

Table S1. Summary of tissue mutations, plasma mutations and clinical information for 410 early and advanced stage subjects

Sample ID #	Tumor type (adenocarcinoma unless otherwise indicated)	Plasma volume (μl)	Mutation - nucleotide alteration	Mutation - amino acid alteration	Mutant fragments/5 mL plasma	Method used for mutation detection in plasma	Clinical Stage	Age	Sex	Evaluated as part of the metastatic cohort (fig. 2A and fig. 2B)
BLD 41	Bladder	5000	TP53 c.841G>A	TP53 p.D281N	655	SafeSeqS	4	62	M	X
BLD 46	Bladder	2500	TP53 c.853G>A	TP53 p.E285K	2.0	SafeSeqS	4	82	M	X
BLD 47	Bladder	2000	TP53 c.991C>T	TP53 p.Q331X	308	SafeSeqS	4	77	M	X
BREAST10-1	Breast	3000	TP53 c.332T>A	TP53 p.L111Q	1,170	PCR-Ligation	4	56	F	X
BREAST2-1	Breast	3000	FBXL4 c.1187T>A	FBXL4 p.I396N	0.0	SafeSeqS	4	82	F	X
BREAST3-1	Breast	3000	TP53 c.536A>G	TP53 p.H179R	7,500	PCR-Ligation	4	76	F	X
BREAST4-1	Breast	3000	PIK3CA c.3140A>G	PIK3CA p.H1047R	0.0	PCR-Ligation	4	71	F	X
BREAST5-1	Breast	3000	EIF4B c.1756-1G>C	Not applicable	122	SafeSeqS	4	80	F	X
CP10	Breast	4000	TP53 c.637C>T	TP53 p.R213X	2,660	SafeSeqS	4			X
CRC 13	Colorectal	1000	TP53 c.743G>A	TP53 p.R248Q	13	SafeSeqS	4	87	F	X
CRC 59	Colorectal	5000	KRAS c.35G>A	KRAS p.G12D	277	SafeSeqS	4	48	F	X
CRC 61	Colorectal	5000	TP53 c.818G>A	TP53 p.R273H	427	SafeSeqS	4	35	F	X
CRC 62	Colorectal	5000	TP53 c.455C>T	TP53 p.P152L	361	SafeSeqS	4	63	M	X
CRC 63	Colorectal	5000	TP53 c.844C>T	TP53 p.R282W	1,490	SafeSeqS	4	69	M	X
CRC 64	Colorectal	4000	KRAS c.38G>A	KRAS p.G13D	113	SafeSeqS	4	37	F	X
CRC 65	Colorectal	5000	KRAS c.38G>A	KRAS p.G13D	973	SafeSeqS	4	58	M	X
CRC 66	Colorectal	5000	KRAS c.35G>C	KRAS p.G12A	1,220	SafeSeqS	4	64	F	X
CRC 67	Colorectal	5000	TP53 c.396G>C	TP53 p.K132N	1.9	SafeSeqS	4	43	F	X
CRC Bio 162	Colorectal	1000	APC c.3927_3931delAAAGA	APC p.E1309_I1311fs	909	BEAMing	4	48	M	X
CRC Bio 168	Colorectal	1000	KRAS c.35G>A	KRAS p.G12D	374	BEAMing	4	38	M	X
CRC Bio 180	Colorectal	1000	BRAF p.1799T>A	BRAF p.V600E	22,900	SafeSeqS	4	60	M	X
CRC Bio 203	Colorectal	1000	KRAS c.35G>A	KRAS p.G12D	485	SafeSeqS	4	86	F	X
CRC Bio 204	Colorectal	3000	APC c.4348C>T	APC p.R1450X	1,440	SafeSeqS	4	36	M	X
PAP 35	Endometrial	5000	KRAS c.35G>A	KRAS p.G12D	30	SafeSeqS	4	49	F	X
CBGP1-1	Gastroesophageal	3000	CDH1 c.1569T>A	CDH1 p.Y523X	185	PCR-Ligation	4	71	F	X
CBGP3-1	Gastroesophageal	3000	TP53 c.817C>T	TP53 p.R273C	67	PCR-Ligation	4	57	M	X
CBGP5-1	Gastroesophageal	3000	CDH1 c.563T>A	CDH1 p.V188D	220	PCR-Ligation	4	67	F	X
CBGP9-1	Gastroesophageal	3000	TP53 c.559+1C>T	Not applicable	50	PCR-Ligation	4	95	M	X
ESOP1-1	Gastroesophageal	5000	TP53 c.818G>A	TP53 p.R273H	31	PCR-Ligation	4	57	M	X
ESOP2-1	Gastroesophageal	5000	TP53 c.1010G>A	TP53 p.R337H	215	PCR-Ligation	4	66	M	X
G804	Gastroesophageal	2000	RELN c.2005T>C	RELN p.Y669H	239	SafeSeqS	4	39	F	X
CB GLIOMA 22	Glioma	2000	IDH1 c.395G>A	IDH1 p.R132H	0.0	PCR-Ligation	ade II oligodendrocyte	23	M	X
CB GLIOMA 29	Glioma	5000	IDH1 c.395G>A	IDH1 p.R132H	0.0	PCR-Ligation	ade II oligodendrocyte	35	M	X
CB GLIOMA 30	Glioma	5000	IDH1 c.395G>A	IDH1 p.R132H	0.0	PCR-Ligation	ade II astrocytoma	42	M	X
CB GLIOMA 31	Glioma	5000	IDH1 c.395G>A	IDH1 p.R132H	0.0	PCR-Ligation	ade II astrocytoma	24	M	X
CB GLIOMA10	Glioma	2000	IDH1 c.395G>A	IDH1 p.R132H	0.0	PCR-Ligation	ade II oligodendrocyte	43	F	X
CB GLIOMA4	Glioma	2000	IDH1 c.395G>A	IDH1 p.R132H	0.0	PCR-Ligation	ade II oligodendrocyte	31	M	X
CB GLIOMA5	Glioma	3000	TP53 c.856G>A	TP53 p.E286K	0.0	SafeSeqS	Glioblastoma	44	M	X
CBBRP11	Glioma	5000	IDH1 c.395G>A	IDH1 p.R132H	0.0	PCR-Ligation	Glioblastoma	58	M	X
CBBRP12	Glioma	5000	TP53 c.481G>A	TP53 p.A161T	0.0	PCR-Ligation	ade II astrocytoma	53	F	X
CBBRP2	Glioma	2400	TP53 c.419C>T	TP53 p.T140I	0.0	PCR-Ligation	Glioblastoma	64	M	X
CBBRP23	Glioma	4500	IDH1 c.395G>A	IDH1 p.R132H	0.0	PCR-Ligation	ade II oligodendrocyte	35	F	X
CBBRP24	Glioma	4800	IDH1 c.394C>A	IDH1 p.R132S	0.0	PCR-Ligation	grade astrocytoma	32	F	X
CBBRP25	Glioma	4800	IDH1 c.395G>A	IDH1 p.R132H	0.0	PCR-Ligation	ade II oligodendrocyte	24	F	X

CBBRP27	Glioma	4800	IDH1 c.394C>A	IDH1 p.R132S	0.0	PCR-Ligation	ade II astrocyto	34	F	X
CBBRP28	Glioma	3840	IDH1 c.394C>A	IDH1 p.R132S	0.0	PCR-Ligation	ade II astrocyto	36	M	X
CBBRP32	Glioma	1920	IDH1 c.395G>A	IDH1 p.R132H	0.0	PCR-Ligation	Gliosarcoma			X
CBBRP9	Glioma	5000	TP53 c.452C>A	TP53 p.P151H	0.0	PCR-Ligation	ade III astrocyto	55	M	X
GLI 101	Glioma	5000	TP53 c.731G>A	TP53 p.G244D	0.0	SafeSeqS	Glioblastoma	59	M	X
GLIOMA 102	Glioma	5000	EGFR c.2156G>A	EGFR p.G719D	0.0	SafeSeqS	Glioblastoma	62	M	X
GLIOMA 105	Glioma	5000	PIK3CA c.263G>A	PIK3CA p.R88Q	0.0	SafeSeqS	Glioblastoma	46	M	X
GLIOMA 106	Glioma	5000	TP53 c.569_570CT>TC	TP53 p.P190L	0.0	SafeSeqS	Glioblastoma	62	M	X
GLIOMA 109	Glioma	5000	PTEN c.799A>T	PTEN p.K267X	0.0	SafeSeqS	Glioblastoma	78	F	X
GLIOMA 110	Glioma	3500	TP53 c.569C>T	TP53 p.P190L	0.0	SafeSeqS	Glioblastoma	84	F	X
CB HN 9	I and Neck Squamous	5000	PIK3CA c.1624G>C	PIK3CA p.E542Q	1.6	SafeSeqS		4	79	F
CBHNP1-1	I and Neck Squamous	5000	PIK3CA c.112C>T	PIK3CA p.R38C	44	PCR-Ligation		4	38	M
CBHNP2-1	I and Neck Squamous	5000	TP53 c.1010G>T	TP53 p.R337L	1,500	PCR-Ligation		4	59	F
CBHNP3-1	I and Neck Squamous	3200	BRAF c.1801A>G	BRAF p.K601E	0.0	PCR-Ligation		4	78	M
CBHNP4-1	I and Neck Squamous	4000	TP53 c.536A>G	TP53 p.H179R	50	PCR-Ligation		4	58	M
CBHNP6-1	I and Neck Squamous	5000	TP53 c.579_580TC>AT	TP53 p.H193_L194QF	500	PCR-Ligation		4	52	F
CBHNP7-1	I and Neck Squamous	5000	AKAP9 c.3395G>T	AKAP9 p.R1132L	1,280	SafeSeqS		4	68	M
HN 14	I and Neck Squamous	1500	TP53 c.817C>T	TP53 p.R273C	19	PCR-Ligation		4	44	F
HN16	I and Neck Squamous	1500	TP53 c.378C>G	TP53 p.Y126X	0.0	PCR-Ligation		4	68	M
HN41	I and Neck Squamous	1500	PIK3CA c.3140A>T	PIK3CA p.H1047L	0.0	PCR-Ligation		4	42	M
HCC 103	Hepatocellular	5000	TP53 c.536A>G	TP53 p.H179R	7.2	SafeSeqS		4	55	F
HCC 105	Hepatocellular	2000	PALB2 c.1620C>G	PALB2 p.N540K	15	SafeSeqS		3	87	F
HCC 106	Hepatocellular	2000	EGFR c.2014C>G	EGFR p.H672D	7,910	SafeSeqS		3	67	F
HCC 107	Hepatocellular	2000	SLC17A9 c.799G>C	SLC17A9 p.E267Q	0.0	SafeSeqS		3	62	M
CBMB10-1	Medulloblastoma	1000	CTNNB1 c.98C>G	CTNNB1 p.S33C	38	PCR-Ligation	Medulloblastoma			X
CBMB1-1	Medulloblastoma	2000	CTNNB1 c.98C>A	CTNNB1 p.S33Y	2.5	PCR-Ligation	Medulloblastoma			X
CBMB11-1	Medulloblastoma	1000	PTCH1 c.2778G>C	PTCH1 p.W926C	0.0	PCR-Ligation	Medulloblastoma			X
CBMB12-1	Medulloblastoma	1000	PTCH1 c.707G>A	PTCH1 p.W236X	0.0	PCR-Ligation	Medulloblastoma			X
CBMB13-1	Medulloblastoma	2000	CTNNB1 c.94G>T	CTNNB1 p.D32Y	0.0	PCR-Ligation	Medulloblastoma			X
CBMB2-1	Medulloblastoma	1000	PTCH1 c.3154_3155insCGGC	PTCH1 p.T1052fs	5.5	PCR-Ligation	Medulloblastoma			X
CBMB24-1	Medulloblastoma	5000	KDM6A c.4153C>T	KDM6A p.Q1385X	39	SafeSeqS	Medulloblastoma			X
CBMB3-1	Medulloblastoma	1000	MLL2 c.1652C>T	MLL2 p.P551L	10.0	PCR-Ligation	Medulloblastoma			X
CBMB4-1	Medulloblastoma	2000	CTNNB1 c.98C>T	CTNNB1 p.S33F	0.0	PCR-Ligation	Medulloblastoma			X
CBMB5-1	Medulloblastoma	1000	PTCH1 c.981T>A	PTCH1 p.C327X	0.0	PCR-Ligation	Medulloblastoma			X
CBMB6-1	Medulloblastoma	1000	PTEN c.633delCinsGCG	PTEN p.C211fs	0.0	PCR-Ligation	Medulloblastoma			X
CBMB7-1	Medulloblastoma	1000	CTNNB1 c.110C>G	CTNNB1 p.S37C	7.5	PCR-Ligation	Medulloblastoma			X
CBMB8-1	Medulloblastoma	1000	TP53 c.376-2T>C	Not applicable	0.0	PCR-Ligation	Medulloblastoma			X
CBMB9-1	Medulloblastoma	1000	PTCH1 c.3119_3120insT	PTCH1 p.F1040fs	0.0	PCR-Ligation	Medulloblastoma			X
CB MEL 09	Melanoma	2000	NRAS c.182A>G	NRAS p.Q61R	0.0	SafeSeqS		4	57	F
CB MEL 10	Melanoma	2000	BRAF c.1799T>A	BRAF p.V600E	165	SafeSeqS		4	52	F
CB MEL 11	Melanoma	5000	ALK c.4732C>T	ALK p.P1578S	1.1	SafeSeqS		4	40	F
CB MEL2	Melanoma	5000	BRAF c.1799T>A	BRAF p.V600E	1.2	PCR-Ligation		4	32	F
MEL 23	Melanoma	4000	BRAF c.1799T>A	BRAF p.V600E	1,750	SafeSeqS		4	52	F
MEL 24	Melanoma	4000	BRAF c.1799T>A	BRAF p.V600E	6,140	SafeSeqS		4	61	M
MEL 30	Melanoma	5000	TERT promoter, chr5 g.1295250G>A	Not applicable	288	SafeSeqS		4		X
MELP1-1	Melanoma	5000	BRAF c.1799T>A	BRAF p.V600E	345	PCR-Ligation		4	48	F
MELP4-1	Melanoma	2000	BRAF c.1799T>A	BRAF p.V600E	0.0	PCR-Ligation		4	35	M
MELP5-1	Melanoma	5000	BRAF c.1799T>A	BRAF p.V600E	220	SafeSeqS		4	68	M
MELP6-1	Melanoma	5000	BRAF c.1799T>A	BRAF p.V600E	57	PCR-Ligation		4	43	F
MELP7-1	Melanoma	5000	BRAF c.1799T>A	BRAF p.V600E	4.7	PCR-Ligation		4	54	M
MELP8-1	Melanoma	5000	BRAF c.1405G>C	BRAF p.G469R	0.0	SafeSeqS		4		X

