KIF5B*	*MSH2*	*NRG1*	*PDGFRA*	*RELA*	*TFEB*
BCL2	*CSF1R*	*ETV4*	*FGR*	*KIT*	*MSMB*	*NTRK1*	*PDGFRB*	*RET*	*THADA*
BRAF	*EGFR*	*ETV5*	*FLI1*	*KMT2A*	*MUSK*	*NTRK2*	*PIK3CA*	*ROS1*	*TMPRSS2*

Table 4. Gene content (DNA) in the SureSelect Cancer Tumor-Specific assays, which are also available for use in designing SureSelect Cancer Custom panels.

SureSelect Cancer Lung assay

SNVs/Indels									CNV		Translocations
AKT1	*CCND1*	*CDK6*	*ERBB3*	*HRAS*	*KRAS*	*MSH6*	*NTRK3*	*RAF1*	*BRAF*	*EGFR*	*ALK:[18,19]*
ALK	*CCND2*	*CDKN2A*	*ERCC2*	*IDH1*	*MAP2K1*	*MTOR*	*PDGFRA*	*RET*	*CCND1*	*ERBB2*	*FGFR2:[17]*
APC	*CCNE1*	*CTNNB1*	*FGFR1*	*IDH2*	*MAP2K2*	*NF1*	*PIK3CA*	*ROS1*	*CCND2*	*FGFR1*	*FGFR3:[17,18]*
ARAF	*CD274*	*DDR2*	*FGFR2*	*KDM6A*	*MET*	*NRAS*	*PMS2*	*STK11*	*CD274*	*MET*	*NTRK1:[8,9,10,11]*
ARID1A	*CDK12*	*EGFR*	*FGFR3*	*KEAP1*	*MLH1*	*NTRK1*	*PTCH1*	*TP53*	*CDK6*	*PIK3CA*	*RET:[7,10,11]*
BRAF	*CDK4*	*ERBB2*	*FGFR4*	*KIT*	*MSH2*	*NTRK2*	*PTEN*		*CDKN2A*	*PTEN*	*ROS1:[31,33,34,35]*

SureSelect Cancer Colon assay

SNVs/Indels									CNV		Translocations
APC	*BRAF*	*CTNNB1*	*FBXW7*	*MLH1*	*MUTYH*	*PIK3CA*	*PTEN*	*STK11*	*CDKN2A*	*PIK3CA*	*BRAF:[8,9,10]*
ARID1A	*CDH1*	*EPCAM*	*GNAS*	*MSH2*	*MYC*	*PMS2*	*RNF43*	*TCF7L2*	*ERBB2*	*PTEN*	
AXIN2	*CDKN2A*	*ERBB2*	*GREM1*	*MSH3*	*NRAS*	*POLD1*	*SMAD4*	*TP53*	*KRAS*		
BMPR1A	*CHEK2*	*ERBB3*	*KRAS*	*MSH6*	*NTHL1*	*POLE*	*SOX9*		*MYC*		

SureSelect Cancer Pancreas assay

SNVs/Indels									CNV	Translocations
ALK	*BRCA1*	*CPA1*	*FBXW7*	*MDM2*	*NF1*	*POLD1*	*SMAD4*	*TSC2*	*BRCA1*	*ALK:[18,19]*
APC	*BRCA2*	*CTNNB1*	*FGFR2*	*MEN1*	*NRAS*	*POLE*	*SOX9*	*VHL*	*BRCA2*	*FGFR2:[17]*
ARID1A	*CASR*	*CTRC*	*GNAS*	*MET*	*NRG1*	*PRSS1*	*SPINK1*		*ERBB2*	*NTRK1:[8,9,10,11]*
ATM	*CDH1*	*EPCAM*	*IDH1*	*MLH1*	*NTRK1*	*PTEN*	*STK11*		*KRAS*	*RET:[7,10,11]*
BAP1	*CDKN2A*	*ERBB2*	*IDH2*	*MSH2*	*PALB2*	*RET*	*TCF7L2*		*MDM2*	*ROS1:[31,33,34,35]*
BMPR1A	*CFTR*	*ERBB3*	*KRAS*	*MSH6*	*PIK3CA*	*RNF43*	*TP53*		*MET*	
BRAF	*CHEK2*	*ESR1*	*MAP2K1*	*MYC*	*PMS2*	*ROS1*	*TSC1*		*MYC*	

SureSelect Cancer Kidney assay

SNVs/InDels									CNV
ATM	*DICER1*	*FLCN*	*MLH1*	*NF2*	*PTEN*	*SDHC*	*SMARCB1*	*TSC2*	*MET*
BAP1	*DIS3L2*	*GPC3*	*MSH2*	*PBRM1*	*REST*	*SDHD*	*TFEB*	*VHL*	*PIK3CA*
CDC73	*EPCAM*	*KDM5C*	*MSH6*	*PIK3CA*	*SDHA*	*SETD2*	*TP53*	*WT1*	*PTEN*
CDKN1C	*FH*	*MET*	*MTOR*	*PMS2*	*SDHB*	*SMARCA4*	*TSC1*		

SureSelect Cancer Bladder assay

SNVs/Indels							CNV		Translocations
AKT1	*CCND1*	*CTNNB1*	*ERCC2*	*KDM6A*	*PPARG*	*TSC1*	*CCND1*	*KRAS*	*BRAF:[8,9,10]*
ARID1A	*CCNE1*	*E2F3*	*FGFR2*	*KRAS*	*PTEN*		*CCNE1*	*MDM2*	*FGFR2:[17]*
ATM	*CDKN1A*	*ERBB2*	*FGFR3*	*MDM2*	*RB1*		*CDKN2A*	*PIK3CA*	*FGFR3:[17,18]*
BRAF	*CDKN2A*	*ERBB3*	*HRAS*	*PIK3CA*	*TP53*		*ERBB2*	*PTEN*	

Table 5. Additional curated tumor-specific gene content (DNA) that are available for use in designing SureSelect Cancer Custom panels.

