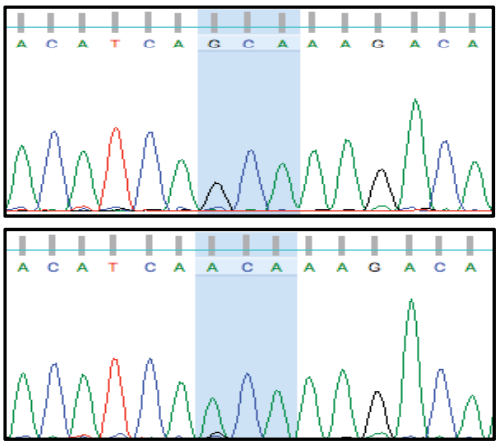
Figure S1

A

KRAS p.A146T (c.436 **G**CA > **A**CA)

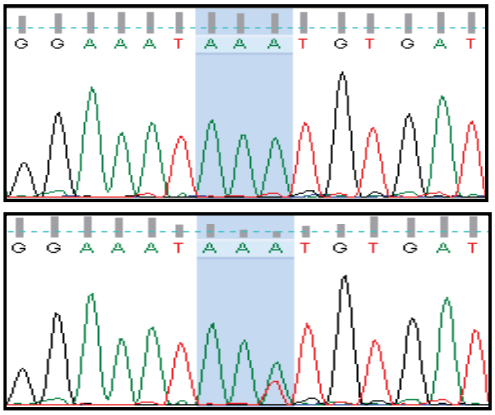


Normal

Tumor

B

KRAS p.K117N (c.351 AA**A** > AA**T**)

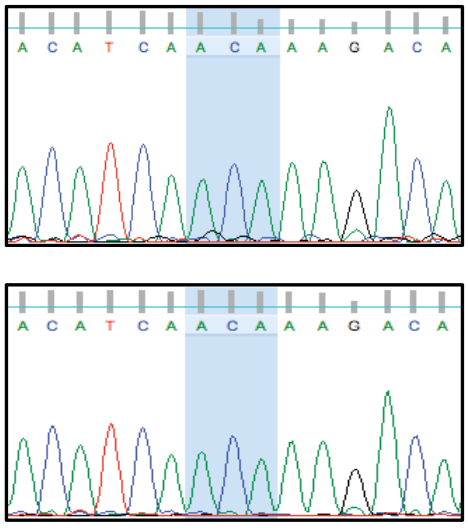


Normal

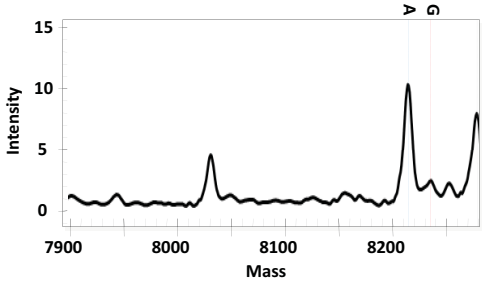
Tumor

C

KRAS p.A146T (c.436 **G**CA > **A**CA)



CCCL-23 Cell line



CCCL-23 Tumor

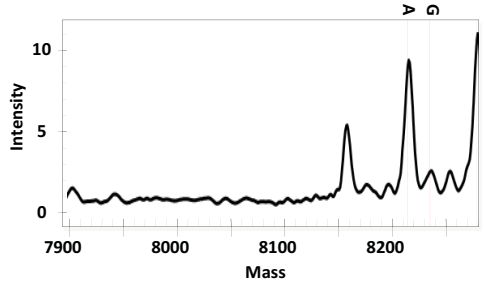
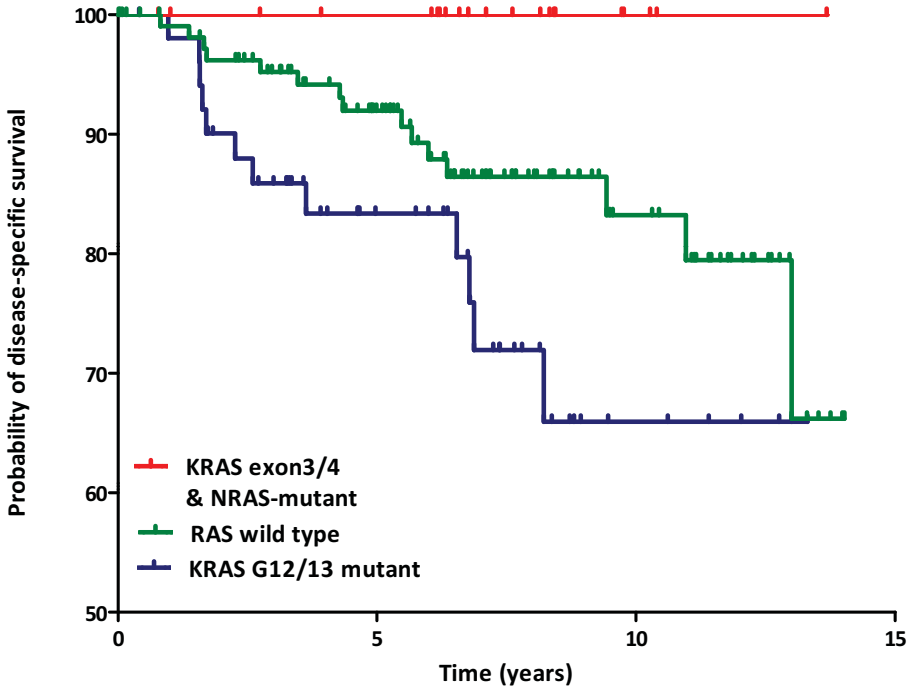


Figure S2

A


Probability of disease-specific survival
100
90
80
70
60
50
0
5
10
15
Time (years)
KRAS exon3/4
& NRAS-mutant
RAS wild type
KRAS G12/13 mutant

B

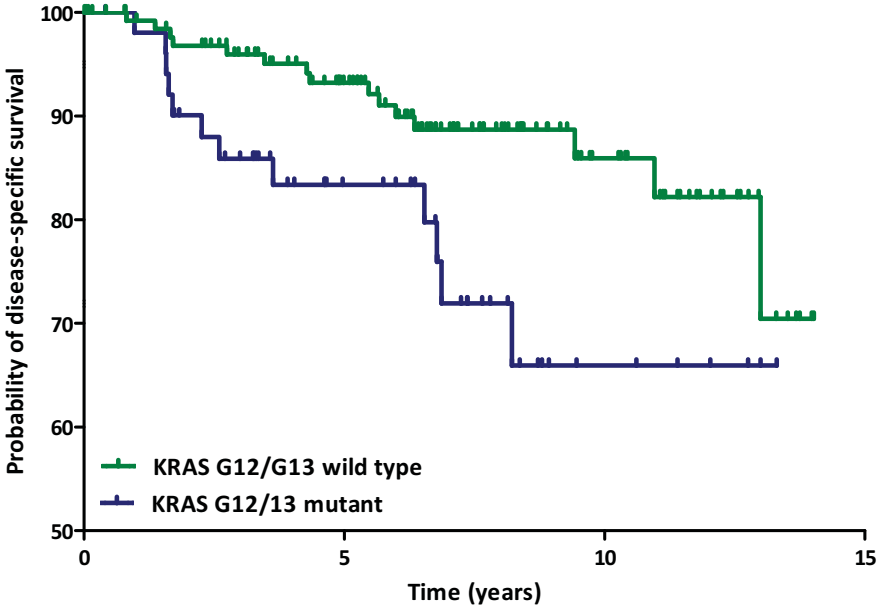

Probability of disease-specific survival
100
90
80
70
60
50
0
5
10
15
Time (years)
KRAS G12/G13 wild type
KRAS G12/13 mutant