1110	Ovarian	2000	TP53 c.524G>A	TP53 p.R175H	14,000	SafeSeqS	3	47	F	X
CB01-1	Ovarian	2000	TP53 c.614A>G	TP53 p.Y205C	180	PCR-Ligation	3	67	F	X
CB05-1	Ovarian	2000	TP53 c.725G>T	TP53 p.C242F	80,000	PCR-Ligation	3	53	F	X
CB06-1	Ovarian	2000	TP53 c.487_488insGAT	TP53 p.Y163X	405	PCR-Ligation	3	54	F	X
CB09-1	Ovarian	2000		TP53 p.R273H	200	PCR-Ligation	3	44	F	X
CB10-1	Ovarian	2000	TP53 c.818G>A	TP53 p.D281E	250	PCR-Ligation	3	74	F	X
CB11-1	Ovarian	2000	TP53 c.742C>T	TP53 p.R248W	10.0	PCR-Ligation	3	64	F	X
CBPANC 0	Pancreatic Ductal	1000	KRAS c.35G>A	KRAS p.G12D	625	BEAMing	4	53	M	X
CBPP12-1	Pancreatic Ductal	4500	KRAS c.35G>A	KRAS p.G12D	10.0	PCR-Ligation	4	63	F	X
CBPP15-1	Pancreatic Ductal	4500	KRAS c.35G>T	KRAS p.G12V	2.2	PCR-Ligation	4	62	M	X
CBPP31-1	Pancreatic Ductal	4800	KRAS c.35G>T	KRAS p.G12V	16	PCR-Ligation	4	78	M	X
CBPP32-1	Pancreatic Ductal	4800	KRAS c.34G>C	KRAS p.G12R	265	PCR-Ligation	4	68	M	X
CBPP50-1	Pancreatic Ductal	5000	KRAS c.35G>A	KRAS p.G12D	10.0	PCR-Ligation	4	66	M	X
CBPP55-1	Pancreatic Ductal	5000	KRAS c.35G>A	KRAS p.G12D	19	PCR-Ligation	4	73	F	X
CBPP57	Pancreatic Ductal	5000	KRAS c.34G>C	KRAS p.G12R	3.3	PCR-Ligation	4	46	M	X
CBPP60	Pancreatic Ductal	5000	KRAS c.35G>T	KRAS p.G12V	16	PCR-Ligation	4	66	F	X
CBPP64	Pancreatic Ductal	5000	KRAS c.35G>A	KRAS p.G12D	19	PCR-Ligation	4	73	F	X
CBPP67	Pancreatic Ductal	2368	KRAS c.35G>T	KRAS p.G12V	46	PCR-Ligation	4	75	F	X
CBPP7-1	Pancreatic Ductal	4050	KRAS c.35G>T	KRAS p.G12V	3.0	PCR-Ligation	4	77	M	X
CBPP73	Pancreatic Ductal	5000	KRAS c.34G>T	KRAS p.G12C	57	PCR-Ligation	4	66	F	X
PANC 10	Pancreatic Ductal	5000	KRAS c.34G>C	KRAS p.G12R	24	PCR-Ligation	4	74	M	X
PANC 13	Pancreatic Ductal	3000	KRAS c.35G>A	KRAS p.G12D	9.5	SafeSeqS	4	66	M	X
PANC 14	Pancreatic Ductal	5000	KRAS c.35G>A	KRAS p.G12D	0.0	SafeSeqS	4	59	M	X
PANC 147	Pancreatic Ductal	3000	KRAS c.35G>T	KRAS p.G12V	10	SafeSeqS	4	81	M	X
PANC 155	Pancreatic Ductal	5000	KRAS c.34G>C	KRAS p.G12R	517	SafeSeqS	4	53	M	X
PANC 156	Pancreatic Ductal	5000	KRAS c.35G>A	KRAS p.G12D	2,820	SafeSeqS	4	63	F	X
PANC 157	Pancreatic Ductal	5000	KRAS c.35G>A	KRAS p.G12D	18	SafeSeqS	4	79	F	X
PANC 158	Pancreatic Ductal	5000	KRAS c.35G>A	KRAS p.G12D	197	SafeSeqS	4	79	M	X
PANC 161	Pancreatic Ductal	5000	KRAS c.34G>C	KRAS p.G12R	0.0	SafeSeqS	4	65	M	X
PANC 162	Pancreatic Ductal	5000	KRAS c.35G>T	KRAS p.G12V	3,560	SafeSeqS	4	75	M	X
PANC 163	Pancreatic Ductal	5000	KRAS c.35G>T	KRAS p.G12V	1,630	SafeSeqS	4	59	F	X
PANC 164	Pancreatic Ductal	5000	KRAS c.35G>A	KRAS p.G12D	326	SafeSeqS	4	55	M	X
PANC 17	Pancreatic Ductal	5000	KRAS c.35G>A	KRAS p.G12D	74	PCR-Ligation	4	66	M	X
PANC 85	Pancreatic Ductal	5000	KRAS c.35G>A	KRAS p.G12D	0.0	SafeSeqS	4	60	F	X
PANC 9	Pancreatic Ductal	3000	KRAS c.35G>T	KRAS p.G12V	875	PCR-Ligation	4	80	M	X
PANC 93	Pancreatic Ductal	5000	KRAS c.35G>A	KRAS p.G12D	3.5	SafeSeqS	4	56	M	X
PANC104	Pancreatic Ductal	3000	KRAS c.35G>T	KRAS p.G12V	45	SafeSeqS	4	75	M	X
PANC124	Pancreatic Ductal	3000	KRAS c.34G>C	KRAS p.G12R	0.0	SafeSeqS	4	59	M	X
PANC132	Pancreatic Ductal	4000	KRAS c.35G>A	KRAS p.G12D	107	SafeSeqS	4	73	F	X
PANC150	Pancreatic Ductal	5000	KRAS c.35G>T	KRAS p.G12V	122	SafeSeqS	4	77	M	X
PANC152	Pancreatic Ductal	5000	KRAS c.35G>T	KRAS p.G12V	5.7	SafeSeqS	4	83	M	X
CBPP11-1	Prostate	4500	KRAS c.35G>A	KRAS p.G12D	0.0	PCR-Ligation	4	62	M	X
CBPRP1	Prostate	4800	BRCA2 c.9281C>G	BRCA2 p.S3094X	173,000	PCR-Ligation	4	63	M	X
CBPRP2	Prostate	4800	TP53 c.743G>T	TP53 p.R248L	59	PCR-Ligation	4	63	M	X
CBPRP3	Prostate	4800	SPOP c.304T>G	SPOP p.F102V	0.0	SafeSeqS	4	57	M	X
CBPRP5-1	Prostate	5000	RPP30 c.905G>A	RPP30 p.R302K	0.0	SafeSeqS	4	68	M	X
RCC 10	Renal Cell Carcinoma	5000	VHL c.263G>T	VHL p.W88L	0.0	SafeSeqS	4	70	M	X
RCC 11	Renal Cell Carcinoma	5000	VHL c.263G>T	VHL p.W88L	0.0	SafeSeqS	4	73	M	X
RCC 7	Renal Cell Carcinoma	5000	HOOK2 c.1165G>T	HOOK2 p.E389X	0.0	SafeSeqS	4	77	M	X
RCC PL1	Renal Cell Carcinoma	5000	VHL c.388G>C	VHL p.V130L	24	PCR-Ligation	4	49	M	X
RCC PL2	Renal Cell Carcinoma	5000	MET c.3687_3688GT>TA	MET p.M1229_Y1230IN	665	PCR-Ligation	4	86	M	X

CB LUNG 24	Small Cell Lung Cancer	5000	TP53 c.832C>G	TP53 p.P278A	320	SafeSeqS	4			X
CB THY 4	Thyroid	5000	NRAS c.182A>G	NRAS p.Q61R	0.0	SafeSeqS	4	79	M	X
CB THY 5	Thyroid	5000	NF2 c.20C>G	NF2 p.S7C	0.0	SafeSeqS	4	54	M	X
CB THY 7	Thyroid	5000	TP53 c.743G>A	TP53 p.R248Q	1,350	SafeSeqS	4	56	M	X
THY 1	Thyroid	5000	BRAF c.1799T>A	BRAF p.V600E	0.0	SafeSeqS	4	64	F	X

Table S2. Comparison of ctDNA levels assessing point mutations and rearrangements in the same specimens