SureSelect Cancer Breast panel

SNVs/Indels									CNV		Translocations
AKT1	*BRCA2*	*CHEK2*	*FANCA*	*KRAS*	*MSH2*	*NRG1*	*POLE*	*RAD51D*	*BARD1*	*MYC*	*BRAF:[8,9,10]*
ARID1A	*BRIP1*	*CTNNB1*	*FANCD2*	*MAGEC3*	*MSH6*	*NTRK3*	*PPP2R1A*	*RAD54L*	*BRCA1*	*PALB2*	*FGFR2:[17]*
ATM	*CCNE1*	*EPCAM*	*FBXW7*	*MAP2K1*	*MTOR*	*PALB2*	*PPP2R2A*	*RB1*	*BRCA2*	*PIK3CA*	
BARD1	*CDH1*	*ERBB2*	*FGFR1*	*MET*	*MYC*	*PIK3CA*	*PTEN*	*STK11*	*BRIP1*	*PTEN*	
BRAF	*CDK12*	*ERBB3*	*FGFR2*	*MLH1*	*NBN*	*PIK3R1*	*RAD51B*	*TP53*	*ERBB2*	*RAD51C*	
BRCA1	*CDKN2A*	*ESR1*	*FGFR3*	*MRE11*	*NF1*	*PMS2*	*RAD51C*		*KRAS*	*RAD51D*	

SureSelect Cancer Prostate panel

SNVs/Indels									CNV	Translocations
AKT1	*BRCA2*	*EPCAM*	*FOXA1*	*KMT2D*	*MUTYH*	*PIK3CA*	*RAD51C*	*STK11*	*AR*	*BRAF:[8,9,10]*
APC	*BRIP1*	*ERG*	*GATA2*	*KRAS*	*MYC*	*PIK3R1*	*RAD51D*	*TMPRSS2*	*BRCA1*	*TMPRSS2: [1, 2, 3, 4]*
AR	*CDH1*	*ETV1*	*HOXB13*	*MAGEC3*	*NBN*	*PMS2*	*RAD54L*	*TP53*	*BRCA2*	
ATM	*CDK12*	*ETV4*	*HRAS*	*MED12*	*NCOA2*	*PPP2R2A*	*RB1*		*KRAS*	
BARD1	*CHEK1*	*ETV5*	*IDH1*	*MLH1*	*NCOR2*	*PTEN*	*SPINK1*		*MYC*	
BRAF	*CHEK2*	*FANCA*	*KDM6A*	*MSH2*	*PALB2*	*RAD50*	*SPOP*		*PIK3CA*	
BRCA1	*CTNNB1*	*FANCL*	*KMT2C*	*MSH6*	*PARP1*	*RAD51B*	*SPTA1*		*PTEN*	

SureSelect Cancer Melanoma panel

SNVs/Indels									CNV		Translocations
AKT3	*BRCA1*	*CDKN2A*	*GNA11*	*IDH1*	*MC1R*	*NRAS*	*PTEN*	*TP53*	*BRCA1*	*KRAS*	*BRAF:[8,9,10]*
ARID2	*BRCA2*	*CTNNB1*	*GNAQ*	*KIT*	*MDM2*	*PIK3CA*	*RAC1*	*TYR*	*BRCA2*	*MDM2*	
BAP1	*CCND1*	*ERBB4*	*GRIN2A*	*KRAS*	*MITF*	*POT1*	*RB1*		*CCND1*	*PIK3CA*	
BRAF	*CDK4*	*EZH2*	*HRAS*	*MAP2K1*	*NF1*	*PPP6C*	*TERT*		*CDK4*	*PTEN*	

SureSelect Cancer Gastric panel

SNVs/Indels								CNV	
APC	*CDH1*	*EPCAM*	*KIT*	*MSH2*	*PIK3CA*	*SDHA*	*STK11*	*CCND1*	*KRAS*
ARID1A	*CDKN2A*	*ERBB2*	*KMT2C*	*MSH6*	*PMS2*	*SDHB*	*TP53*	*CCNE1*	*MYC*
BMPR1A	*CTNNA1*	*ERBB3*	*KMT2D*	*MYC*	*PTEN*	*SDHC*		*CDKN2A*	*PIK3CA*
CCND1	*CTNNB1*	*FBXW7*	*KRAS*	*NF1*	*RHOA*	*SDHD*		*EGFR*	*PTEN*
CCNE1	*EGFR*	*GNAS*	*MLH1*	*PDGFRA*	*RNF43*	*SMAD4*		*ERBB2*	

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