Figure S3

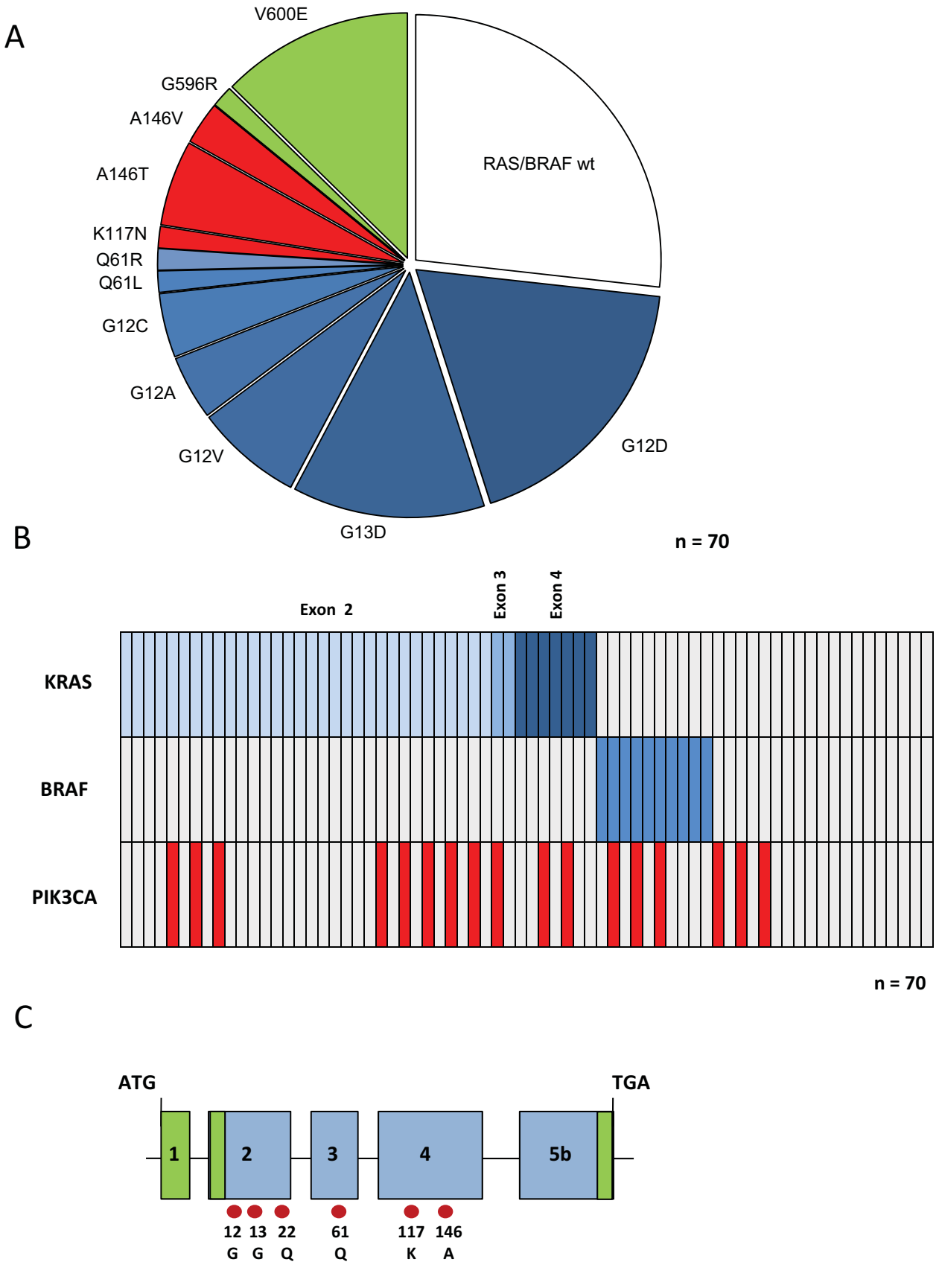

A
V600E
G596R
A146V
A146T
K117N
Q61R
Q61L
G12C
G12A
G12V
G13D
G12D
RAS/BRAF wt
B
n = 70
Exon 2
Exon 3
Exon 4
KRAS
BRAF
PIK3CA
n = 70
C
ATG
TGA
1
2
3
4
5b
12 13 22
G G Q
61
Q
117 146
K A

Table S1

Table S1. KRAS K117N & A146T/V mutations in patients for which annotated clinical data was available

Tissue Site	KRAS	PIK3CA	TP53	Sex	Age	Primary Location	Stage	Primary Size	FUP Status	FUP Interval (yrs)	MSI Status
polyp	A146T	wt	wt	M	67	Rectum					MSS
polyp	A146T	wt	wt	M	72	Ascending					MSS
polyp	A146T	wt	wt	M	77	Ascending					MSS
primary colon	A146T	wt	R213*	F	68	Rectum	I	3.5	NED	10.3	MSS
primary colon	A146T	wt	wt	F	61	Rectum	I	5.0	NED	6.6	MSS
primary colon	A146T	M1043I	wt	M	85	Cecum	I	3.5	DOC	13.7	MSI
primary colon	A146T	wt	wt	M	69	Cecum	I	5.0	NED	6.2	MSS
primary colon	K117N	H1047R	wt	M	75	Cecum	I	6	NED	1.0	MSI
primary colon	A146T	wt	R282W	F	73	Sigmoid	II	5.0	NED	6.3	MSS
primary colon	A146T	wt	wt	M	67	Rectum	II	4.5	NED	7.1	MSS
primary colon	A146T	wt	R273H	M	70	Cecum	II	6.0	NED	0.8	MSS
primary colon	A146V	wt	H214R	F	63	Transverse	II	4.2	NED	6.2	MSS
primary colon	A146T	wt	wt	F	41	Transverse	III	4.5	NED	10.4	MSS
primary colon	K117N	wt	wt	M	57	Rectum	III	4.0	NED	7.6	MSS
primary colon	A146T	wt	wt	F	70	Transverse	IV	5.0	DOD	1.8	MSS
primary colon	A146T	wt	wt	F	67	Sigmoid	IV	3.3	DOD	2.6	MSS
primary colon	K117N	wt	wt	F	75	Sigmoid	IV	3.0	DOD	0.8	MSS
liver met	A146T	wt	wt	F	50	Sigmoid	IV	4.5	NED	13.0	N/A
liver met	A146T	wt	S20L/R337C	F	59	Sigmoid	IV	N/A	NED	12.5	N/A
liver met	A146T	wt	R342*	M	59	Sigmoid	N/A	N/A	NED	19.5	N/A
liver met	A146T	wt	R306*	F	75	Rectum	IV	5.5	NED	1.7	N/A

Table S2

Table S2. List of KRAS, BRAF and PIK3CA mutations in 70 colorectal cancer cell lines.

Cell Lines	KRAS	BRAF	PIK3CA	Source
GEO	G12A	wt	wt	LICR
C84	G12A	wt	wt	CRUK
SW1116	G12A	wt	wt	ATCC
RW7213	G12C	wt	wt	LICR
SW837	G12C	wt	wt	LICR
Gp5d	G12D	wt	H1047L	LICR
LS174T	G12D	wt	H1047R	LICR
LS180	G12D	wt	H1047R	LICR
ALA	G12D	wt	wt	LICR
CCCL-2	G12D	wt	wt	MSKCC
CCCL-11	G12D	wt	wt	MSKCC
CCCL-13	G12D	wt	wt	MSKCC
Isreco1	G12D	wt	wt	LICR
Isreco2	G12D	wt	wt	LICR
Isreco3	G12D	wt	wt	LICR
LS513	G12D	wt	wt	LICR
SNU-C2B	G12D	wt	wt	LICR
TC71	G12D	wt	wt	LICR
CCCL-3	G12V	wt	wt	MSKCC
SKCO-1	G12V	wt	wt	LICR
SW403	G12V	wt	wt	LICR
SW480	G12V	wt	wt	LICR
SW620	G12V	wt	wt	LICR
T84	G13D	wt	E542K	LICR
DLD-1	G13D	wt	E545K	LICR
HCT-15	G13D	wt	E545K	LICR
HCT-8	G13D	wt	E545K	LICR
HCT116	G13D	wt	H1047R	LICR
CCCL-19	G13D	wt	wt	MSKCC
CCCL-28	G13D	wt	wt	MSKCC
LoVo	G13D	wt	wt	LICR
NCI-H747	G13D	wt	wt	ATCC
SW948	Q61L	wt	E542K	LICR
RW2982	Q61R	wt	wt	LICR
C125PM	K117N	wt	wt	CRUK
HCC2998	A146T	wt	wt	LICR
LS1034	A146T	wt	wt	ATCC
CCCL-18	A146T	wt	E542K	MSKCC
CCCL-23	A146T	wt	E545K	MSKCC
C80	A146V	wt	wt	CRUK
SW1222	A146V	wt	wt	ATCC
NCI-H508	wt	G596R	wt	ATCC
RKO	wt	V600E	H1047R	LICR
Vaco-5	wt	V600E	H1047R	LICR
HT29	wt	V600E	P449T*	LICR
Co-115	wt	V600E	wt	LICR
COLO-201	wt	V600E	wt	LICR
COLO-205	wt	V600E	wt	LICR
LS411N	wt	V600E	wt	ATCC
SW1417	wt	V600E	wt	LICR
WiDR	wt	V600E	wt	LICR
CCCL-10	wt	wt	E545K	MSKCC
CCCL-6	wt	wt	H1047R	MSKCC
CoCM-1	wt	wt	R1023Q	MSKCC
C2BBe1	wt	wt	wt	ATCC
Caco-2	wt	wt	wt	ATCC
C32	wt	wt	wt	CRUK
CCCL-14	wt	wt	wt	MSKCC
CCCL-20	wt	wt	wt	MSKCC
CCCL-21	wt	wt	wt	MSKCC
CCCL-26	wt	wt	wt	MSKCC
CCCL-30	wt	wt	wt	MSKCC
COLO-320	wt	wt	wt	LICR
DIFI	wt	wt	wt	LICR
HCA7	wt	wt	wt	LICR
HTB135	wt	wt	wt	ATCC
KM12	wt	wt	wt	NCI
LIM1215	wt	wt	wt	LICR
SW48	wt	wt	wt	LICR
V9P	wt	wt	wt	LICR

*From COSMIC (http://www.sanger.ac.uk/perl/genetics/CGP/core_line_viewer?action=sample&id=905939); MSKCC-Memorial Sloan-Kettering Cancer Center, New York; LICR-Ludwig Institute for Cancer Research, Melbourne; CRUK-Cancer Research, UK; ATCC-American Type Culture Collection, Manassas; NCI-National Cancer Institute, Bethesda.

Table S3

Table S3. Focal regions of copy number gain and loss identified by RAE Analysis of 128 colorectal tumors.