ID#	Tumor Type	Clinical Stage	Rearrangement	Rearrangement (mutant fragments per 5 mL)	Point Mutation (nucleotide)	Point Mutation (codon)	Point mutation (mutant fragments per 5 mL)	Rearrangement fragments/Point mutation fragments (ratio)
BLD 24	Bladder	2	Inter-chromosomal; chr2:204396710-chr1:154286405	3.9	BRAF c.1801A>G	BRAF p.K601E	3.4	1.1
CRC 02	Colorectal	1	Inter-chromosomal; chr12:73097777-chr1:63099083	22,000	TP53 c.730G>A	TP53 p.G244S	16,115	1.4
CRC 03	Colorectal	1	Intra-chromosomal; chr11:98914172-chr11:98993460	6,415	APC c.4012C>T	APC p.Q1338X	26,155	0.2
CRC 06	Colorectal	1	Intra-chromosomal; chr13:27679603-chr13:25685009	85	KRAS c.182_183AA>CC	KRAS p.Q61P	59	1.4
CRC 07	Colorectal	1	Intra-chromosomal; chr4:85109657-chr4:85408635	42	KRAS c.35G>A	KRAS p.G12D	49	0.9
CRC 12	Colorectal	4	Intra-chromosomal; chr6:58080933-chr6:67229823	79	KRAS c.35G>A	KRAS p.G12D	34	2.3
CRC 14	Colorectal	4	Intra-chromosomal; chr8:141375810-chr8:141405769	31	TP53 c.818G>A	TP53 p.R273H	95	0.3
CRC 21	Colorectal	2	Intra-chromosomal; chr1:237741691-chr1:244145093	685	KRAS c.35G>C	KRAS p.G12A	745	0.9
CRC 23	Colorectal	4	Intra-chromosomal; chr16:6343641-chr16:6727736	28,500	TP53 c.817C>T	TP53 p.R273C	14,500	2.0
CRC 27	Colorectal	2	Intra-chromosomal; chr13:102839339-chr13:105470344	55	KRAS c.35G>A	KRAS p.G12D	51	1.1
CRC 30	Colorectal	3	Intra-chromosomal; chr20:2658058-chr20:2770031	1,466,665	KRAS c.35G>A	KRAS p.G12D	138,445	10.6
CRC 37	Colorectal	1	ra-chromosomal; Duplication - chr3:170782510-chr3:1708705	0.0	TP53 c.844C>T	TP53 p.R282W	38	0.0
CRC 51	Colorectal	4	Inter-chromosomal; chr8:30060122-chr1:190065347	3,850	APC c.4012C>T	APC p.Q1338X	72	53.5
CRC 53	Colorectal	4	Intra-chromosomal; chr16:52977177-chr16:52965488	7,150	TP53 c.452C>A	TP53 p.P151H	1,085	6.6
CRC 54	Colorectal	4	Intra-chromosomal; chr11:7250750-chr11:19457296	1,240	KRAS c.35G>T	KRAS p.G12V	36	34.4
CRC 55	Colorectal	4	Intra-chromosomal; chr8:38281631-chr8:39225849	295	TP53 c.637C>T	TP53 p.R213X	112	2.6
CRC 58	Colorectal	4	Intra-chromosomal; chr20:14839816-chr20:14863644	1,370	KRAS c.35G>A	KRAS p.G12D	1,380	1.0
CRC 60	Colorectal	4	Intra-chromosomal; chr17:35277642-chr17:35163714	73,335	TP53 c.817C>T	TP53 p.R273C	12,905	5.7
MEL 27	Melanoma	4	Intra-chromosomal; chr2:137699753-chr2:137700957	15,600	BRAF c.1799T>A	BRAF p.V600E	260	60.0

Table S3. Comparison between plasma and tumor tissue *KRAS* status in 206 patients with metastatic colorectal cancer

Sample ID	Plasma Mutation	mutant fragments per 5 ml	Tissue Mutation	On therapy during blood draw?	Age	Gender	Race	ECOG PS	Met Site - liver	Met Site - lungs
BARD 001	None Detected	Not applicable	WT	Yes	54	M	W	0	1	0
BARD 002	None Detected	Not applicable	WT	Yes	58	M	W	0	1	0
BARD 003	KRAS p.G13D	9,339	KRAS p.G13D	Yes	48	M	W	0	1	1
BARD 004	None Detected	Not applicable	WT	Yes	67	F	W	0	1	1
BARD 005	None Detected	Not applicable	WT	Yes	59	M	W	0	0	0
BARD 006	None Detected	Not applicable	WT	Yes	79	M	W	0	1	1
BARD 007	None Detected	Not applicable	WT	Yes	69	M	W	0	1	0
BARD 008	None Detected	Not applicable	WT	No	72	M	W	0	1	0
BARD 009	None Detected	Not applicable	WT	Yes	76	M	W	0	1	1
BARD 010	None Detected	Not applicable	WT	No	61	M	W	0	1	0
BARD 011	None Detected	Not applicable	WT	No	69	M	W	0	1	0
BARD 012	KRAS p.G12D	93	KRAS p.G12D	No	83	F	W	0	0	0
BARD 013	None Detected	Not applicable	WT	Yes	85	F	W	0	1	1
BARD 014	KRAS p.G13D	2,400	KRAS p.G13D	Yes	60	M	W	0	0	1
BARD 015	None Detected	Not applicable	KRAS p.G12D	Yes	60	M	W	0	0	1
BARD 016	None Detected	Not applicable	WT	No	61	M	W	0	1	0
BARD 017	KRAS p.G12D	1,050	KRAS p.G12D	Yes	82	M	W	0	0	0
BARD 018	None Detected	Not applicable	WT	Yes	49	M	W	0	1	1
BARD 019	None Detected	Not applicable	WT	Yes	71	M	W	0	1	1
BARD 020	None Detected	Not applicable	WT	Yes	71	M	W	0	0	1
BARD 021	None Detected	Not applicable	WT	Yes	69	F	W	0	1	0
BARD 022	None Detected	Not applicable	WT	Yes	75	M	W	0	1	1
BARD 023	None Detected	Not applicable	WT	Yes	71	M	W	0	1	1
BARD 024	KRAS p.G13D	2,330	KRAS p.G13D	Yes	80	M	W	0	0	1
BARD 026	None Detected	Not applicable	WT	No	61	M	W	0	1	0
BARD 027	None Detected	Not applicable	WT	No	25	F	W	0	0	0
BARD 028	KRAS p.G12S	17,300	KRAS p.G12S	Yes	61	F	W	0	1	1
BARD 029	KRAS p.G12D	13,700	KRAS p.G12D	Yes	51	F	W	0	1	1
BARD 030	None Detected	Not applicable	KRAS p.G12V	No	69	M	W	0	0	0
BARD 031	None Detected	Not applicable	WT	No	49	M	W	0	1	0
BARD 032	None Detected	Not applicable	WT	No	82	M	W	0	1	0

BARD 033	KRAS p.G12D	5,260	KRAS p.G12D	No	38	F	W	0	1	1
BARD 034	KRAS p.G12A	158,000	WT	Yes	74	M	W	0	1	0
BARD 035	KRAS p.G13D	381	KRAS p.G13D	No	61	M	W	0	1	0
BARD 036	None Detected	Not applicable	WT	Yes	60	F	W	0	1	1
BARD 037	KRAS p.G12C	60,800	KRAS p.G12V	Yes	62	F	W	0	1	0
BARD 038	None Detected	Not applicable	WT	No	60	M	W	0	1	0
BARD 039	None Detected	Not applicable	WT	Yes	38	F	W	0	0	0
BARD 040	None Detected	Not applicable	WT	Yes	67	M	W	0	1	0
BARD 041	None Detected	Not applicable	WT	Yes	76	M	W	0	1	1
BARD 042	None Detected	Not applicable	WT	Yes	66	M	W	0	1	0
BARD 043	None Detected	Not applicable	WT	Yes	63	F	W	0	1	1
BARD 044	None Detected	Not applicable	WT							
BARD 045	KRAS p.G12D	224	KRAS p.G12D	No	71	M	W	1	1	1
BARD 046	None Detected	Not applicable	WT	Yes	73	M	W	0	0	1
BARD 047	None Detected	Not applicable	WT	Yes	61	M	W	0	1	0
BARD 048	None Detected	Not applicable	WT	Yes	72	M	W	1	0	1
BARD 049	None Detected	Not applicable	WT	Yes	58	M	W	0	1	1
BARD 050	KRAS p.G12D	485	KRAS p.G12D	Yes	51	F	W	1	0	1
BARD 051	None Detected	Not applicable	WT	Yes	38	F	W	0	1	0
BARD 053	None Detected	Not applicable	WT	No	74	M	W	1	1	0
BARD 054	KRAS p.G12S	64	KRAS p.G12S	No	78	M	W	1	1	0
BARD 055	KRAS p.G12D	1,760	KRAS p.G12D	No	76	F	W	2	0	1
BARD 056	KRAS p.G12A	1,250	KRAS p.G12A	Yes	75	M	W	0	1	0
BARD 057	None Detected	Not applicable	WT	No	56	F	W	0	0	1
BARD 058	None Detected	Not applicable	WT	No	51	F	M	0	1	0
BARD 059	KRAS p.G12D	11,800	KRAS p.G12D	Yes	78	M	W	3	0	1
BARD 060	KRAS p.G12D	14,500	KRAS p.G12D	No	76	F	W	1	1	1
BARD 061	None Detected	Not applicable	WT	Yes	75	M	W	1	0	1
BARD 062	None Detected	Not applicable	WT	No	69	M	W	1	1	0
BARD 063	None Detected	Not applicable	WT	Yes	75	M	W	1	0	1
BARD 064	None Detected	Not applicable	WT	Yes	70	M	W	2	1	1
BARD 065	None Detected	Not applicable	WT	No	57	M	W	2	0	0
BARD 066	None Detected	Not applicable	WT	No	37	M	W	2	1	1
BARD 067	None Detected	Not applicable	WT	Yes	29	F	W	1	0	1
BARD 068	KRAS p.G13D	223,000	KRAS p.G13D	No	35	M	W	3	1	0
BARD 069	KRAS p.G12V	49,700	KRAS p.G12V	No	67	F	W	1	1	1
BARD 070	KRAS p.G12D	1,270	KRAS p.G12D	Yes	57	M	W	2	1	1
BARD 071	None Detected	Not applicable	WT	Yes	70	F	W	2	1	1

BARD 072	None Detected	Not applicable	WT	No	79	M	W	0	1	0
BARD 073	KRAS p.G13D	178,000	KRAS p.G13D	Yes	42	F	W	2	1	0
BARD 074	KRAS p.G12V	3,370	KRAS p.G12V	Yes	39	M	W	1	1	0
BARD 075	None Detected	Not applicable	WT	Yes	68	F	W	3	1	0
BARD 077	KRAS p.G12V	799,000	KRAS p.G12V	No	58	M	W	1	1	0
BARD 078	KRAS p.G12V	134	KRAS p.G12V	No	41	F	W	0	0	1
CRC 085	KRAS p.G12S	1,380	KRAS p.G12S	No	58	F	B	0	1	0
CRC 086	None Detected	Not applicable	WT	Yes	41	F	W	0	1	0
CRC 086	None Detected	Not applicable	WT							
CRC 087	None Detected	Not applicable	WT	No	65	M	W	0	0	0
CRC 088	None Detected	Not applicable	WT	No	64	M	B	2	1	1
CRC 089	None Detected	Not applicable	WT	No	55	M	B	1	1	0
CRC 090	None Detected	Not applicable	WT	No	47	M	W	Jknow	1	0
CRC 091	None Detected	Not applicable	WT	No	52	F	W	Jknow	1	0
CRC 092	KRAS p.G12V	813	KRAS p.G12V	No	56	M	W	0	1	1
CRC 093	None Detected	Not applicable	WT	No	56	F	B	0	1	0
CRC 094	KRAS p.G12V	40,000	KRAS p.G12V	No	43	F	W	0	1	0
CRC 095	KRAS p.G12D	35,800	KRAS p.G12D	No	44	F	W	Jknow	1	0
CRC 096	None Detected	Not applicable	WT	No	30	M	W	0	1	0
CRC 097	None Detected	Not applicable	WT	Yes	60	F	B	0	1	0
CRC 098	None Detected	Not applicable	WT	No	64	M	W	0	1	0
CRC 099	KRAS p.G12S	323	KRAS p.G12S	No	41	F	W	0	1	0
CRC 100	None Detected	Not applicable	WT	Yes	59	F	W	0	1	0
CRC 101	None Detected	Not applicable	WT	No	59	M	W	0	0	0
CRC 102	None Detected	Not applicable	WT	No	82	M	W	0	0	1
CRC 104	KRAS p.G12C	1,200	KRAS p.G12C	No	57	F	W	0	1	0
CRC 105	KRAS p.G13D	218	KRAS p.G13D	No	68	M	W	0	1	0
CRC 106	KRAS p.G12D	37,800	KRAS p.G12D	No	71	M	W	0	1	0
CRC 107	None Detected	Not applicable	KRAS p.G12D	Yes	64	F	W	0	1	0
CRC 108	None Detected	Not applicable	WT	No	74	F	W	1	0	0
CRC 110	None Detected	Not applicable	WT	No	62	F	A	0	1	0
CRC 111	None Detected	Not applicable	WT	No	38	F	W	0	1	0
CRC 112	None Detected	Not applicable	WT	No	52	F	W	0	1	0
CRC 113	KRAS p.G12V	638	KRAS p.G12V	No	35	M	W	0	1	0
CRC 114	None Detected	Not applicable	WT	No	66	M	W	1	1	1
CRC 115	None Detected	Not applicable	WT	No	60	M	B	1	1	0
CRC 116	None Detected	Not applicable	WT	No	49	M	W	0	0	0
CRC 117	None Detected	Not applicable	WT	No	39	F	W	0	0	0