Locus	Region (Mb)	Effective frequency†	Q-value‡	Number of genes§	Genetic element of interest¥
Amplifications					
7p22.3-p21.3*	0.140-9.112	50 (3.1)	<4.86E-08	72,2	*CARD11,MMD2,FBXL18,PMS2,RPA3,ICA1,CHST12,PDGFA*
7q32.3-q34*	131.599-141.403	41.4 (2.3)	<4.86E-08	62,1	*TRIM24,HIPK2,DGKI,BRAF,CREB3L2*
7q36.1-q36.3*	152.011-158.811	39.8 (7)	<4.86E-08	20,2	hsa-mir-153-2,hsa-mir-595,*SHH,UBE3C,PAXIP1*
8q24.12 *	120.518-122.057	50 (10.2)	<4.86E-08	8,0	near *MYC; ENPP2,COL14A1,SNTB1*
9p22.1	19.286-19.331	21.1 (1.6)	0.0902	1,0	*DENND4C*
12p13.33*	0.544-0.551	21.1 (0.8)	0.0972	1,0	-
12p13.33 *	0.939-1.472	21.9 (0.8)	0.0642	1,0	*ERC1*
12p13.33-p13.31*	1.926-8.201	25.8 (2.3)	0.0042	88,2	*CACNA1C,NTF3,ING4,ZNF384,PTPN6,GDF3,CCND2,ZNF384*
13q12.13-q12.2*	26.194-27.744	56.2 (15.6)	<4.86E-08	15,0	*FLT3,CDX2,USP12; near CDK8*
13q14.11-q21.1*	40.932-56.650	57 (11.7)	<4.86E-08	72,2	hsa-mir-16-1,hsa-mir-15a,*HTR2A,RB1,LCP1*
16p11.2	27.812-28.187	21.1 (0.8)	0.0933	2,0	*XPO6*
16p11.2	28.774-29.090	21.1 (0.8)	0.0926	7,0	*CD19,SH2B*
20p13-p12.3*	0.590-6.362	39.1 (12.5)	<4.86E-08	73,1	-
20q11.21-q12*	29.592-39.033	68 (25.8)	<4.86E-08	110,2	*MYLK2,C20orf160,HCK,KIF3B,DNMT3B,DHX35,MAFB,NDRG3*
Deletions					
3p14.2	60.448-60.462	18 (6.2)	0.1308	1,0	*FHIT*
4q22.1*	92.062-92.096	27.3 (0.8)	1.83E-05	0,0	-
4q35.2*	189.387-189.417	28.1 (2.3)	6.13E-06	0,0	-
5q14.1	80.703-81.063	19.5 (0.8)	0.1172	2,0	*SSBP2*
5q14.2	81.609-82.016	19.5 (0.8)	0.1171	2,0	-
5q14.3	83.148-91.578	21.9 (0.8)	0.0203	13,1	*hsa-mir-9-2,EDIL3,MEF2C,COX7C*
5q15	93.191-93.309	19.5 (0.8)	0.1152	1,0	-
5q21.1-q22.3	97.997-114.112	26.6 (5.5)	0.0123	31,0	*APC,FBXL17,EFNA5*
5q23.1	115.292-116.096	19.5 (0.8)	0.1188	3,0	*SEMA6A*
5q23.1	120.408-120.477	18.8 (1.6)	0.1430	0,0	-
6q26	162.762-162.790	19.5 (1.6)	0.1472	1,0	*PARK2*
8p11.21	41.074-41.131	18.8 (0)	0.1364	0,0	*SFRP1*
10q23.2	89.459-89.573	25 (0.8)	0.0043	2,0	*PAPSS2* (near *PTEN*)
10q25.1	107.961-111.569	21.1 (0.8)	0.0609	1,0	*SORCS1*
10q25.2	114.214-114.844	20.3 (0.8)	0.1014	2,0	*TCF7L2*
16p13.2	6.429-6.883	34.4 (12.5)	4.10E-06	1,0	*A2BP1*
17p13.1-p11.2*	11.090-16.778	48.4 (1.6)	<7.34E-08	32,1	*hsa-mir-744,MAP2K4*
18p11.32-p11.31*	0.004-3.647	48.4 (1.6)	<7.34E-08	21,0	-
18p11.21*	11.126-12.656	49.2 (1.6)	<7.34E-08	9,0	*IMPA2,CIDEA*
18q21.1-q21.2*	45.118-50.105	60.2 (7)	<7.34E-08	21,0	*SMAD4,DCC*

† Single-copy gain, amplification in parenthesis; otherwise heterozygous and homozygous deletion

‡ False-discovery corrected p-value

§ Number of genes (RefSeq) and microRNAs (hg18)

* See supplementary table 4 (arm-length events)

¥ Genetic elements of interest selected from COSMIC, Cancer Gene Cesnsus, or other evidence

Notes:

Regional boundaries of the 10q23.2 deletion (85.796-107.064) span 200 additional genes and 7 microRNAs: hsa-mir-346, hsa-mir-107, hsa-mir-607, hsa-mir-608, hsa-mir-146b, hsa-mir-936, hsa-mir-609, *WNT8B, MINPP1, TNKS2, PLCE1, BMPR1A, FAS, TLX1, NFKB2, SUFU, GHITM, PCDH21, GRID1, OPN4, SNCG, C10orf116, GLUD1, ATAD1, C10orf59, STAMBPL1, CH25H, LIPA, IFIT1, PANK1, CPEB3, KIF11, HHEX, CYP26A1, CEP55, RBP4, LGI1, CYP2C18, CYP2C19, CYP2C9, CYP2C8, SORBS1, ALDH18A1, ENTPD1, DNTT, PIK3AP1, SLIT1, ARHGAP19, PGAM1, MMS19, SFRP5, CRTAC1, HPSE2, CNNM1, GOT1, ENTPD7, COX15, CUTC, CHUK, PKD2L1, SCD, NDUFB8, HIF1AN, BTRC, POLL, FGF8, PPRC1, PSD, FBXL15, ACTR1A, CYP17A1, CNNM2, NT5C2, INA, TAF5, PDCD11, NEURL, SH3PXD2A, COL17A1, GSTO2, SORCS3, C10orf99, LRRC22, LRRC21, RGR, KIAA1128, WAPAL, LDB3, MMRN2, KIAA1975, FAM35A, FAM22A, FAM22D, LIPL1, LIPF, LIPL2, LIPN, ANKRD22, ACTA2, IFIT2, IFIT3, IFIT1L, IFIT5, SLC16A12, MPHOSPH1, HTR7, RPP30, ANKRD1, PCGF5, HECTD2, PPP1R3C, FGFBP3, BTAF1, MARCH5, IDE, EXOC6, CYP26C1, FER1L3, GPR120, PDE6C, C10orf4, TMEM20, NOC3L, TBC1D12, HELLS, C10orf129, PDLIM1, TCTN3, C10orf130, CCNJ, ZNF518, BLNK, TMEM10, TLL2, SMBP, LCOR, C10orf12, FRAT1, FRAT2, KIAA0690, EXOSC1, ZDHHC16, UBTD1, ANKRD2, C10orf65, C10orf62, C10orf83, PI4KII, AVPI1, ZFYVE27, C10orf132, C10orf28, LOXL4, C10orf33, HPS1, NKX2-3, SLC25A28, ABCC2, DNMBP, CPN1, ERLIN1, CWF19L1, BLOC1S2, SEC31L2, PAX2, C10orf6, SEMA4G, MRPL43, PEO1, LZTS2, PDZD7, SFXN3, KAZALD1, TD1, LBX1, RP11-529I10.4, FBXW4, NPM3, MGEA5, KCNIP2, C10orf76, HPS6, LDB1, NOLC1, ELOVL3, PITX3, GBF1, CUEDC2, C10orf95, C10orf77, TRIM8, ARL3, SFXN2, C10orf26, C10orf32, AS3MT, PCGF6, USMG5, FAM26B, FAM26C, OBFC1, SLK, C10orf78, C10orf79, GSTO1, KIAA1754, C10orf80*

Table S4

Table S4. Arm length events identified by array CGH in 128 colorectal tumors.

Alteration	Arm(s)*	Q-value	Frequency(%)§
Gain	7p	<4.86E-08	47.7
Gain	7q	<4.86E-08	37.5
Gain	8q	<4.86E-08	46.1
Gain	12p	<4.86E-08	21.9
Gain	13q	<4.86E-08	54.7
Gain	20p	<4.86E-08	35.9
Gain	20q	<4.86E-08	65.6
Loss	1p	<7.34E-08	23.4
Loss	4p	3.38E-07	28.1
Loss	4q	<7.34E-08	25
Loss	8p	<7.34E-08	36.7
Loss	14q	<7.34E-08	21.9
Loss	15q	<7.34E-08	29.7
Loss	17p	<7.34E-08	44.5
Loss	18p	<7.34E-08	47.7
Loss	18q	<7.34E-08	57.8
Loss	21q	<7.34E-08	19.5
Loss	22q	2.44E-05	20.3

* Contiguous region of significant alteration spanning >50% of the chromosome arm by genomic coverage

§ Frequencies calculated from tumors whose median copy number alteration status for the arm was either single-copy gain or heterozygous loss

Table S5

Table S5. List of mutations screened using the colorectal Sequenom assay panel.

KRAS	NRAS	BRAF	PIK3CA	MEK1
G12V	G12V	G466E	K111N	K57N
G12D	G12D	G466V	C420R	
G12A	G12A	G466A	P539R	
G12S	G13D	G466R	E542K	
G12R	G13A	G469E	E542G	
G12C	G13V	G469A	E542V	
G13D	G13R	G469V	E542Q	
G13A	A18T	G469R	E545K	
G13V	Q61K	V600E	E545G	
G13S	Q61E	V600K	E545A	
G13R	Q61P	V600R	E545D	
G13C	Q61R	V600M	Q546K	
L19F	Q61L	K601E	Q546E	
Q22K	Q61H	L618S	Q546P	
Q22R			Q546R	
A59T			H1047R	
A59E			H1047L	
Q61K			H1047Y	
Q61E				
Q61P				
Q61R				
Q61L				
Q61H				
A146T				
A146V				
A146P				

Table S6

Table S6. SNPs included in the HapMap Sequenom assay

Chromosome	dbSNP id	Population Count	Populations and Genotype Counts
chrX	rs28539253	3	US_African-30-trios[CT:45|CC:26|TT:28] , US_Gujarati[CT:45|CC:30|TT:24] , Maasai_Kenyan-60-trios[CT:51|CC:25|TT:23]
chrX	rs6645103	3	CEPH-60-trios[CT:45|CC:31|TT:22] , US_Chinese[CT:51|CC:25|TT:22] , US_Gujarati[CT:47|CC:25|TT:26]
chr13	rs9573824	6	US_African-30-trios[AG:50|AA:25|GG:23] , CEPH-60-trios[AG:50|AA:26|GG:23] , Han_Chinese[AG:50|AA:24|GG:25] , US_Chinese[AG:49|AA:24|GG:26] , Japanese[AG:47|AA:29|GG:23] , Italian[AG:51|AA:23|GG:24]
chr13	rs630706	6	US_African-30-trios[CT:47|CC:26|TT:25] , CEPH-60-trios[CT:46|CC:28|TT:25] , Han_Chinese[CT:52|CC:24|TT:23] , US_Chinese[CT:48|CC:24|TT:27] , Luhya_Kenyan[CT:46|CC:30|TT:22] , Maasai_Kenyan-60-trios[CT:50|CC:23|TT:26]
chr13	rs1927014	6	US_African-30-trios[CT:49|CC:25|TT:25] , CEPH-60-trios[CT:46|CC:25|TT:28] , Han_Chinese[CT:51|CC:24|TT:24] , Luhya_Kenyan[CT:46|CC:22|TT:30] , Maasai_Kenyan-60-trios[CT:50|CC:26|TT:23] , Yoruba-60-trios[CT:46|CC:23|TT:30]
chr13	rs7326426	6	Han_Chinese[CT:49|CC:24|TT:25] , US_Chinese[CT:52|CC:22|TT:24] , US_Gujarati[CT:54|CC:22|TT:22] , Japanese[CT:51|CC:24|TT:24] , Luhya_Kenyan[CT:45|CC:27|TT:27] , Yoruba-60-trios[CT:52|CC:23|TT:24]
chr12	rs2433651	7	US_African-30-trios[AG:50|AA:25|GG:23] , US_Chinese[AG:51|AA:22|GG:25] , US_Gujarati[AG:48|AA:22|GG:28] , Japanese[AG:48|AA:26|GG:24] , Luhya_Kenyan[AG:45|AA:27|GG:26] , Italian[AG:48|AA:25|GG:25] , Yoruba-60-trios[AG:47|AA:22|GG:30]
chr12	rs7297243	7	US_African-30-trios[AG:49|AA:23|GG:26] , CEPH-60-trios[AG:47|AA:27|GG:25] , Han_Chinese[AG:47|AA:24|GG:28] , US_Chinese[AG:47|AA:25|GG:27] , Japanese[AG:50|AA:23|GG:26] , Luhya_Kenyan[AG:46|AA:28|GG:24] , Italian[AG:45|AA:31|GG:23]
chr11	rs10899035	7	US_African-30-trios[CT:47|CC:26|TT:25] , CEPH-60-trios[CT:51|CC:24|TT:24] , Han_Chinese[CT:46|CC:25|TT:28] , US_Chinese[CT:46|CC:28|TT:24] , US_Gujarati[CT:49|CC:26|TT:24] , Luhya_Kenyan[CT:51|CC:22|TT:25] , Yoruba-60-trios[CT:48|CC:28|TT:23]
chr10	rs1624525	7	US_African-30-trios[GT:54|GG:22|TT:22] , Han_Chinese[GT:45|GG:24|TT:30] , Japanese[GT:46|GG:23|TT:30] , Luhya_Kenyan[GT:46|GG:28|TT:24] , US_Mexican-30-trios[GT:46|GG:22|TT:30] , Maasai_Kenyan-60-trios[GT:53|GG:22|TT:23] , Yoruba-60-trios[GT:45|GG:22|TT:31]
chr17	rs4617924	6	US_African-30-trios[AC:47|AA:28|CC:23] , CEPH-60-trios[AC:49|AA:23|CC:27] , Luhya_Kenyan[AC:48|AA:22|CC:28] , US_Mexican-30-trios[AC:46|AA:30|CC:22] , Maasai_Kenyan-60-trios[AC:46|AA:29|CC:23] , Yoruba-60-trios[AC:48|AA:26|CC:24]
chr17	rs2619118	6	CEPH-60-trios[CT:52|CC:23|TT:23] , Han_Chinese[CT:47|CC:25|TT:26] , US_Chinese[CT:48|CC:25|TT:25] , US_Gujarati[CT:46|CC:26|TT:26] , Japanese[CT:50|CC:23|TT:25] , Italian[CT:46|CC:25|TT:27]
chr16	rs9928312	6	US_African-30-trios[AG:47|AA:26|GG:25] , Han_Chinese[AG:46|AA:24|GG:29] , US_Chinese[AG:51|AA:25|GG:22] , US_Gujarati[AG:45|AA:26|GG:27] , Luhya_Kenyan[AG:49|AA:27|GG:22] , Yoruba-60-trios[AG:50|AA:26|GG:22]
chr16	rs31042	6	CEPH-60-trios[AG:50|AA:25|GG:23] , Han_Chinese[AG:45|AA:24|GG:30] , Japanese[AG:46|AA:23|GG:30] , Luhya_Kenyan[AG:46|AA:25|GG:27] , Italian[AG:50|AA:23|GG:26] , Yoruba-60-trios[AG:48|AA:23|GG:27]
chr15	rs12442455	6	US_African-30-trios[CT:49|CC:28|TT:22] , CEPH-60-trios[CT:45|CC:24|TT:30] , Japanese[CT:48|CC:28|TT:23] , US_Mexican-30-trios[CT:45|CC:23|TT:30] , Italian[CT:46|CC:23|TT:29] , Yoruba-60-trios[CT:52|CC:22|TT:25]
chr14	rs10140137	6	US_African-30-trios[AG:46|AA:29|GG:23] , US_Gujarati[AG:48|AA:24|GG:27] , Japanese[AG:50|AA:24|GG:25] , Luhya_Kenyan[AG:51|AA:24|GG:24] , Maasai_Kenyan-60-trios[AG:49|AA:23|GG:27] , Yoruba-60-trios[AG:51|AA:23|GG:25]
chr14	rs4905376	6	US_African-30-trios[CT:53|CC:22|TT:23] , CEPH-60-trios[CT:50|CC:26|TT:22] , US_Gujarati[CT:45|CC:25|TT:28] , Luhya_Kenyan[CT:45|CC:26|TT:27] , Maasai_Kenyan-60-trios[CT:45|CC:26|TT:27] , Yoruba-60-trios[CT:45|CC:25|TT:29]
chr14	rs1026504	6	US_African-30-trios[AC:53|AA:23|CC:22] , CEPH-60-trios[AC:48|AA:29|CC:22] , US_Chinese[AC:50|AA:24|CC:25] , Luhya_Kenyan[AC:53|AA:24|CC:22] , Maasai_Kenyan-60-trios[AC:51|AA:23|CC:24] , Italian[AC:50|AA:25|CC:23]
chr19	rs7250431	6	US_African-30-trios[GT:45|GG:30|TT:23] , CEPH-60-trios[GT:48|GG:24|TT:27] , Han_Chinese[GT:46|GG:25|TT:28] , US_Chinese[GT:47|GG:27|TT:25] , Maasai_Kenyan-60-trios[GT:47|GG:29|TT:23] , Yoruba-60-trios[GT:50|GG:22|TT:26]
chr19	rs273628	6	US_African-30-trios[AG:47|AA:23|GG:28] , US_Gujarati[AG:48|AA:28|GG:22] , Japanese[AG:51|AA:23|GG:25] , Luhya_Kenyan[AG:51|AA:24|GG:24] , Maasai_Kenyan-60-trios[AG:46|AA:26|GG:26] , Italian[AG:45|AA:25|GG:28]
chr18	rs2287434	6	US_African-30-trios[CT:47|CC:26|TT:25] , CEPH-60-trios[CT:50|CC:24|TT:25] , Han_Chinese[CT:45|CC:23|TT:31] , US_Chinese[CT:47|CC:22|TT:30] , Italian[CT:46|CC:29|TT:23] , Yoruba-60-trios[CT:50|CC:23|TT:25]
chr18	rs8096468	6	CEPH-60-trios[CT:49|CC:27|TT:22] , Han_Chinese[CT:51|CC:23|TT:24] , US_Chinese[CT:47|CC:28|TT:24] , Japanese[CT:47|CC:28|TT:24] , US_Mexican-30-trios[CT:45|CC:22|TT:32] , Italian[CT:49|CC:24|TT:25]