CRC 118	None Detected	Not applicable	WT	No	66	F	B	2	1	0
CRC 119	None Detected	Not applicable	WT	No	62	M	W	0	1	0
CRC 120	None Detected	Not applicable	WT	No	42	F	W	0	1	0
CRC 121	None Detected	Not applicable	WT	No	68	M	W	0	1	0
CRC 122	None Detected	Not applicable	WT	No	70	F	W	0	1	0
CRC 123	None Detected	Not applicable	WT	No	47	M	W	0	1	0
CRC 124	None Detected	Not applicable	WT	No	50	F	B	0	1	0
CRC 125	None Detected	Not applicable	KRAS p.G12C	No	56	M	W	0	1	1
CRC 126	None Detected	Not applicable	WT	No	54	M	W	0	1	0
CRC 127	KRAS p.G12V	28,400	KRAS p.G12V	No	39	F	W	0	1	1
CRC 128	None Detected	Not applicable	WT	Yes	18	M	W	0	1	1
CRC 129	KRAS p.G12V	211	KRAS p.G12V	No	73	M	W	0	1	0
CRC 130	KRAS p.G12V	2,220	KRAS p.G12V	No	45	M	B	0	1	0
CRC 131	None Detected	Not applicable	KRAS p.G13D	No	44	M	W	0	1	0
CRC 132	None Detected	Not applicable	WT	No	54	F	W	0	1	0
CRC 133	None Detected	Not applicable	WT	No	69	M	W	0	1	0
CRC 134	KRAS p.G12V	1,280	KRAS p.G12V	No	56	F	W	0	1	0
CRC 135	None Detected	Not applicable	WT	Yes	56	M	W	0	1	0
CRC 136	None Detected	Not applicable	WT	No	44	F	W	0	1	0
CRC 137	None Detected	Not applicable	WT	No	50	F	W	0	1	0
CRC 139	KRAS p.G12D	267	KRAS p.G12D	No	69	M	W	1	1	0
CRC 140	None Detected	Not applicable	WT	No	51	F	B	0	1	0
CRC 141	KRAS p.G12A	9,040	KRAS p.G12A	No	64	F	W	0	1	0
CRC 142	None Detected	Not applicable	WT	Yes	53	M	W	0	1	0
CRC 143	None Detected	Not applicable	WT	No	63	M	W	0	1	0
CRC 144	None Detected	Not applicable	WT	Yes	43	F	W	0	1	0
CRC 145	None Detected	Not applicable	WT	No	58	F	W	0	1	0
CRC 146	None Detected	Not applicable	WT	Yes	50	M	W	0	1	0
CRC 147	None Detected	Not applicable	WT	No	63	F	W	0	1	0
CRC 148	None Detected	Not applicable	WT	Yes	36	F	W	0	1	0
CRC 150	KRAS p.G13D	539	KRAS p.G13D	No	41	M	W	0	1	0
CRC 151	None Detected	Not applicable	WT	No	59	M	W	Unknow	1	0
CRC 152	KRAS p.G12S	32,900	KRAS p.G12S	No	59	F	W	1	1	1
CRC 153	None Detected	Not applicable	WT	No	63	M	W	3	0	0
CRC 154	None Detected	Not applicable	WT	Yes	64	F	W	1	1	1
CRC 155	None Detected	Not applicable	WT	No	48	M	W	Unknow	0	1
CRC 156	KRAS p.G12D	2,560	KRAS p.G12D	No	38	M	W	Unknow	1	1
CRC 157	None Detected	Not applicable	WT	No	46	F	B	0	1	1

CRC 159	KRAS p.G12D	858	KRAS p.G12D	No	86	F	W	Jknow	0	1
CRC 160	KRAS p.G12D	17,900	KRAS p.G12D	No	59	F	W	1	1	0
CRC 161	None Detected	Not applicable	KRAS p.G13D	No	58	F	W	0	0	0
CRC 162	None Detected	Not applicable	KRAS p.G13D	No	32	F	A	0	0	0
CRC 164	None Detected	Not applicable	WT	No	64	F	W	0	0	0
CRC 165	None Detected	Not applicable	KRAS p.G12V	No	63	M	W	0	0	1
CRC 166	None Detected	Not applicable	WT	No	76	M	W	4	1	0
CRC 167	None Detected	Not applicable	WT	No	66	M	W	0	1	0
CRC 168	None Detected	Not applicable	WT	No	54	M	W	0	1	0
CRC 169	None Detected	Not applicable	WT	No	48	M	B	0	1	0
CRC 171	KRAS p.G12D	14,600	KRAS p.G12D	Yes	63	M	W	0	1	0
CRC 172	KRAS p.G12V	1,230	KRAS p.G12V	No	63	M	W	0	1	0
CRC 173	None Detected	Not applicable	KRAS p.G12D	Yes	59	M	W	0	1	0
CRC 175	None Detected	Not applicable	WT	Yes	66	M	W	0	1	0
CRC 176	None Detected	Not applicable	WT	Yes	56	M	W	0	1	0
CRC 177	None Detected	Not applicable	WT	Yes	37	F	W	0	1	0
CRC 178	None Detected	Not applicable	WT	No	51	F	W	0	1	0
CRC 179	None Detected	Not applicable	WT	No	45	F	W	0	1	0
CRC 180	None Detected	Not applicable	WT	No	53	F	W	0	1	0
CRC 181	KRAS p.G12S	7,170	KRAS p.G12S	No	56	M	B	0	1	0
CRC 182	None Detected	Not applicable	WT	No	81	F	W		0	0
CRC 183	None Detected	Not applicable	WT	No	55	M	W	1	1	1
CRC 184	KRAS p.G12D	1,350	KRAS p.G12D	No	44	F	O	0	1	0
CRC 185	None Detected	Not applicable	WT	No	32	F	A	0	1	0
CRC 186	None Detected	Not applicable	WT	No	56	M	W	0	1	0
CRC 187	None Detected	Not applicable	WT	No	59	F	A	0	1	0
CRC 192	KRAS p.G13D	9,970	KRAS p.G13D							
LCR 001	KRAS p.G12S	730	KRAS p.G12S	No	74	M	Jknow	0	1	0
LCR 002	None Detected	Not applicable	WT	No	66	F	Jknow	0	1	0
LCR 004	None Detected	Not applicable	WT	No	41	F	Jknow	0	1	0
LCR 006	KRAS p.G13D	500	KRAS p.G13D	No	76	M	Jknow	0	1	0
LCR 010	KRAS p.G12V	500	KRAS p.G12V	No	76	M	Jknow	Jknow	1	0
LCR 011	None Detected	Not applicable	WT	No	65	F	Jknow	0	1	0
LCR 013	KRAS p.G12V	500	KRAS p.G12V	No	68	M	Jknow	0	1	0
LCR 014	None Detected	Not applicable	KRAS p.G12D	No	47	M	Jknow	0	1	0
LCR 015	KRAS p.G12C	1,210	KRAS p.G12C	No	66	M	Jknow	0	1	0
LCR 016	KRAS p.G12D	63	KRAS p.G12D	No	70	F	Jknow	0	1	0
LCR 017	KRAS p.G12A	4,330	KRAS p.G12A	No	45	F	Jknow	0	1	0

LCR 019	KRAS p.G12V	4,060	KRAS p.G12V	No	78	M	Jnknow	0	1	0
LCR 071	None Detected	Not applicable	WT	no	73	M		0	0	1
LCR 072	KRAS p.G12D	11,600	KRAS p.G12D	no	39	F		0	1	1
LCR 073	KRAS p.G13D	500	KRAS p.G13D	No	68	M	Jnknow	1	0	1
LCR 076	KRAS p.G12D	1,260	KRAS p.G12D	no	71	M		0	1	0
LCR 077	None Detected	Not applicable	WT	No	63	F	Jnknow	0	0	1
LCR 078	KRAS p.G13D	500	KRAS p.G13D	No	49	M	Jnknow	0	0	1
LCR 079	KRAS p.G12D	11,680	KRAS p.G12D	No	57	M	Jnknow	0	1	0
LCR 080	None Detected	Not applicable	WT	No	64	M	Jnknow	0	1	0
LCR 081	None Detected	Not applicable	WT	No	55	F	Jnknow	0	0	1
LCR 082	None Detected	Not applicable	WT	No	60	M	Jnknow	0	1	0
LCR 083	KRAS p.G12S	500	KRAS p.G12S	No	55	M	Jnknow	0	0	1
LCR 084	KRAS p.G12D	139,000	KRAS p.G12D	Yes	58	M	Jnknow	1	1	1
LCR 108	None Detected	Not applicable	WT	No	64	F	Jnknow	0	0	1
LCR 109	None Detected	Not applicable	WT	No	71	M	Jnknow	0	1	1
LCR 110	KRAS p.G12D	628	KRAS p.G12D	No	54	F	Jnknow	0	1	0
LCR 113	None Detected	Not applicable	WT	No	57	M	Jnknow	1	1	0
LCR 116	KRAS p.G12C	768	KRAS p.G12C	No	75	M	Jnknow	0	1	0
LCR 117	None Detected	Not applicable	WT	No	71	M	Jnknow	1	1	1
LCR 118	None Detected	Not applicable	WT	No	68	M	Jnknow	0	1	1
LCR 119	None Detected	Not applicable	WT	No	64	M	Jnknow	1	1	0
LCR 121	KRAS p.G13D	500	KRAS p.G13D	No	31	F	Jnknow	0	1	0
LCR 122	KRAS p.G12D	500	KRAS p.G12D	No	82	M	Jnknow	0	1	0

Met Site - peritoneu m	Met Site - pelvis	Met Site - bone	Met Site - brain	# of Met Sites	Histologic al subtype	Mucinous	Smoking Status	Family History	MSI Status	BRAF Status	Vital Status (1=deceas ed)	OS from ctDNA measureme nt (days)	OS from diagnosis (days)
0	0	0	0	1	Poorly	No	No	No	Unknown	WT	0	933	1112.00
0	0	0	0	1	Moderately	No	No	No	Unknown	WT	0	672	706.00
0	0	0	0	2	Poorly	No	No	No	Unknown	WT	0	118	308.00
0	0	0	0	2	Moderately	No	No	No	Unknown	utation fou	0	318	498.00
1	1	0	0	2	Moderately	No	No	No	Unknown	WT	0	298	1600.00
1	0	0	0	3	Moderately	No	No	No	Unknown	WT	0	199	2723.00
1	0	0	0	2	Poorly	Yes	No	No	Unknown	utation fou	1	291	956.00
0	0	0	0	1	Moderately	No	No	No	Unknown	WT	1	95	108.00
0	0	0	0	2	Moderately	No	Yes	No	Unknown	WT	0	195	418.00
0	0	0	0	1	Moderately	Yes	No	No	Unknown	WT	0	180	215.00
0	0	0	0	1	Moderately	No	No	No	Unknown	WT	0	733	783.00
1	0	0	0	1	Moderately	Yes	No	No	Unknown	WT	0	350	1498.00
0	0	0	0	2	Moderately	No	No	No	Unknown	WT	1	290	2097.00
1	0	0	0	2	Moderately	No	No	No	Unknown	WT	1	208	1809.00
0	0	0	0	1	Poorly	No	No	No	Unknown	WT	0	428	888.00
1	0	0	0		Moderately	No	No	No	Unknown	WT	0	56	864.00
1	0	0	0	1	Moderately	No	No	No	Unknown	WT	0	149	520.00
0	0	0	0	2	Moderately	No	No	No	Unknown	WT	0	523	1279.00
0	0	0	0	2	Moderately	Yes	No	No	Unknown	WT	0	910	2211.00
0	0	0	0	1	Moderately	No	No	No	Unknown	WT	1	717	799.00
0	0	0	0	1	Moderately	Yes	No	No	Unknown	utation fou	0	383	1170.00
1	0	0	0	3	Unknown	Unknown	No	No	Unknown	WT	0	489	914.00
1	0	0	0	3	Moderately	No	No	No	Unknown	WT	0	616	1992.00
1	1	1	0	4	Poorly	Yes	No	No	Unknown	WT	1	149	828.00
0	0	0	0	1	Moderately	Unknown	No	No	Unknown	WT	0	73	158.00
1	0	0	0	1	Moderately	No	No	No	Unknown	WT	1	330	831.00
1	0	0	0	3	Moderately	Unknown	No	No	Unknown	WT	1	293	329.00
1	0	1	0	4	Moderately	No	No	No	Unknown	WT	0	159	145.00
0	0	1	0	1	Moderately	No	No	No	Unknown	WT	0	380	418.00
0	0	0	0	1	Moderately	No	No	No	Unknown	WT	0	297	330.00
0	0	0	0	1	Moderately	No	No	No	Unknown	WT	0	14	29.00