chr22	rs165583	7	US_African-30-trios[AC:50|AA:25|CC:23] , CEPH-60-trios[AC:53|AA:23|CC:23] , Han_Chinese[AC:48|AA:25|CC:25] , Japanese[AC:48|AA:24|CC:26] , US_Mexican-30-trios[AC:50|AA:25|CC:23] , Italian[AC:46|AA:24|CC:28] , Yoruba-60-trios[AC:47|AA:26|CC:25]
chr20	rs11698886	7	CEPH-60-trios[AG:50|AA:26|GG:23] , Han_Chinese[AG:46|AA:25|GG:28] , US_Chinese[AG:52|AA:22|GG:24] , US_Gujarati[AG:54|AA:22|GG:22] , Japanese[AG:46|AA:23|GG:30] , Luhya_Kenyan[AG:49|AA:26|GG:24] , US_Mexican-30-trios[AG:50|AA:25|GG:23]
chr21	rs9984703	5	CEPH-60-trios[AG:46|AA:29|GG:24] , US_Chinese[AG:47|AA:28|GG:24] , US_Gujarati[AG:48|AA:28|GG:22] , US_Mexican-30-trios[AG:47|AA:28|GG:23] , Italian[AG:53|AA:23|GG:23]
chr21	rs233621	5	CEPH-60-trios[CT:45|CC:29|TT:25] , Han_Chinese[CT:47|CC:28|TT:24] , US_Gujarati[CT:45|CC:27|TT:26] , Japanese[CT:45|CC:29|TT:25] , Italian[CT:50|CC:25|TT:23]
chr21	rs2823809	5	CEPH-60-trios[AG:46|AA:30|GG:22] , Luhya_Kenyan[AG:47|AA:28|GG:24] , Maasai_Kenyan-60-trios[AG:50|AA:24|GG:25] , Italian[AG:45|AA:29|GG:24] , Yoruba-60-trios[AG:50|AA:24|GG:24]
chr21	rs233622	5	CEPH-60-trios[AG:46|AA:27|GG:25] , Han_Chinese[AG:47|AA:28|GG:24] , US_Gujarati[AG:46|AA:28|GG:25] , Japanese[AG:45|AA:29|GG:25] , Italian[AG:50|AA:24|GG:24]
chr21	rs373037	5	CEPH-60-trios[CT:45|CC:22|TT:32] , Han_Chinese[CT:53|CC:23|TT:23] , Japanese[CT:45|CC:26|TT:28] , Luhya_Kenyan[CT:50|CC:26|TT:22] , Maasai_Kenyan-60-trios[CT:48|CC:23|TT:27]
chr21	rs9647139	5	CEPH-60-trios[AG:46|AA:26|GG:27] , US_Gujarati[AG:54|AA:22|GG:22] , Japanese[AG:47|AA:26|GG:25] , Luhya_Kenyan[AG:54|AA:22|GG:22] , Italian[AG:50|AA:25|GG:23]
chr21	rs2837501	5	CEPH-60-trios[CT:45|CC:24|TT:29] , US_Chinese[CT:47|CC:24|TT:28] , US_Gujarati[CT:48|CC:22|TT:28] , US_Mexican-30-trios[CT:46|CC:25|TT:28] , Italian[CT:53|CC:23|TT:23]
chr21	rs4819214	5	US_African-30-trios[AG:47|AA:25|GG:26] , Luhya_Kenyan[AG:45|AA:24|GG:30] , US_Mexican-30-trios[AG:47|AA:22|GG:29] , Maasai_Kenyan-60-trios[AG:50|AA:26|GG:22] , Yoruba-60-trios[AG:48|AA:26|GG:24]
chr21	rs8130107	5	US_African-30-trios[CT:49|CC:28|TT:22] , US_Chinese[CT:49|CC:27|TT:23] , US_Gujarati[CT:48|CC:27|TT:24] , Japanese[CT:47|CC:23|TT:29] , Yoruba-60-trios[CT:46|CC:27|TT:26]
chr21	rs2009879	5	Han_Chinese[CT:45|CC:28|TT:26] , US_Chinese[CT:47|CC:22|TT:30] , Japanese[CT:50|CC:25|TT:24] , US_Mexican-30-trios[CT:49|CC:26|TT:23] , Yoruba-60-trios[CT:48|CC:22|TT:28]
chr7	rs362813	6	US_African-30-trios[CT:47|CC:25|TT:27] , Han_Chinese[CT:46|CC:24|TT:29] , US_Chinese[CT:50|CC:27|TT:22] , US_Gujarati[CT:48|CC:26|TT:25] , US_Mexican-30-trios[CT:47|CC:22|TT:29] , Italian[CT:48|CC:23|TT:28]
chr7	rs701286	6	US_African-30-trios[AG:53|AA:22|GG:23] , Han_Chinese[AG:48|AA:23|GG:28] , US_Chinese[AG:46|AA:23|GG:30] , Luhya_Kenyan[AG:48|AA:26|GG:25] , US_Mexican-30-trios[AG:45|AA:25|GG:29] , Yoruba-60-trios[AG:50|AA:25|GG:24]
chr7	rs2237628	6	US_African-30-trios[CT:47|CC:25|TT:26] , Han_Chinese[CT:48|CC:24|TT:26] , US_Chinese[CT:50|CC:27|TT:22] , US_Gujarati[CT:48|CC:26|TT:25] , US_Mexican-30-trios[CT:47|CC:22|TT:29] , Italian[CT:48|CC:23|TT:28]
chr7	rs12216600	6	CEPH-60-trios[CT:46|CC:25|TT:27] , US_Chinese[CT:47|CC:25|TT:27] , US_Mexican-30-trios[CT:45|CC:25|TT:29] , Maasai_Kenyan-60-trios[CT:47|CC:25|TT:26] , Italian[CT:51|CC:24|TT:23] , Yoruba-60-trios[CT:48|CC:25|TT:25]
chr7	rs6962246	6	US_African-30-trios[CT:50|CC:26|TT:22] , CEPH-60-trios[CT:45|CC:30|TT:23] , US_Chinese[CT:48|CC:27|TT:24] , US_Gujarati[CT:45|CC:26|TT:27] , Japanese[CT:48|CC:28|TT:23] , Maasai_Kenyan-60-trios[CT:46|CC:30|TT:23]
chr6	rs2517478	6	US_African-30-trios[GT:49|GG:25|TT:25] , Han_Chinese[GT:48|GG:25|TT:25] , Japanese[GT:48|GG:25|TT:25] , Luhya_Kenyan[GT:50|GG:26|TT:22] , Italian[GT:48|GG:24|TT:27] , Yoruba-60-trios[GT:48|GG:23|TT:28]
chr6	rs2523836	6	US_African-30-trios[CT:50|CC:23|TT:25] , Han_Chinese[CT:48|CC:25|TT:25] , Japanese[CT:48|CC:25|TT:25] , Luhya_Kenyan[CT:50|CC:26|TT:22] , Italian[CT:48|CC:24|TT:27] , Yoruba-60-trios[CT:48|CC:23|TT:28]
chr6	rs2523843	6	US_African-30-trios[AG:50|AA:22|GG:26] , Han_Chinese[AG:48|AA:25|GG:25] , Japanese[AG:48|AA:25|GG:25] , Luhya_Kenyan[AG:51|AA:25|GG:22] , Italian[AG:48|AA:24|GG:27] , Yoruba-60-trios[AG:48|AA:23|GG:28]
chr6	rs2905759	6	US_African-30-trios[CT:49|CC:25|TT:25] , Han_Chinese[CT:48|CC:25|TT:25] , Japanese[CT:48|CC:25|TT:25] , Luhya_Kenyan[CT:50|CC:26|TT:22] , Italian[CT:48|CC:24|TT:27] , Yoruba-60-trios[CT:48|CC:23|TT:28]
chr6	rs2523884	6	US_African-30-trios[CT:48|CC:25|TT:25] , Han_Chinese[CT:50|CC:25|TT:24] , Japanese[CT:48|CC:25|TT:25] , Luhya_Kenyan[CT:49|CC:27|TT:22] , Italian[CT:48|CC:24|TT:27] , Yoruba-60-trios[CT:46|CC:23|TT:30]
chr6	rs2517489	6	US_African-30-trios[AG:49|AA:25|GG:25] , Han_Chinese[AG:50|AA:24|GG:25] , Japanese[AG:48|AA:25|GG:25] , Luhya_Kenyan[AG:49|AA:22|GG:27] , Italian[AG:48|AA:27|GG:23] , Yoruba-60-trios[AG:46|AA:30|GG:23]