1	0	0	0	3	Moderately	Yes	No	No	Unknown	WT	1	368	666.00
1	0	1	1	4	Moderately	No	No	No	Unknown	WT	1	22	40.00
1	1	0	0	3	to moderately	No	No	No	Unknown	WT	0	586	1210.00
1	0	0	0	3	Moderately	No	No	No	Unknown	WT	1	41	1329.00
1	0	0	0	2	Poorly	Unknown	No	No	Unknown	WT	1	113	137.00
0	0	0	0	1	Moderately	No	No	No	Unknown	WT	0	616	1328.00
1	0	0	0	1	Moderately	No	No	No	Unknown	WT	0	255	1007.00
1	0	0	0	2	to moderately	No	No	No	Unknown	WT	0	202	773.00
1	0	0	0	3	Moderately	No	No	No	Unknown	WT	0	851	1606.00
0	0	0	0	1	Moderately	No	No	No	Unknown	WT	0	988	1624.00
0	0	0	0	2	Poorly	No	No	No	Unknown	WT	0	105	333.00
0	0	0	0	2	Moderately	No	No	No	Unknown	WT	1	199	1265.00
0	0	0	0	1	Poorly	No	No	No	Unknown	WT	1	585	2106.00
0	0	0	0	1	Moderately	No	No	No	Unknown	WT	0	937	1424.00
0	0	0	0	1	Moderately	No	No	No	Unknown	WT	0	289	1980.00
0	0	0	0	2	Moderately	No	No	No	Unknown	WT	0	1025	2458.00
0	0	1	0	2	Unknown	No	No	No	Unknown	WT	0	507	931.00
0	0	0	0	1	Moderately	No	No	No	Unknown	Unknown	0	288	433.00
0	0	0	0	1	Moderately	No	No	No	Unknown	Unknown	0	703	745.00
1	0	0	0	2	Moderately	No	No	No	Unknown	WT	0	740	1290.00
1	1	1	0	4	Unknown	Unknown	No	No	Unknown	WT	1	229	3264.00
0	0	0	0	1	Moderately	Yes	No	No	Unknown	WT	0	289	420.00
1	0	0	0	2	Moderately	Unknown	No	No	Unknown	WT	0	393	1227.00
1	0	0	0	2	Unknown	Unknown	Yes	Unknown	Unknown	WT	0	22	197.00
1	0	0	0	2	Moderately	No	No	No	Unknown	WT	1	59	264.00
1	0	0	0	3	Moderately	Yes	No	No	Unknown	Unknown	0	121	1192.00
0	0	0	0	1	Moderately	No	No	No	Unknown	WT	0	463	831.00
1	1	0	0	3	to moderately	No	No	No	Unknown	WT	1	201	890.00
1	0	0	0	2	Moderately	No	No	No	Unknown	WT	0	98	1965.00
0	0	0	0	2	Moderately	No	No	No	Unknown	WT	0	578	1249.00
1	1	0	0	2	Poorly	No	No	No	Unknown	Unknown	0	191	742.00
1	0	0	0	3	Poorly	No	No	No	Unknown	WT	0	65	408.00
1	1	0	0	3	Moderately	No	No	No	Unknown	WT	0	657	2733.00
1	0	0	0	2	Moderately	Unknown	No	Yes	Unknown	WT	0	14	799.00
0	0	0	0	2	Moderately	Unknown	No	No	Unknown	WT	0	64	1651.00
1	0	1	0	4	Moderately	Unknown	No	No	Unknown	Unknown	0	248	693.00
0	0	1	0	3	Moderately	Unknown	No	No	Unknown	Unknown	0	45	926.00

0	0	0	0	1	Moderately	Unknown	No	No	Unknown	WT	0	220	290.00
0	0	0	0	1	Moderately	Unknown	No	No	MSS	Unknown	0	0	680.00
0	0	0	0	1	Poorly	No	No	No	Unknown	WT	0	822	860.00
0	0	0	0	1	Unknown	Unknown	No	No	Unknown	WT	0	47	986.00
0	0	0	0	1	Moderately	Unknown	No	No	Unknown	WT	0	0	289.00
1	0	0	0	2	Moderately	Yes	No	Yes	Unknown	WT	0	176	527.00
0	0	0	0	1	Moderately	No	Yes	Yes	Unknown	Unknown	1	1177	1199.00
0	0	0	0	1	Moderately	No	No	Yes	Unknown	Unknown	0	994	1220.00
0	0	0	0	0	to moderately	No	No	Yes	Unknown	WT	1	1408	2220.00
0	0	0	0	2	Unknown	No	Distant	Yes	Unknown	Unknown	1	341	393.00
1	0	0	0	2	Moderately	Unknown	Distant	Yes	Unknown	Unknown	1	?	321.00
0	0	0	0	1	Unknown	Unknown	No	Yes	Unknown	Unknown	1	59	340.00
0	0	0	0	1	Unknown	Unknown	No	No	Unknown	Unknown	1	170	208.00
1	0	0	0	3	Unknown	Unknown	No	No	Unknown	Unknown	1	95	1307.00
1	0	0	0	2	Moderately	Unknown	No	Yes	Unknown	Unknown	1	350	1597.00
0	0	0	0	1	erately to p	No	Distant	Yes	Unknown	WT	1	302	385.00
0	0	0	0	1	Poorly	No	No	No	Unknown	Unknown	1	96	124.00
0	0	0	0	1	Moderately	Unknown	No	Yes	Unknown	Unknown	0	1364	1404.00
0	0	0	0	1	Moderately	No	Distant	Yes	Unknown	Unknown	0	205	500.00
0	0	0	0	1	Moderately	No	No	No	Unknown	Unknown	0	55	1021.00
0	0	0	0	1	Moderately	No	Unknown	Unknown	Unknown	Unknown	1	580	1063.00
0	0	0	0	1	Moderately	No	Distant	No	Unknown	Unknown	0	180	676.00
1	0	0	0	1	Poorly	No	Yes	No	Unknown	Unknown	1	553	561.00
0	0	0	0	1	to moderately	No	Distant	Yes	Unknown	Unknown	1	120	136.00
0	0	0	0	1	Unknown	Unknown	No	Yes	Unknown	WT	1	170	648.00
0	0	0	0	1	Moderately	Yes	Unknown	Unknown	Unknown	Unknown	0	934	1174.00
0	0	0	0	1	Moderately	No	No	No	Unknown	Unknown	1	217	438.00
0	0	0	0	1	to moderately	Yes	No	No	Unknown	Unknown	0	1064	1381.00
0	0	1	0	1	Moderately	No	No	No	Unknown	utation fou	0	1001	1091.00
0	0	0	0	1	to moderately	No	No	No	Unknown	Unknown	1	774	3504.00
0	0	0	0	1	Moderately	No	No	Yes	Unknown	WT	0	845	859.00
0	0	0	0	1	Unknown	Unknown	No	No	Unknown	Unknown	0	335	863.00
0	0	0	0	1	Unknown	Unknown	No	Yes	Unknown	WT	1	494	539.00
0	0	0	0	2	Moderately	No	Distant	No	Unknown	WT	0	532	562.00
0	0	0	0	1	Moderately	No	Distant	Yes	Unknown	WT	1	346	383.00
0	0	0	0	0	Poorly	Yes	Distant	Yes	Unknown	WT	0	645	668.00
1	0	0	0	1	Poorly	Yes	No	Yes	MSS	WT	0	428	439.00

0	0	0	0	1	Unknown	Unknown	No	No	Unknown	WT	0	333	337.00
0	0	0	0	1	Moderately	No	No	No	Unknown	WT	0	984	39365.00
0	0	0	0	1	Moderately	No	No	Yes	MSS	WT	0	949	984.00
0	0	0	0	1	Moderately	No	No	Yes	Unknown	Unknown	1	39	233.00
0	0	0	0	1	Moderately	No	No	Yes	Unknown	WT	0	217	723.00
0	0	0	0	1	Moderately	No	No	Yes	MSS	Unknown	0	342	809.00
0	0	0	0	1	to modera	Yes	No	Yes	MSS	WT	0	819	534.00
0	0	0	0	2	Moderately	No	No	Yes	Unknown	WT	0	823	856.00
0	0	0	0	1	to modera	No	Distant	No	Unknown	WT	0	777	1171.00
0	0	0	0	2	Moderately	No	No	No	Unknown	WT	0	818	869.00
0	0	0	0	2	Moderately	No	No	No	Unknown	WT	1	616	841.00
0	0	0	0	1	Moderately	No	No	No	Unknown	WT	1	468	1012.00
0	0	0	0	1	to modera	No	No	Yes	Unknown	WT	0	738	790.00
0	0	0	0	1	Moderately	Yes	Distant	No	MSS	WT	0	427	537.00
0	0	0	0	1	Moderately	No	No	Yes	Unknown	WT	0	477	575.00
0	0	0	0	1	Moderately	No	No	No	Unknown	Unknown	1	32	612.00
1	0	0	0	2	Moderately	No	No	Yes	Unknown	Unknown	1	42	1060.00
0	0	0	0	1	Poorly	Yes	Yes	No	Unknown	Unknown	1	74	270.00
0	0	0	0	1	Moderately	No	Unknown	Yes	Unknown	Unknown	0	548	853.00
0	0	0	0	1	Moderately	No	No	No	Unknown	Unknown	1	173	703.00
0	0	0	0	1	Moderately	Yes	No	Yes	Unknown	Unknown	1	45	419.00
0	0	0	0	1	Unknown	Unknown	No	Yes	Unknown	WT	0	1606	1877.00
0	0	0	0	1	Moderately	No	Yes	Yes	Unknown	Unknown	1	152	704.00
0	0	0	0	1	Moderately	No	Yes	Yes	Unknown	Unknown	1	140	822.00
0	0	0	0	1	Moderately	No	No	No	Unknown	Unknown	1	2130	2543.00
0	0	0	0	1	Moderately	No	No	No	Unknown	Unknown	1	30	184.00
0	0	0	0	1	Moderately	No	No	Yes	Unknown	Unknown	0	1636	38810.00
0	0	0	0	1	Moderately	Unknown	No	Yes	Unknown	Unknown	1	489	711.00
0	0	0	0	1	erately to p	Unknown	No	No	MSS	Unknown	0	2083	2720.00
0	0	0	0	1	Moderately	Yes	No	Yes	Unknown	Unknown	1	15	400.00
0	0	0	0	1	Moderately	No	No	Yes	Unknown	Unknown	0	1756	2242.00
0	0	0	0	1	Moderately	No	No	Yes	Unknown	Unknown	1	207	988.00
0	0	0	0	2	Well	Unknown	No	Yes	Unknown	Unknown	1	0	1453.00
1	0	0	0	1	Poorly	Yes	No	Yes	Unknown	Unknown	1	482	539.00
1	0	0	0	3	Unknown	Unknown	Distant	No	Unknown	Unknown	1	67	765.00
1	0	0	0	2	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	1	217	1236.00
0	0	0	0	2	Moderately	Unknown	No	Yes	Unknown	Unknown	1	987	1085.00
0	0	0	0	2	Unknown	Unknown	No	Yes	Unknown	Unknown	0	113	2069.00

1	0	1	0	3	Unknown	Unknown	Distant	Yes	Unknown	Unknown	1	64	108.00
0	0	0	0	1	erately to p	Yes	Distant	Yes	Unknown	Unknown	1	252	318.00
1	0	0	0	1	Well	Yes	Distant	Yes	Unknown	Unknown	0	0	104.00
1	0	0	0	1	Moderately	Yes	No	No	Unknown	Unknown	0	759	998.00
1	0	0	0	1	Poorly	Yes	Distant	Yes	Unknown	WT	0	0	39.00
0	0	0	1	2	Moderately	Yes	Distant	No	Unknown	Unknown	1	377	3508.00
1	0	0	0	2	Unknown	Unknown	Yes	No	Unknown	Unknown	1	14	Unknown
0	0	0	0	1	Moderately	Yes	Distant	No	Unknown	Unknown	1	897	1607.00
0	0	0	0	1	Moderately	No	Unknown	Unknown	Unknown	Unknown	0	424	Unknown
0	0	0	0	1	Moderately	No	No	Yes	Unknown	Unknown	1	288	2302.00
0	0	0	0	1	Moderately	No	Unknown	Unknown	Unknown	Unknown	1	207	1347.00
0	0	0	0	1	Moderately	No	No	Yes	Unknown	Unknown	0	828	1132.00
0	0	0	0	1	Moderately	Yes	No	Yes	Unknown	Unknown	0	1106	1238.00
0	0	0	0	1	Poorly	Yes	Yes	Yes	Unknown	Unknown	0	1022	1155.00
0	0	0	0	1	Moderately	No	No	Yes	Unknown	Unknown	1	55	1404.00
0	0	0	0	1	Moderately	No	No	Yes	Unknown	Unknown	1	318	487.00
0	0	0	0	1	Unknown	Unknown	No	No	Unknown	Unknown	1	10	209.00
0	0	0	0	1	Poorly	No	No	Yes	Unknown	Unknown	0	544	664.00
0	0	0	0	1	to modera	No	No	No	Unknown	Unknown	0	503	577.00
0	0	0	0	1	Moderately	Unknown	No	No	Unknown	Unknown	0	781	815.00
0	0	0	0	0	Unknown	Unknown	Distant	Unknown	Unknown	Unknown	1	28	619.00
0	0	0	0	2	to modera	No	Distant	No	Unknown	WT	0	319	2704.00
0	0	0	0	1	Moderately	No	No	No	MSS	WT	0	32	Unknown
0	0	0	0	1	to modera	No	No	No	MSS	WT	0	242	Unknown
0	0	0	0	1	to modera	No	Distant	No	Unknown	WT	0	233	Unknown
0	0	0	0	1	to modera	Yes	No	Yes	MSS	utation fou	0	200	273.00
0	0	0	0	1	Moderately	No	No	No	Unknown	WT	0	672	791.00
0	0	0	0	1	Moderately	No	No	No	Unknown	WT	0	602	4011.00
0	0	0	0	1	Moderately	No	No	No	MSS	WT	0	533	556.00
0	0	0	0	1	Moderately	No	No	No	Unknown	WT	0	507	707.00
0	0	0	0	1	Moderately	No	Unknown	Unknown	Unknown	WT	0	294	1086.00
0	0	0	0	1	Moderately	No	No	No	Unknown	WT	0	355	553.00
0	0	0	0	1	Moderately	No	No	No	Unknown	WT	0	301	1312.00
0	0	0	0	1	Moderately	Yes	Yes	Yes	MSI	WT	0	385	1135.00
0	0	0	0	1	Moderately	No	Distant	No	Unknown	WT	0	380	584.00
0	0	0	0	1	Well	No	Unknown	Unknown	Unknown	WT	0	129	1268.00
0	0	0	0	1	Moderately	Unknown	No	No	Unknown	WT	0	371	934.00

0	0	0	0	1	Moderately	No	Distant	No	MSS	WT	0	336	1629.00
0	0	0	0	1	Moderately	No	No	No	Stable	WT	0		
0	0	0	0	2	Moderately	No	No	No	Unknown	WT	1	344	
0	0	0	0	1	Poorly	Yes	Distant	No	MSI	WT	1	370	542.00
1	0	0	0	2	Moderately	No	No	No	Unknown	WT	0	Unknown	
1	0	0	0	2	Poorly	Yes	Distant	Yes	Unknown	WT	0	140	1183.00
0	0	0	0	1	Moderately	Yes	No	No	MSS	WT	0	378	2166.00
0	0	0	0	1	Moderately	No	Distant	No	MSS	WT	1	211	255.00
1	0	0	0	2	Poorly	No	Distant	No	MSS	utation fou	1	56	139.00
1	0	0	0	2	Moderately	No	No	No	Unknown	utation fou	0	335	342.00
1	0	0	0	2	Moderately	No	No	No	Unknown	utation fou	0	262	800.00
0	0	0	0	1	Moderately	No	Distant	No	Unknown	WT	0	321	698.00
1	0	0	0	3	Moderately	No	No	Yes	MSS	WT	1	136	185.00
1	0	1	0	3	Moderately	No	Distant	No	MSS	WT	0	234	425.00
0	0	0	0	2	Moderately	No	Distant	No	MSS	WT	1	46	77.00
0	0	0	0	1	Moderately	No	Yes	No	MSS	WT	0	208	273.00
1	0	0	0	2	Poorly	No	Yes	No	MSI	utation fou	0	194	254.00
1	0	0	0	2	Moderately	No	No	No	Unknown	WT	0	189	202.00
1	0	0	0	3	Moderately	No	Unknown	Unknown	Unknown	WT	0	189	257.00
1	0	0	0	3	Moderately	No	No	No	Unknown	WT	0	155	832.00
1	0	0	0	2	Moderately	No	Unknown	Unknown	Unknown	WT	0	189	306.00
0	0	0	0	1	Moderately	No	No	No	MSS	WT	0	305	356.00
0	0	0	0	1	Moderately	No	No	No	Unknown	WT	0	271	777.00

Response to 1st line therapy	Prior Surgery	Prior chemotherapy	Prior Radiation	CEA (+/- 8 weeks)	WBC	ALT	Bilirubin	Albumin	Creatinine
Partial	No	Yes	Yes	39	3800	8	0.7	3.7	0.9
Complete	Yes	Yes	No	1	6500	41	Unknown	5.0	0.9
Progression	Yes	Yes	No	3	6500	35	0.7	4.7	0.9
Partial	Yes	Yes	No	2	4900	14	0.5	3.9	0.7
Stable Disease	Yes	Yes	Yes	6	7400	26	0.8	4.4	1.0
Partial	Yes	Yes	No	2	8100	15	Unknown	4.2	1.1
Progression	Yes	Yes	No	Unknown	4300	17	Unknown	4.0	1.0
Unknown	No	No	No	25	7300	17	Unknown	3.6	2.8
Progression	Yes	Yes	No	28	4400	20	0.9	4.1	0.5
Stable Disease	No	Yes	No	107	5900	15	Unknown	4.3	0.9
Partial	No	No	No	5	5300	22	Unknown	3.7	0.7
Unknown	Yes	No	No	1	5600	16	1.0	3.7	0.7
Progression	Yes	Yes	No	52	9600	13	0.6	4.4	0.9
Partial	Yes	Yes	No	34	7200	10	0.7	4.1	1.0
Partial	Yes	Yes	No	1	3900	16	0.6	4.7	1.0
Progression	Yes	Yes	No	335	2600	156	1.8	3.4	0.8
Progression	Yes	Yes	No	4	4800	9	Unknown	4.1	0.8
Stable Disease	Yes	Yes	No	5	8900	19	1.0	4.2	0.9
Stable Disease	Yes	Yes	No	6	3800	15	1.7	4.3	1.1
Stable Disease	Yes	No	No	2	7600	16	Unknown	4.6	0.7
Unknown	Yes	Yes	Yes	1	10800	16	0.6	4.2	0.5
Stable Disease	No	Yes	No	5	10500	20	0.5	4.5	1.0
Progression	Yes	Yes	No	145	7400	9	Unknown	3.2	2.7
Progression	Yes	Yes	Yes	83	8200	Unknown	0.5	4.2	0.8
Unknown	Yes	No	No	2	7300	11	Unknown	4.2	0.8
Stable Disease	Yes	Yes	No	25	4200	45	Unknown	4.9	0.7
Progression	Yes	Yes	No	1084	3700	27	Unknown	4.1	0.5
Partial	Yes	No	No	529	10900	7	Unknown	3.8	0.9
Unknown	Yes	No	No	2	6600	9	Unknown	4.1	1.1
Partial	Yes	No	No	743	9700	19	Unknown	3.8	0.9
Unknown	No	Yes	No	27	7900	14	Unknown	3.8	1.0

Progression	Yes	Yes	No	7	10800	17	Unknown	4.5	0.6
Unknown	No	Yes	Yes	1000	7100	126	0.9	2.7	0.5
Partial	Yes	Yes	Yes	Unknown	5700	40	Unknown	4.5	1.0
Partial	Yes	Yes	No	65	3700	19	0.7	4.3	0.7
Unknown	No	Yes	Yes	2	12900	22	0.7	3.7	0.5
Partial	No	Yes	No	100	4300	16	Unknown	4.7	0.9
Partial	Yes	Yes	No	72	4800	39	Unknown	3.5	0.6
Partial	Yes	Yes	No	4	8600	15	Unknown	4.1	1.4
Partial	Yes	Yes	No	25	8500	Unknown	1.2	4.0	1.1
Stable Disease	Yes	Yes	No	3	8200	56	Unknown	4.8	1.0
Partial	Yes	Yes	No	8	7400	8	Unknown	Unknown	0.6
Partial	Yes	Yes	Yes	21	5700	25	0.6	3.6	0.6
Stable Disease	Yes	Yes	Yes	2	7800	26	0.8	4.4	1.0
Partial	Yes	Yes	No	7	6300	25	0.7	4.4	0.8
Stable Disease	Yes	Yes	No	4	7000	17	Unknown	4.9	0.8
Stable Disease	Yes	Yes	No	3	4200	Unknown	0.7	4.0	0.9
Partial	No	Yes	Yes	Unknown	8100	17	Unknown	Unknown	Unknown
Partial	Yes	Yes	No	1	9500	196	1.9	4.5	0.5
Partial	Yes	No	No	617	4800	50	1.0	4.0	1.1
Partial	Yes	Yes	No	3	3600	12	0.5	4.7	1.1
Progression	Yes	Yes	Yes	541	9200	8	0.7	4.3	0.6
Stable Disease	Yes	Yes	No	13	8900	18	Unknown	3.9	0.8
Partial	Yes	Yes	No	3	3400	7	Unknown	3.9	0.6
Progression	No	Yes	No	836	9000	25	1.0	3.7	0.6
Progression	Yes	Yes	No	29	5400	8	0.7	4.3	0.8
Progression	Yes	Yes	No	66	5200	24	0.7	4.3	0.7
Progression	Yes	Yes	No	3	8100	Unknown	Unknown	3.8	0.9
Progression	Yes	Yes	No	238	9200	17	0.7	Unknown	1.0
Partial	Yes	Yes	Yes	27	4000	Unknown	0.6	4.2	1.0
Partial	Yes	Yes	No	33	6700	Unknown	Unknown	4.4	0.7
Unknown	Yes	Yes	Yes	49	9800	22	Unknown	3.4	0.7
Stable Disease	Yes	Yes	No	2057	10800	32	Unknown	Unknown	0.9
Partial	Yes	Yes	Yes	Unknown	5600	37	0.5	4.2	0.7
Partial	Yes	Yes	No	20543	19900	63	3.4	2.8	0.6
Partial	Yes	Yes	No	874	10600	23	Unknown	Unknown	1.2
Unknown	Yes	Yes	Yes	3	7400	47	0.6	4.2	0.9
Partial	Yes	Yes	Yes	2930	7800	44	0.7	4.0	0.6