chr6	rs2256436	6	US_African-30-trios[AG:50|AA:23|GG:25] , Han_Chinese[AG:50|AA:25|GG:24] , Japanese[AG:48|AA:25|GG:25] , Luhya_Kenyan[AG:49|AA:27|GG:22] , Italian[AG:48|AA:24|GG:27] , Yoruba-60-trios[AG:46|AA:23|GG:30]
chr6	rs2517477	6	US_African-30-trios[AG:49|AA:25|GG:25] , Han_Chinese[AG:48|AA:25|GG:25] , Japanese[AG:48|AA:25|GG:25] , Luhya_Kenyan[AG:50|AA:22|GG:26] , Italian[AG:48|AA:27|GG:24] , Yoruba-60-trios[AG:48|AA:28|GG:23]
chr6	rs2523883	6	US_African-30-trios[CT:48|CC:25|TT:25] , Han_Chinese[CT:49|CC:25|TT:24] , Japanese[CT:48|CC:25|TT:25] , Luhya_Kenyan[CT:49|CC:27|TT:22] , Italian[CT:47|CC:25|TT:27] , Yoruba-60-trios[CT:46|CC:23|TT:30]
chr6	rs2517502	6	US_African-30-trios[CT:50|CC:23|TT:25] , Han_Chinese[CT:50|CC:25|TT:24] , Japanese[CT:48|CC:25|TT:25] , Luhya_Kenyan[CT:49|CC:27|TT:22] , Italian[CT:48|CC:24|TT:27] , Yoruba-60-trios[CT:46|CC:23|TT:30]
chr6	rs2523881	6	US_African-30-trios[GT:49|GG:25|TT:25] , Han_Chinese[GT:50|GG:24|TT:25] , Japanese[GT:48|GG:25|TT:25] , Luhya_Kenyan[GT:49|GG:22|TT:27] , Italian[GT:48|GG:27|TT:24] , Yoruba-60-trios[GT:46|GG:30|TT:23]
chr6	rs2517500	6	US_African-30-trios[CT:50|CC:23|TT:25] , Han_Chinese[CT:50|CC:25|TT:24] , Japanese[CT:48|CC:25|TT:25] , Luhya_Kenyan[CT:49|CC:27|TT:23] , Italian[CT:48|CC:24|TT:27] , Yoruba-60-trios[CT:46|CC:23|TT:30]
chr6	rs154989	6	US_African-30-trios[AG:45|AA:23|GG:30] , CEPH-60-trios[AG:46|AA:26|GG:26] , Han_Chinese[AG:47|AA:29|GG:23] , US_Gujarati[AG:50|AA:22|GG:26] , Japanese[AG:47|AA:25|GG:26] , Italian[AG:49|AA:24|GG:25]
chr6	rs2535311	6	US_African-30-trios[AG:50|AA:23|GG:25] , Han_Chinese[AG:48|AA:25|GG:25] , Japanese[AG:48|AA:25|GG:25] , Luhya_Kenyan[AG:50|AA:26|GG:22] , Italian[AG:48|AA:24|GG:27] , Yoruba-60-trios[AG:48|AA:23|GG:28]
chr6	rs2535310	6	US_African-30-trios[AC:47|AA:22|CC:29] , CEPH-60-trios[AC:51|AA:25|CC:22] , Han_Chinese[AC:48|AA:25|CC:25] , Japanese[AC:48|AA:25|CC:25] , Luhya_Kenyan[AC:53|AA:22|CC:24] , Yoruba-60-trios[AC:47|AA:23|CC:29]
chr6	rs2106067	6	US_African-30-trios[CT:50|CC:25|TT:24] , Han_Chinese[CT:48|CC:25|TT:25] , Japanese[CT:48|CC:25|TT:25] , Luhya_Kenyan[CT:50|CC:22|TT:26] , Italian[CT:48|CC:27|TT:24] , Yoruba-60-trios[CT:48|CC:28|TT:23]
chr6	rs2523891	6	US_African-30-trios[CT:49|CC:25|TT:25] , Han_Chinese[CT:50|CC:25|TT:24] , Japanese[CT:48|CC:25|TT:25] , Luhya_Kenyan[CT:49|CC:27|TT:22] , Italian[CT:48|CC:24|TT:27] , Yoruba-60-trios[CT:46|CC:23|TT:30]
chr6	rs2535315	6	US_African-30-trios[CT:51|CC:22|TT:25] , Han_Chinese[CT:48|CC:25|TT:25] , Japanese[CT:48|CC:25|TT:25] , Luhya_Kenyan[CT:50|CC:26|TT:22] , Italian[CT:48|CC:24|TT:27] , Yoruba-60-trios[CT:48|CC:23|TT:28]
chr6	rs154988	6	US_African-30-trios[AG:45|AA:30|GG:23] , CEPH-60-trios[AG:46|AA:26|GG:26] , Han_Chinese[AG:47|AA:23|GG:29] , US_Gujarati[AG:50|AA:26|GG:22] , Japanese[AG:47|AA:26|GG:25] , Italian[AG:49|AA:25|GG:24]
chr5	rs4958301	7	US_African-30-trios[GT:50|GG:22|TT:26] , CEPH-60-trios[GT:51|GG:22|TT:25] , US_Gujarati[GT:51|GG:22|TT:25] , US_Mexican-30-trios[GT:45|GG:29|TT:25] , Maasai_Kenyan-60-trios[GT:49|GG:27|TT:22] , Italian[GT:49|GG:24|TT:25] , Yoruba-60-trios[GT:48|GG:23|TT:27]
chr4	rs1521696	6	US_African-30-trios[AT:45|AA:25|TT:29] , CEPH-60-trios[AT:50|AA:26|TT:22] , Han_Chinese[AT:51|AA:24|TT:24] , US_Chinese[AT:47|AA:22|TT:30] , US_Gujarati[AT:45|AA:27|TT:26] , Japanese[AT:46|AA:30|TT:23]
chr4	rs720	6	US_African-30-trios[CT:45|CC:32|TT:22] , CEPH-60-trios[CT:53|CC:23|TT:23] , US_Chinese[CT:45|CC:24|TT:30] , US_Gujarati[CT:46|CC:26|TT:26] , Maasai_Kenyan-60-trios[CT:48|CC:28|TT:22] , Italian[CT:48|CC:24|TT:27]
chr4	rs2160043	6	US_African-30-trios[CT:52|CC:24|TT:22] , CEPH-60-trios[CT:49|CC:24|TT:25] , Han_Chinese[CT:47|CC:23|TT:29] , US_Chinese[CT:45|CC:31|TT:22] , Luhya_Kenyan[CT:45|CC:24|TT:30] , Maasai_Kenyan-60-trios[CT:47|CC:28|TT:23]
chr3	rs6800661	6	US_African-30-trios[AC:45|AA:32|CC:22] , Han_Chinese[AC:46|AA:23|CC:30] , US_Chinese[AC:51|AA:24|CC:24] , US_Gujarati[AC:45|AA:24|CC:30] , Japanese[AC:48|AA:26|CC:24] , Maasai_Kenyan-60-trios[AC:49|AA:23|CC:26]
chr3	rs744876	6	US_African-30-trios[AG:46|AA:28|GG:25] , US_Chinese[AG:52|AA:22|GG:24] , Luhya_Kenyan[AG:50|AA:25|GG:24] , Maasai_Kenyan-60-trios[AG:48|AA:23|GG:28] , Italian[AG:45|AA:29|GG:24] , Yoruba-60-trios[AG:49|AA:25|GG:25]
chr3	rs1450344	6	US_African-30-trios[AG:50|AA:22|GG:26] , Han_Chinese[AG:47|AA:25|GG:26] , US_Chinese[AG:45|AA:24|GG:30] , US_Gujarati[AG:51|AA:22|GG:25] , US_Mexican-30-trios[AG:46|AA:25|GG:28] , Yoruba-60-trios[AG:45|AA:30|GG:23]
chr3	rs4263316	6	US_African-30-trios[CT:45|CC:32|TT:22] , CEPH-60-trios[CT:48|CC:25|TT:26] , US_Gujarati[CT:50|CC:24|TT:25] , Luhya_Kenyan[CT:49|CC:26|TT:24] , US_Mexican-30-trios[CT:47|CC:26|TT:25] , Yoruba-60-trios[CT:47|CC:26|TT:25]
chr3	rs949632	6	US_African-30-trios[AG:45|AA:22|GG:32] , Han_Chinese[AG:46|AA:30|GG:23] , US_Chinese[AG:51|AA:24|GG:24] , US_Gujarati[AG:45|AA:30|GG:24] , Japanese[AG:48|AA:24|GG:26] , Maasai_Kenyan-60-trios[AG:49|AA:26|GG:23]
chr3	rs4073109	6	Han_Chinese[CT:51|CC:23|TT:24] , US_Chinese[CT:47|CC:22|TT:30] , US_Gujarati[CT:45|CC:26|TT:28] , Luhya_Kenyan[CT:45|CC:28|TT:25] , US_Mexican-30-trios[CT:49|CC:28|TT:22] , Yoruba-60-trios[CT:50|CC:26|TT:22]
chr3	rs7609911	6	Han_Chinese[AC:48|AA:25|CC:25] , US_Chinese[AC:51|AA:22|CC:25] , Luhya_Kenyan[AC:45|AA:27|CC:26] , US_Mexican-30-trios[AC:53|AA:23|CC:22] , Maasai_Kenyan-60-trios[AC:49|AA:27|CC:23] , Italian[AC:45|AA:29|CC:24]
chr3	rs11710939	6	Han_Chinese[AG:47|AA:26|GG:25] , US_Chinese[AG:50|AA:25|GG:24] , Japanese[AG:48|AA:28|GG:23] , Luhya_Kenyan[AG:49|AA:25|GG:25] , Maasai_Kenyan-60-trios[AG:45|AA:25|GG:28] , Italian[AG:45|AA:24|GG:29]
chr3	rs6437577	6	US_African-30-trios[AC:45|AA:32|CC:22] , CEPH-60-trios[AC:48|AA:25|CC:26] , US_Gujarati[AC:50|AA:24|CC:25] , Luhya_Kenyan[AC:49|AA:26|CC:24] , US_Mexican-30-trios[AC:47|AA:26|CC:25] , Yoruba-60-trios[AC:47|AA:26|CC:25]
chr3	rs16863691	6	Han_Chinese[GT:53|GG:23|TT:23] , Japanese[GT:50|GG:26|TT:23] , Luhya_Kenyan[GT:48|GG:22|TT:28] , US_Mexican-30-trios[GT:46|GG:30|TT:22] , Maasai_Kenyan-60-trios[GT:50|GG:23|TT:26] , Yoruba-60-trios[GT:50|GG:22|TT:26]
chr3	rs7616178	6	US_African-30-trios[CT:47|CC:28|TT:23] , CEPH-60-trios[CT:48|CC:23|TT:28] , Han_Chinese[CT:46|CC:27|TT:26] , US_Gujarati[CT:46|CC:24|TT:29] , Luhya_Kenyan[CT:47|CC:28|TT:24] , US_Mexican-30-trios[CT:47|CC:28|TT:23]
chr3	rs12634576	6	US_African-30-trios[AG:45|AA:32|GG:22] , Han_Chinese[AG:46|AA:23|GG:30] , US_Chinese[AG:51|AA:24|GG:24] , US_Gujarati[AG:46|AA:25|GG:27] , Japanese[AG:48|AA:26|GG:24] , Maasai_Kenyan-60-trios[AG:49|AA:23|GG:26]
chr3	rs12634593	6	US_African-30-trios[GT:45|GG:22|TT:32] , Han_Chinese[GT:46|GG:30|TT:23] , US_Chinese[GT:51|GG:24|TT:24] , US_Gujarati[GT:45|GG:27|TT:26] , Japanese[GT:48|GG:24|TT:26] , Maasai_Kenyan-60-trios[GT:49|GG:26|TT:23]
chr3	rs6551382	6	US_African-30-trios[AG:46|AA:29|GG:23] , Han_Chinese[AG:46|AA:23|GG:30] , US_Chinese[AG:51|AA:24|GG:24] , US_Gujarati[AG:45|AA:24|GG:30] , Japanese[AG:48|AA:26|GG:24] , Maasai_Kenyan-60-trios[AG:49|AA:23|GG:26]
chr3	rs2141603	6	US_African-30-trios[AG:45|AA:22|GG:32] , CEPH-60-trios[AG:48|AA:26|GG:25] , US_Gujarati[AG:50|AA:25|GG:24] , Luhya_Kenyan[AG:48|AA:24|GG:26] , US_Mexican-30-trios[AG:47|AA:25|GG:26] , Yoruba-60-trios[AG:47|AA:25|GG:26]
chr3	rs6764404	6	US_African-30-trios[CT:45|CC:22|TT:32] , Han_Chinese[CT:46|CC:30|TT:23] , US_Chinese[CT:51|CC:24|TT:24] , US_Gujarati[CT:45|CC:30|TT:24] , Japanese[CT:48|CC:24|TT:26] , Maasai_Kenyan-60-trios[CT:49|CC:26|TT:23]
chr2	rs2419407	7	US_African-30-trios[CT:49|CC:22|TT:28] , Han_Chinese[CT:50|CC:26|TT:23] , Japanese[CT:51|CC:23|TT:25] , Luhya_Kenyan[CT:47|CC:26|TT:25] , Maasai_Kenyan-60-trios[CT:47|CC:26|TT:25] , Italian[CT:46|CC:29|TT:23] , Yoruba-60-trios[CT:49|CC:23|TT:27]
chr1	rs12136079	7	US_African-30-trios[AG:46|AA:26|GG:26] , Japanese[AG:47|AA:24|GG:28] , Luhya_Kenyan[AG:45|AA:28|GG:25] , US_Mexican-30-trios[AG:46|AA:28|GG:25] , Maasai_Kenyan-60-trios[AG:50|AA:24|GG:25] , Italian[AG:49|AA:25|GG:24] , Yoruba-60-trios[AG:47|AA:29|GG:22]
chr9	rs1335143	6	US_African-30-trios[AG:45|AA:23|GG:30] , CEPH-60-trios[AG:48|AA:24|GG:26] , US_Gujarati[AG:48|AA:24|GG:27] , Luhya_Kenyan[AG:50|AA:26|GG:22] , US_Mexican-30-trios[AG:45|AA:25|GG:29] , Yoruba-60-trios[AG:50|AA:22|GG:26]
chr9	rs11103233	6	US_African-30-trios[CT:49|CC:23|TT:26] , CEPH-60-trios[CT:51|CC:25|TT:22] , US_Chinese[CT:45|CC:22|TT:31] , US_Gujarati[CT:48|CC:28|TT:22] , Maasai_Kenyan-60-trios[CT:47|CC:23|TT:28] , Italian[CT:50|CC:23|TT:25]
chr8	rs10102929	6	US_African-30-trios[CT:47|CC:22|TT:29] , CEPH-60-trios[CT:45|CC:27|TT:27] , Han_Chinese[CT:50|CC:24|TT:25] , Luhya_Kenyan[CT:48|CC:27|TT:24] , US_Mexican-30-trios[CT:49|CC:25|TT:25] , Maasai_Kenyan-60-trios[CT:50|CC:23|TT:25]
chr8	rs12541274	6	US_African-30-trios[CT:45|CC:26|TT:28] , CEPH-60-trios[CT:46|CC:22|TT:30] , US_Chinese[CT:48|CC:24|TT:27] , Japanese[CT:47|CC:27|TT:25] , Luhya_Kenyan[CT:46|CC:30|TT:22] , Yoruba-60-trios[CT:46|CC:23|TT:30]
chr8	rs7828662	6	US_African-30-trios[CT:47|CC:25|TT:26] , US_Gujarati[CT:46|CC:30|TT:22] , Luhya_Kenyan[CT:50|CC:22|TT:26] , US_Mexican-30-trios[CT:50|CC:23|TT:25] , Maasai_Kenyan-60-trios[CT:46|CC:23|TT:29] , Yoruba-60-trios[CT:49|CC:22|TT:27]
chr8	rs4875552	6	CEPH-60-trios[CT:48|CC:25|TT:25] , Han_Chinese[CT:45|CC:23|TT:31] , Japanese[CT:52|CC:24|TT:23] , US_Mexican-30-trios[CT:45|CC:30|TT:23] , Maasai_Kenyan-60-trios[CT:48|CC:25|TT:26] , Italian[CT:46|CC:27|TT:25]
chr8	rs11136962	6	Han_Chinese[CT:48|CC:26|TT:24] , US_Chinese[CT:50|CC:25|TT:24] , US_Gujarati[CT:46|CC:30|TT:22] , Japanese[CT:47|CC:24|TT:28] , Luhya_Kenyan[CT:45|CC:24|TT:30] , Yoruba-60-trios[CT:47|CC:30|TT:22]
chr8	rs7842255	6	US_African-30-trios[CT:53|CC:22|TT:23] , CEPH-60-trios[CT:51|CC:24|TT:24] , Japanese[CT:46|CC:28|TT:25] , US_Mexican-30-trios[CT:50|CC:22|TT:26] , Maasai_Kenyan-60-trios[CT:53|CC:23|TT:23] , Yoruba-60-trios[CT:46|CC:31|TT:22]
chr8	rs7824027	6	US_African-30-trios[AG:53|AA:23|GG:22] , CEPH-60-trios[AG:51|AA:24|GG:24] , Japanese[AG:46|AA:25|GG:28] , US_Mexican-30-trios[AG:50|AA:26|GG:22] , Maasai_Kenyan-60-trios[AG:53|AA:23|GG:23] , Yoruba-60-trios[AG:46|AA:22|GG:31]