Unknown	Yes	Yes	No	73	20100	17	Unknown	3.9	1.0
Partial	Yes	Yes	No	991	17400	53	2.9	3.4	0.6
Partial	Yes	Yes	No	16	5300	52	0.6	Unknown	0.7
Progression	Yes	Yes	Yes	2581	8500	26	Unknown	3.5	0.5
Partial	No	Yes	No	28	6400	89	0.9	3.5	0.8
Partial	Yes	Yes	No	19	4500	30	Unknown	4.3	0.6
No Therapy	No	No	No	793	5650	12	0.5	4.2	0.7
Progression	Yes	Yes	No	4	20350	39	0.9	4.4	0.6
No Therapy	Yes	No	No	119	8730	16	0.3	4.3	1.2
Progressed	No	No	No	26	12580	23	0.3	2.8	0.8
Progressed	No	Yes	No	73	9520	17	Unknown	Unknown	Unknown
Stable	No	Yes	No	3	12070	37	1.4	3.6	0.7
No Therapy	No	No	No	191	13770	32	0.3	4.0	0.6
Stable	Yes	Yes	Yes	21	5900	61	0.6	3.9	1.1
No Therapy	Yes	No	No	89	7670	30	0.7	4.5	0.8
No Therapy	No	No	No	12	11300	18	0.5	4.0	0.8
No Therapy	No	No	No	27	7240	31	0.3	2.9	0.6
No Therapy	No	No	No	5	18350	129	1.0	3.2	0.9
Partial	Yes	Yes	Yes	Unknown	13300	341	0.7	2.2	0.6
Stable	Yes	Yes	No	2	11890	42	0.8	4.2	1.2
Progression	Yes	Yes	No	Unknown	16860	1169	1.0	2.9	0.5
Partial	Yes	Yes	No	6	11220	571	1.2	2.6	0.5
No Therapy	Yes	No	No	54	14100	20	0.5	3.4	0.8
No Therapy	No	No	No	6	5670	20	0.3	3.2	1.0
Partial	Yes	Yes	No	5	7770	854	0.9	3.3	0.6
Partial	Yes	Yes	No	Unknown	6660	724	1.6	2.6	1.7
Progression	Yes	Yes	No	7	6360	45	0.6	4.1	0.8
No Therapy	Yes	Yes	No	3	6120	31	0.7	4.6	0.7
No Therapy	Yes	No	Yes	7	6290	24	0.3	4.4	0.6
Stable	Yes	Yes	No	141	7180	14	0.4	4.7	0.5
No Therapy	No	No	No	272	6520	345	1.0	2.7	0.6
Stable	Yes	Yes	No	6	5010.0	38.0	Unknown	Unknown	Unknown
No Therapy	No	No	No	2	5830	26	0.3	4.3	0.8
No Therapy	No	No	No	6	8160	9	0.4	3.7	1.0
No Therapy	No	No	No	335	6410	17	0.4	3.5	0.9
No Therapy	No	No	No	Unknown	9840	18	0.3	4.4	0.8
No Therapy	No	No	No	55	4410	11	0.1	3.8	0.5

No Therapy	No	No	No	13864	15260.0	31.0	0.7	4.1	1.1
No Therapy	Yes	No	No	3	3270	36	1.4	4.3	1.0
No Therapy	No	No	No	3	8520	17	0.3	4.0	0.7
Partial	No	Yes	No	Unknown	7450	17	0.4	4.5	0.9
Partial	Yes	Yes	No	Unknown	4870	31	0.6	4.2	0.6
Stable	Yes	Yes	No	Unknown	7490	54	0.7	4.5	0.6
Complete	No	No	No	Unknown	3910	62	0.6	3.9	0.8
No Therapy	No	No	No	3	4170	23	0.7	4.7	0.8
No Therapy	No	No	No	5	10820	178	1.0	3.0	0.9
No Therapy	No	No	No	Unknown	7130	33	0.5	4.2	0.7
Partial	No	Yes	No	Unknown	4900	22	0.5	5.0	0.7
Mixed	Yes	Yes	No	Unknown	5620	20	1.2	4.1	0.8
No Therapy	No	No	No	3	3180	23	0.7	4.4	0.9
Partial	No	Yes	No	Unknown	4600	33	0.4	4.9	1.0
No Therapy	No	No	No	Unknown	8840	23	0.5	3.6	0.6
Partial	Yes	Yes	No	96	8870	17	0.4	3.1	1.5
Unknown	Yes	Yes	No	7	8680	43	0.5	4.6	1.0
Partial	Yes	Yes	No	10	5480	31	0.5	3.4	0.8
Partial	Yes	Yes	No	146	10270	610	0.6	3.3	0.5
Unknown	Yes	Yes	Yes	6	5850	22	0.4	4.3	0.6
Progression	Yes	Yes	No	27	4580	33	0.4	4.3	0.9
Partial	Yes	Yes	No	55	1692	861	0.9	3.1	0.6
Stable	Yes	Yes	No	Unknown	7090	19	0.4	4.6	0.9
Partial	Yes	Yes	No	118	6910	41	1.0	4.2	1.0
Stable	Yes	Yes	No	5	5820	31	0.6	4.3	1.1
Partial	Yes	Yes	No	30	4510	31	0.6	4.9	0.7
No Therapy	Yes	No	No	Unknown	6550	51	0.2	4.1	0.7
Partial	Yes	Yes	No	4	5800	39	0.6	4.6	0.9
Partial	Yes	Yes	No	3	10880	922	0.9	2.6	1.0
Partial	No	Yes	No	5	19290	504	2.3	2.2	0.8
Partial	Yes	Yes	Yes	3	11090	617	2.0	3.3	0.7
Complete	Yes	Yes	No	12	13420	428	2.1	3.5	0.9
Progressed	Yes	Yes	No	Unknown	11810	8	0.3	2.6	0.4
No Therapy	Yes	No	Yes	3	3980	11	0.3	3.9	1.9
Progressed	Yes	Yes	Yes	7	5700	25	0.1	4.3	0.9
Stable	Yes	Yes	Yes	546	6250	14	0.2	3.7	0.9
No Therapy	Yes	No	No	54	5530	48	0.5	4.3	0.8
Stable	Yes	Yes	No	1069	9300	24	0.5	4.1	0.8

No Therapy	No	No	No	8	6920	12	0.5	4.1	0.9
No Therapy	Yes	No	No	19	5950	15	0.4	4.2	1.3
No Therapy	Yes	No	No	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
No Therapy	Yes	No	No	1	4170	34	0.7	4.5	0.7
No Therapy	Yes	No	No	2	5480	38	0.5	4.1	0.6
No Therapy	Yes	Yes	Yes	Unknown	11070	17	0.7	4.6	0.8
No Therapy	No	No	No	Unknown	19270	42	3.5	1.8	2.9
Mixed	Yes	No	Yes	Unknown	7980	15	0.4	4.7	0.8
No Therapy	Yes	No	No	1	4790	25	0.8	4.6	1.1
Stable	Yes	Yes	Unknown	Unknown	10540	664	1.1	3.3	0.7
Unknown	Yes	Yes	No	92	5720	41	0.9	4.2	0.7
Partial	Yes	Yes	No	Unknown	9580	22	0.4	4.4	0.7
Stable	Yes	Yes	No	3	3480	18	0.5	4.6	0.8
Partial	Yes	Yes	No	Unknown	3470	13	Unknown	Unknown	Unknown
Partial	Yes	Yes	No	Unknown	5820	27	0.7	4.7	0.9
Progression	Yes	Yes	No	Unknown	8270	44	0.5	4.8	0.7
Partial	Yes	Yes	No	Unknown	4740	39	0.7	4.2	0.7
No Therapy	Yes	No	No	5	5320	23	0.4	4.5	1.0
No Therapy	No	No	No	Unknown	14140	514	1.6	2.7	0.7
No Therapy	No	No	No	40	12440	12	0.5	4.5	1.2
Progression	Yes	Yes	Yes	Unknown	1700.0	10.0	Unknown	Unknown	Unknown
Complete	Yes	Yes	Yes	21	4770	33	0.4	4.9	0.9
No Therapy	No	No	No	380	7180	45	0.2	4.8	0.8
No Therapy	No	Yes	No	1	2250	51	0.8	4.5	0.7
No Therapy	No	No	No	Unknown	2830	27	0.3	4.5	0.8
No Therapy	No	No	No	Unknown	5770	16	0.2	4.1	0.7
Not Applicable	Yes	No	No	1	7600	21	0.8	3.4	0.8
SD	Yes	Yes	No	8	6200	15	1.2	3.7	0.5
SD	No	No	Yes	22	4300	13	0.6	3.8	0.4
Not Applicable	Yes	No	No	5	7400	34	0.8	3.8	0.8
Not Applicable	Yes	Unknown	No	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
SD	Yes	No	No	9	10100	28	0.5	3.0	0.9
Not Applicable	Yes	Yes	Yes	1	6000	32	1.0	4.0	0.8
Not Applicable	Yes	Yes	No	2	6700	14	1.0	4.2	1.0
Not Applicable	Yes	No	No	15	9500	41	0.8	3.8	0.8
SD	Yes	Unknown	No	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Not Applicable	Yes	Yes	No	2	5400	20	0.8	4.2	0.6

Not Applicable	Yes	No	No	3	7100	12	0.6	4.0	0.8
Progression	Yes	Yes	No	98	7.2	11.0	8.0	39.0	65.0
Stable	No	No	No	200	12.5	23.0	6.0	33.0	62.0
SD	Yes	No	No	2	5800	28	1.1	3.6	0.7
Progression	No	No	No	580	8.3	8.0	7.0	37.0	42.0
SD	Yes	Yes	No	64	8600	20	0.6	3.7	0.7
SD	Yes	Yes	No	1	8200	33	0.9	3.9	0.8
SD	No	No	No	2750	7700	18	1.4	3.1	1.0
Died prior to restaging	Yes	No	No	235	13400	143	1.4	2.7	0.7
SD	No	No	No	18	6800	9	1.0	2.8	0.4
SD	Yes	Yes	No	7	4300	40	0.6	3.8	0.7
SD	Yes	Yes	No	31	8800	21	1.0	2.9	0.7
SD	No	Yes	No	26	Unknown	Unknown	Unknown	Unknown	Unknown
Partial	Yes	No	No	55	4500	15	1.3	3.3	0.6
Died prior to restaging	Yes	No	No	17	8900	16	1.7	3.2	1.2
Partial	Yes	No	No	90	5200	27	0.4	4.2	0.6
Partial	Yes	No	No	2	11200	15	0.5	3.7	0.6
Partial	No	No	No	10	6900	13	1.2	3.8	0.9
SD	Yes	No	No	963	Unknown	Unknown	Unknown	Unknown	Unknown
Partial	Yes	Yes	No	2	Unknown	Unknown	Unknown	Unknown	Unknown
SD	No	No	No	9000	Unknown	Unknown	Unknown	Unknown	Unknown
Partial	Yes	No	No	7	11800	18	0.5	3.6	0.5
SD	Yes	No	No	28	6800	14	0.8	3.8	0.5

Table S4. Clinical characteristics of patients with discordant tissue and plasma *KRAS* mutation data

Univariable Analysis			
	False Negative N = 10	True Negative N = 127	P-Value
Age			
Mean (SD)	55.2 (11.08)	59.02 (12.83)	0.293
Median (Range)	58.5 (32, 69)	60 (18, 85)	
No. Missing (%)	0 (0)	2 (2)	
Gender, N (%)			
Female	3 (30)	51 (41)	0.737
Male	7 (70)	74 (59)	
Missing	0	2	
Race, N (%)			
A	1 (11)	3 (3)	0.447
B	0 (0)	10 (9)	
M	0 (0)	1 (1)	
O	0 (0)	0 (0)	
W	8 (89)	97 (87)	
Missing	1	16	
ECOG, N (%)			
0	10 (100)	96 (80)	0.653
1	0 (0)	15 (12)	
2	0 (0)	6 (5)	
3	0 (0)	2 (2)	
4	0 (0)	1 (1)	
Missing	0	7	
Met Site - Liver			
No	5 (50)	25 (20)	0.072
Yes	5 (50)	100 (80)	
Missing	0	2	

Met Site - Lungs			
No	7 (70)	88 (70)	>0.99
Yes	3 (30)	37 (30)	
Missing	0	2	
Met Site - Peritoneum			
No	8 (80)	89 (71)	0.818
Yes	2 (20)	36 (29)	
Missing	0	2	
Met Site - Pelvis			
No	10 (100)	121 (97)	>0.99
Yes	0 (0)	4 (3)	
Missing	0	2	
Met Site - Bone			
No	9 (90)	122 (98)	0.693
Yes	1 (10)	3 (2)	
Missing	0	2	
Met Site - Brain			
No	9 (90)	125 (100)	0.103
Yes	1 (10)	0 (0)	
Missing	0	2	
# of Met Sites			
0	0 (0)	3 (2)	0.604
1	8 (80)	77 (62)	
2	2 (20)	31 (25)	
3	0 (0)	13 (10)	
4	0 (0)	0 (0)	
Missing	0	3	
Histological Subtype			
Moderately	7 (70)	80 (73)	0.023
Moderately to Poorly	0 (0)	1 (1)	
Poorly	1 (10)	17 (15)	

Well	1 (10)	0 (0)	
Well to Moderately	1 (10)	12 (11)	
Missing	0	17	
Mucinous			
No	3 (30)	87 (85)	< 0.001*
Yes	7 (70)	15 (15)	
Missing	0	25	
Smoking Status			
Distant	3 (30)	19 (16)	0.446
No	6 (60)	93 (78)	
Yes	1 (10)	8 (7)	
Missing	0	7	
Family History			
No	6 (60)	83 (70)	0.776
Yes	4 (40)	36 (30)	
Missing	0	8	
MSI Status			
MSI	1 (50)	1 (8)	0.254
MSS	1 (50)	11 (85)	
Stable	0 (0)	1 (8)	
Missing	8	114	
BRAF Status			
Mutation Found	0 (0)	9 (12)	0.95
WT	5 (100)	69 (88)	
Missing	5	49	
	1	6	
Prior Surgery			
No	2 (20)	35 (28)	0.859
Yes	8 (80)	90 (72)	
Missing	0	2	
Prior Chemotherapy			

No	4 (40)	44 (35)	>0.99
Yes	6 (60)	81 (65)	
Missing	0	2	
Prior Radiation			
No	9 (90)	105 (85)	>0.99
Yes	1 (10)	19 (15)	
Missing	0	3	
CEA (+/- 8 weeks)			
Mean (SD)	2.14 (0.9)	380.82 (1663.89)	< 0.001*
Median (Range)	2 (1, 3)	17 (1, 13864)	
No. Missing (%)	3 (30)	24 (19)	
WBC			
Mean (SD)	5645.56 (2367.93)	7710.57 (3831.43)	0.056
Median (Range)	4600 (3480, 11070)	7300 (7.2, 20350)	
No. Missing (%)	1 (10)	5 (4)	
ALT			
Mean (SD)	21.67 (9.06)	77.56 (165.37)	0.299
Median (Range)	18 (9, 34)	24 (7, 922)	
No. Missing (%)	1 (10)	10 (8)	
Bilirubin			
Mean (SD)	0.66 (0.18)	0.85 (0.91)	>0.99
Median (Range)	0.7 (0.4, 1)	0.6 (0.1, 8)	
No. Missing (%)	2 (20)	34 (27)	
Albumin			
Mean (SD)	4.54 (0.25)	4.22 (3.34)	0.002
Median (Range)	4.6 (4.1, 4.9)	4 (1.8, 39)	
No. Missing (%)	1 (10)	12 (9)	
Creatinine			
Mean (SD)	0.88 (0.15)	1.41 (5.92)	0.308
Median (Range)	0.8 (0.7, 1.1)	0.8 (0.4, 65)	
No. Missing (%)	1 (10)	9 (7)	

*When a Bonferroni correction was applied, mucinous pathology and CEA remained significant ($P < 0.0017$)

Table S5. Clinical characteristics of patients with false negatives in plasma *KRAS* mutation compared with tissue samples

Multivariable Analysis

	Odds Ratio Estimate
Age	0.989
CEA (within 8 weeks of blood DNA measurement)	0.897
WBC	0.999
ALT	0.959

Table S6. Association between clinical characteristics and absolute levels of ctDNA

Univariable Analysis		
	Estimate (95% CI)	P-Value
Age	-0.035 (-0.07, 0)	0.051
Gender		
Female	ref	
Male	-0.625 (-1.672, 0.421)	0.237
Race		
White	ref	
Non-White	-0.456 (-2.813, 1.9)	0.699
ECOG PS		
0	ref	
1, 2	1.025 (-0.208, 2.259)	0.102
≥3	3.31 (0.306, 6.314)	0.031
Met Site - Liver	1.433 (0.113, 2.752)	0.034
Met Site - Lungs	0.399 (-0.686, 1.484)	0.465
Met Site - Peritoneum	0.252 (-0.846, 1.351)	0.648
Met Site - Pelvis	-0.857 (-3.383, 1.669)	0.5

Met Site - Bone	0.267 (-1.445, 1.978)	0.757
Met Site - Brain	4.155 (-0.046, 8.357)	0.053
# of Met Sites		
0-1	ref	
≥2	0.872 (-0.158, 1.903)	0.096
Histological Subtype		
Poor	ref	
Moderate	-1.309 (-2.974, 0.356)	0.121
Well	-1.868 (-5.334, 1.597)	0.285
Mucinous		
No	ref	
Yes	-0.761 (-2.077, 0.554)	0.251
Smoking Status		
Distant	ref	
No	-0.018 (-1.639, 1.603)	0.983
Yes	-0.449 (-3.339, 2.44)	0.757
Family History		
No	ref	
Yes	0.166 (-1.035, 1.368)	0.783
MSI Status		
MSI	ref	
MSS	2.246 (-3.837, 8.329)	0.412
Prior Surgery		
No	ref	
Yes	-1.58 (-2.694, -0.466)	0.006

Prior Chemotherapy

No	ref	
Yes	0.378 (-0.693, 1.449)	0.484

Prior Radiation

No	ref	
Yes	-0.492 (-1.9, 0.917)	0.488

Log CEA (within 8 weeks of blood DNA measurement)	0.439 (0.22, 0.658)	<.001
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WBC	0 (0, 0)	0.01
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Log ALT	-0.07 (-0.566, 0.427)	0.78
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Log Bilirubin	0.267 (-0.581, 1.115)	0.531
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Log Albumin	-0.211 (-1.479, 1.058)	0.741
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Log Creatinine	-0.06 (-0.731, 0.61)	0.857
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Supplemental Table 7. Association between clinical characteristics and ctDNA concentration (log scale) in metastatic colorectal cancer patients

Multivariable Analysis

	<u>Estimate</u>
Age	-0.013
Prior Surgery	
No	ref
Yes	-0.0799
Log CEA (within 8 weeks of blood DNA measurement)	0.3045
WBC	0.0002

Table S8. Patient characteristics and plasma mutations detected after EGFR blockade

Sample	Age	Gender	Tumor	EGFR Blockade	Duration on anti-EGFR therapy (weeks)	Plasma Mutation (nucleotide)	Plasma Mutation (codon)	Mutant fragments per 5 mL
Patient #5	60	M	Colorectal Cancer	Panitumumab	7	KRAS c.35G>A	KRAS p.G12D	66
Patient #16	72	F	Colorectal Cancer	Panitumumab	23	EGFR c.2380C>T	EGFR p.P794S	168
						KRAS c.183C>T	KRAS p.Q61H	90
Patient #17	57	F	Colorectal Cancer	Panitumumab	31	None Detected	None Detected	NA
Patient #18	47	F	Colorectal Cancer	Panitumumab	28	KRAS c.35G>T	KRAS p.G12V	120
						NRAS c.34G>A	NRAS p.G12S	129
Patient #19	42	M	Colorectal Cancer	Panitumumab	15	NRAS c.183A>T	NRAS p.Q61H	40
Patient #21	57	M	Colorectal Cancer	Panitumumab	15	KRAS c.35G>T	KRAS p.G12V	80
						NRAS c.183A>T	NRAS p.Q61H	30
						NRAS c.182A>G	NRAS p.Q61R	82
Patient #22	59	F	Colorectal Cancer	Panitumumab	15	EGFR c.2142G>C	EGFR p.K714N	948
						KRAS c.35G>C	KRAS p.G12A	40
						KRAS c.34G>T	KRAS p.G12C	30
						KRAS c.34G>A	KRAS p.G12S	120
						KRAS c.35G>A	KRAS p.G12D	104
						KRAS c.35G>T	KRAS p.G12V	100
Patient #24	57	M	Colorectal Cancer	Panitumumab	52	KRAS c.35G>C	KRAS p.G12A	15
						NRAS c.181C>A	NRAS p.Q61K	28
Patient #26	59	F	Colorectal Cancer	Panitumumab	23	KRAS c.35G>T	KRAS p.G12V	40
	73	M	Colorectal Cancer	Panitumumab	23	KRAS c.35G>T	KRAS p.G12V	114
Patient #1	64	M	Colorectal Cancer	Panitumumab	32	KRAS c.35G>C	KRAS p.G12A	1590
						KRAS c.34G>T	KRAS p.G12C	2160
						KRAS c.34G>C	KRAS p.G12R	660
						KRAS c.35G>A	KRAS p.G12D	3900
						KRAS c.35G>T	KRAS p.G12V	4940
						KRAS c.183A>T	KRAS p.Q61H	710
						KRAS c.182A>T	KRAS p.Q61L	640
						KRAS c.182A>G	KRAS p.Q61R	688
						NRAS c.181C>A	NRAS p.Q61H	1340
						NRAS c.183A>C	NRAS p.Q61K	4100
						NRAS c.182A>T	NRAS p.Q61L	6760
						NRAS c.182A>G	NRAS p.Q61R	625

Patient #2	53	M	Colorectal Cancer	Panitumumab	22	KRAS c.35G>T	KRAS p.G12V	93
Patient #4	67	F	Colorectal Cancer	Panitumumab	11	KRAS c.34G>C	KRAS p.G12R	30
						KRAS c.183A>T	KRAS p.Q61H	220
Patient #7	55	M	Colorectal Cancer	Panitumumab	23	KRAS c.35G>C	KRAS p.G12A	135
						KRAS c.35G>T	KRAS p.G12V	133
						NRAS c.183A>T	NRAS p.Q61H	848
						NRAS c.181C>A	NRAS p.Q61K	98
						NRAS c.182A>T	NRAS p.Q61L	374
Patient #9	50	M	Colorectal Cancer	Panitumumab	31	KRAS c.35G>A	KRAS p.G12D	61
						NRAS c.181C>A	NRAS p.Q61K	25
Patient #10	67	M	Colorectal Cancer	Panitumumab	23	KRAS c.35G>T	KRAS p.G12V	244
						KRAS c.183A>T	KRAS p.Q61H	83
						KRAS c.183A>C	KRAS p.Q61H	57
Patient #12	49	M	Colorectal Cancer	Panitumumab	23	KRAS c.35G>C	KRAS p.G12A	400
						KRAS c.34G>T	KRAS p.G12C	100
						KRAS c.183A>C	KRAS p.Q61H	429
BARD 101 PLS	64	M	Colorectal Cancer	Cetuximab	72	KRAS c.34G>C	KRAS p.G12R	13
						KRAS c.183A>T	KRAS p.Q61H	394
						NRAS c.182A>G	NRAS p.Q61R	4
BARD 102 PLS	45	F	Colorectal Cancer	Panitumumab	52	KRAS c.34G>C	KRAS p.G12R	208
						KRAS c.34G>C	KRAS p.G12R	308
						KRAS c.181C>G	KRAS p.Q61E	139
						KRAS c.182_183AA>CC	KRAS p.Q61P	265
BARD 103 PLS	67	F	Colorectal Cancer	Panitumumab	24	KRAS c.35G>A	KRAS p.G12D	13
						KRAS c.35G>T	KRAS p.G12V	130
CRC 188 PLS	41	F	Colorectal Cancer	Cetuximab	9	KRAS c.34G>T	KRAS p.G12C	3
CRC 189 PLS	35	F	Colorectal Cancer	Cetuximab	14	KRAS c.183A>T	KRAS p.Q61H	28
						KRAS c.183A>C	KRAS p.Q61H	13
CRC 190 PLS	54	M	Colorectal Cancer	Cetuximab	14	BRAF c.1799T>A	BRAF p.V600E	45
						KRAS c.35G>C	KRAS p.G12A	131
						KRAS c.183A>C	KRAS p.Q61H	10
						KRAS c.182A>G	KRAS p.Q61R	11
						NRAS c.182A>T	NRAS p.Q61L	2
						NRAS c.182A>G	NRAS p.Q61R	12
						KRAS c.35G>A	KRAS p.G12D	173

CRC 191 PLS	56	F	Colorectal Cancer	Panitumumab	7	KRAS c.34G>C	KRAS p.G12R	31
						KRAS c.35G>T	KRAS p.G12V	58
						KRAS c.183A>C	KRAS p.Q61H	250