Table S7

Table S7. Primers for the SNPs in HapMap sequenom assay

WELL	SNP_ID	1st-PCR Primer	2nd-PCR Primer	Extension Primer
W1	rs12541274	ACGTTGGATGAGAGCAGAGCCCATCGAGA	ACGTTGGATGACCTTTACAAGGTCCTGCAC	CTCACTCCTTCTTGGCT
W1	rs10102929	ACGTTGGATGAGGAAGGTGGTCATAGGTTC	ACGTTGGATGAAGCCCGTAAGTCTATGAGG	AGTCTATGAGGGATCCA
W1	AMELXY.a	ACGTTGGATGCACTGGGATGTGGTGATGAG	ACGTTGGATGGGCTGCACCACCAAATCATC	CCACCAAATCATCCCCGTG
W1	rs6645103	ACGTTGGATGCCACCACTGCTCACATAATC	ACGTTGGATGACTTTTCTGACAGTGCAGCC	GCCTGCAGATAACATCTAA
W1	rs10899035	ACGTTGGATGCTCTCTTCCATGCCTTTTAC	ACGTTGGATGTAAAATGGAGTAGTACAGGC	GGAGTAGTACAGGCATAAAA
W1	rs7297243	ACGTTGGATGGGCTAACATTTTAACTCAGG	ACGTTGGATGCTTCTTAGACTGACAAAATGC	TGACAAAATGCTTGTATCTTT
W1	rs4958301	ACGTTGGATGGCTATTTGATAGACCAGGTG	ACGTTGGATGCTTCTGACCACTTCTCAAAC	CACTACACTCTAATCCAAGCTA
W1	rs744876	ACGTTGGATGAGAAGCATGCACATTCAGGG	ACGTTGGATGAGTGCCTTGTATGGGTGTG	GGTGGCTAGTCCTCAAATATGG
W1	rs2433651	ACGTTGGATGGTTGCCTGAGATACGTTTCG	ACGTTGGATGATGCAGGACCTCTTCCTATG	CAGGACCTCTTCCTATGTCATGC
W1	rs2535310	ACGTTGGATGTCATGTGCTTGGATCCAAGG	ACGTTGGATGGCTGCTTGTAACAGAGACAC	ACACAAATGCCACTGGTTTAAATT
W1	rs11698886	ACGTTGGATGGCGCACAGGAGGTTCCAG	ACGTTGGATGGGCATGCCACACAGGCAG	GGCATGCCACACAGGCAGAGAGAA
W1	rs1624525	ACGTTGGATGTTTTAATTAGGAGAAGCAG	ACGTTGGATGAATGAGGATTCCAACAGGTC	GCTGCACAAATAATCTCTCAACCACA
W2	rs120434	ACGTTGGATGAGGGAGCCAGTTGGCAACAT	ACGTTGGATGGCCTTTCAATGCCTTGTTCC	TGTGCTGGAATGCTGAT
W2	rs233621	ACGTTGGATGTGGAAAGCTGGAGGCCTAAG	ACGTTGGATGTTTCTTTTGGTTCTCAGGGC	CTCAGTCTAGATCCACAA
W2	rs701286	ACGTTGGATGGGAAAGCTGTCAGGAATTG	ACGTTGGATGGGAAAGTATAGCACAAAAGC	GCAAAGACAAATGGGAGA
W2	rs10140137	ACGTTGGATGCGGCAAATCCTGTTTCTATG	ACGTTGGATGGTAACAAATAATGTTTTAGTC	TTAGTCTTAAATGTACCCCA
W2	rs2051068	ACGTTGGATGCTGGAAACCATTTCAGAATGC	ACGTTGGATGCTGAAGGTAAAGATTCAAG	TCAAGAGCGCACAGGTATAG
W2	rs1365740	ACGTTGGATGGTACTTACCTCCTGAGGTAG	ACGTTGGATGCAGCACTGGGATGACTTACA	TACACCTTTTTCCTCTTCATT
W2	rs1434199	ACGTTGGATGCCTCTGCCCCCTAATTTCTT	ACGTTGGATGTAGGGAGCTGAATCAATAC	AGCTGAATCAATACATATCACT
W2	rs2419407	ACGTTGGATGAACCTGACAAGTCAGTCTGC	ACGTTGGATGTCTCCAGTCTTTCAGAGAG	AGTCTTTCAGAGAGTTGATCAT
W2	rs273628	ACGTTGGATGGGGAATGTTTTGTCAGTGTC	ACGTTGGATGCTCATGGATAAATAACTGGG	GTGAAATTGCTGGATCATAGGA
W2	rs6800661	ACGTTGGATGTCTGTAAGTGTTTTAATAG	ACGTTGGATGCTAATCTTTCTCCAAATGC	AATCTTTCTCCAAATGCAAGGTTT
W2	rs31042	ACGTTGGATGATTACCTGGGCATTGTTTCC	ACGTTGGATGGTTCAGAAGTATTTCAGGAC	GACACATTTACCAGTGAGTTAGGC
W2	rs1026504	ACGTTGGATGCTCCATTTTGACCTTGTACC	ACGTTGGATGCCATTTACTTCGTGCAGCAT	TGCAGCATGATTAGAAGTAAAGGA
W3	rs8096468	ACGTTGGATGTCACTCATCCACATGGCAGG	ACGTTGGATGAGCACAGCGCACCACACCA	CCTGGGCTGAGCAACCA
W3	rs2619118	ACGTTGGATGTCTGTCTCTCCAGCTACACT	ACGTTGGATGACCTGGGAGACGCGAAAGGA	GCGAAAGGAGGAAATGC
W3	rs2287434	ACGTTGGATGGGTTAAAGGGACTCCATCAG	ACGTTGGATGGGTACTAAGACAATTTTGGC	ACAATTTTGGCAAGACTG
W3	rs362813	ACGTTGGATGGTCTTCCCAATGTCTGTCTC	ACGTTGGATGCAGCCATCACTACCATCATC	TCAAAAACACTATTCTGCC
W3	rs265005	ACGTTGGATGAGCCTCTCTGCTAAGCTACA	ACGTTGGATGTTGTTTGTCTGCTCAACTGG	aTGCTCAACTGGACTATAAA
W3	rs9573824	ACGTTGGATGTCTAAGGCATCCTGGCAGTA	ACGTTGGATGAAAGCATTATAGTTGGGAGG	AAAACAAACAGGGTAGCAAG
W3	rs11103233	ACGTTGGATGATAAACCATTGCCATCGAAG	ACGTTGGATGAGGAACTCACGGGAGGACAA	TGGGCTTTTGCTCTTACTACTC
W3	rs1521696	ACGTTGGATGTTCATTGTATTCACTGTTC	ACGTTGGATGGTCTAGGAATCTTCCAAATG	TAGATTTGGACTTTAAGCAATC
W3	rs2347790	ACGTTGGATGATGCTCCACCCACACAGTTC	ACGTTGGATGATAACCTATGCAACAGCTGG	gTGGAAGATGTGCGTATGCCTTA
W3	rs7250431	ACGTTGGATGGAGAAAGAAGGATGCTGCTC	ACGTTGGATGACTTCTCCTGGCTCCTATGC	GGGCTGGTCCACCCTCCTGTCTCA
W3	rs12136079	ACGTTGGATGTGGAAAACGGAAGAAAGTG	ACGTTGGATGTTCTGGAACTCCTGCTATTC	TATTCAAATAAATACTGGCTGTTA
W3	rs1335143	ACGTTGGATGATACTTATGTCCAAGGCAA	ACGTTGGATGCTTCTTATCCATAATAATCCC	TGCAAAATACATTTATTGCATCTTTA
W4	rs154989	ACGTTGGATGATTGCAACCATCGAGAGGAC	ACGTTGGATGTTCCCTCTTGTATCTCTGGC	TCGCATAGCATCAGGCT
W4	rs165583	ACGTTGGATGCCCTTTCCCTGAACAGAAGC	ACGTTGGATGCTCCCGTGGTTTTATAGCAG	GGCGAAGGAAGGAGACC
W4	rs630706	ACGTTGGATGGTATCTAGCATTATCGAGAC	ACGTTGGATGCACAAACTTGATGTCTCCCC	ATGTCTCCCCATTTACTTA
W4	rs12442455	ACGTTGGATGATATGTCACGCATAGCCCAG	ACGTTGGATGAACCTGGCTCATGGATGACA	AGTGGATTATCCTTGGAAT
W4	rs2160043	ACGTTGGATGAGTATTGACAAGGATGTGG	ACGTTGGATGGTTTTCCAAAGTAGCTACAG	CAATTTATATTCCTACCAGCA
W4	rs4617924	ACGTTGGATGCTCGTGGTACCTGAAAATTC	ACGTTGGATGGCAGTTATGTGTACATTAG	ATTTAGACTGAGTTTTGTCTT
W4	AMELXY.b	ACGTTGGATGACCACCAAATCATCCCCGTG	ACGTTGGATGAGCTGGCACCACTGGGATGT	ACCACTGGGATGTGGTGATGAG
W4	rs9928312	ACGTTGGATGTAGTTCAGATCCCAACTGGC	ACGTTGGATGAAAAGCGGTGGCCAGGAGTG	GGCACAGGATGGCCCCAAAGCAT

Table S8

Table S8. Cross-validation of MS based genetic fingerprinting assay

Sample	Call Type	rs2287434	rs4617924	rs265005	rs11698886	rs1521696	rs120434	rs6800661
ARO	SNPchip Haplotype	Hom1	Hom1	Hom2	Hom1	NoCall	Het	Hom1
	MS-Genetic fingerprinting	TT	AA	TT	GG	TT	GC	CC
HT29	SNPchip Haplotype	Hom1	Hom1	Hom2	Hom1	Het	NoCall	Hom1
	MS-Genetic fingerprinting	TT	AA	TT	GG	TT	GC	CC
8305c	SNPchip Haplotype	Hom2	Het	Hom2	Hom1	Het	Hom2	Hom1
	MS-Genetic fingerprinting	CT	CA	TT	GG	AT	GG	CA
BHP10_3	SNPchip Haplotype	Het	Hom1	Hom2	Het	Hom2	Hom2	Het
	MS-Genetic fingerprinting	CT	AA	TT	GA	TT	GG	CA
BHP18_21	SNPchip Haplotype	Het	Hom1	Hom2	Het	Hom2	Hom2	Het
	MS-Genetic fingerprinting	CT	AA	TT	GA	TT	GG	CA
BHP2_7	SNPchip Haplotype	Het	Hom1	Hom2	Het	Hom2	Hom2	NoCall
	MS-Genetic fingerprinting	CT	AA	TT	GA	TT	GG	CA
BHP7_13	SNPchip Haplotype	Het	Hom1	Hom2	Het	Hom2	Hom2	Het
	MS-Genetic fingerprinting	CT	AA	TT	GA	TT	GG	CA
DRO	SNPchip Haplotype	NoCall	Hom1	Hom2	Hom1	Hom1	NoCall	Het
	MS-Genetic fingerprinting	CT	AA	TT	GG	AA	GG	CA
KAK-1	SNPchip Haplotype	Hom1	Hom1	Hom2	Hom1	NoCall	Het	Hom1
	MS-Genetic fingerprinting	TT	AA	TT	GG	TT	NoCall	CC
KAT-10	SNPchip Haplotype	Hom1	Hom1	Hom2	Hom1	Hom2	Het	Hom1
	MS-Genetic fingerprinting	TT	AA	TT	GG	TT	NoCall	CC
KAT-18	SNPchip Haplotype	Hom2	Het	Hom2	NoCall	NoCall	Hom2	Hom1
	MS-Genetic fingerprinting	CC	CA	TT	GG	AT	GG	CC
KAT-4	SNPchip Haplotype	NoCall	Hom1	Hom2	Hom1	NoCall	Het	Hom1
	MS-Genetic fingerprinting	TT	AA	TT	GG	TT	NoCall	CC
KAT-5	SNPchip Haplotype	Hom1	Hom1	Hom2	Hom1	Hom2	Het	Hom1
	MS-Genetic fingerprinting	TT	AA	TT	GG	TT	NoCall	CC
KAT-50	SNPchip Haplotype	Hom1	Hom1	Hom2	Hom1	Hom2	Het	Hom1
	MS-Genetic fingerprinting	TT	AA	TT	GG	TT	NoCall	CC
KAT-7	SNPchip Haplotype	Hom1	Hom1	Hom2	Hom1	Hom2	Het	Hom1
	MS-Genetic fingerprinting	TT	AA	TT	GG	TT	NoCall	CC
NPA	SNPchip Haplotype	Het	Hom1	Het	Hom2	Hom1	Het	Het
	MS-Genetic fingerprinting	NoCall	AA	CT	AA	AA	GC	CA

Hom1=homozygous for allele 1; Hom2=homozygous for allele 2; Het=heterozygous

Table S9

Table S9. HapMap for cell line identity typing.

Cell Lines	Match	P Value
*SW620	SW480	3.97E-11
§LS174T	LS180	7.73E-06
#DLD-1	HCT-8	1.08E-12
#HCT-15	DLD-1	2.06E-05
αCOLO-201	COLO-205	1.18E-12
βIS1	IS2	4.83E-08
ªHT-29	WiDr	9.81E-06
¶C2BBe1	Caco-2	5.74E-08
RKO-ATCC	RKO	6.24E-14

*SW480 developed from primary and SW620 established at 6 months follow-up from lymph node metastasis of the same patient (Leibovitz et al., & Gagos et al., PMID: 1000501 & 7763008)

§ LS174T is a trypsinized variant of LS180 cell line (Tom et al., PMID: 1262041)

Using DNA fingerprinting, these four cell lines found to have an identical genetic background (Vermeulen et al., & Chen et al., PMID:7621404 & 9809040)

α Tumor cell lines (COLO 201 and COLO 205) have been established from ascites fluid obtained from a male patient with adenocarcinoma of the colon (Semple et al., PMID:565251)

β Cell lines developed from a single patient (Cajot et al., PMID:9205061)

ª Chromosomal and isozymic evidence indicating that WiDr is a derivative of HT-29 (chen at al., PMID:3472642)

¶ Clone derived from Caco-2 (Peterson et al., PMID: 1506435)