

Supplementary Materials for

Circulating tumor DNA analysis detects minimal residual disease and predicts recurrence in patients with stage II colon cancer

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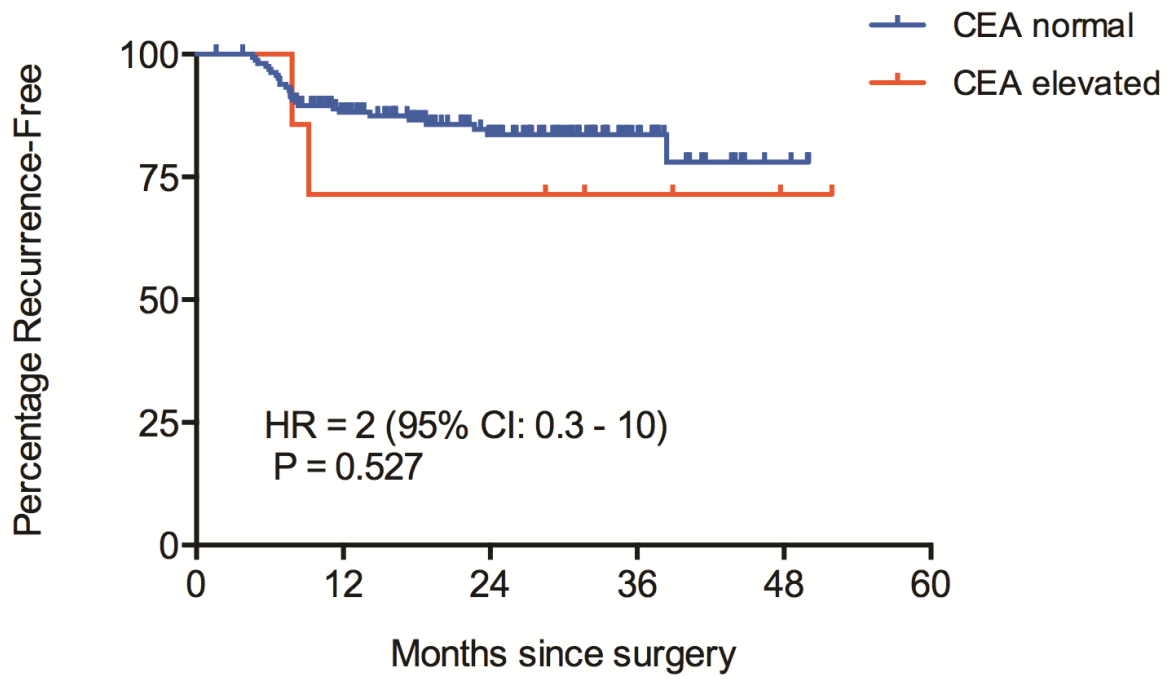


Figure S1. Recurrence-free survival in patients not treated with adjuvant chemotherapy stratified by postoperative CEA status.

Table S1. Relationship between postoperative ctDNA, postoperative CEA, and recurrence status for patients not treated with chemotherapy

	Recurrence	No recurrence*
Post-op ctDNA positive – no./total no. (%)		
CEA elevated	0/11 (0)	0/3 (0)
CEA not elevated	11/11 (100)	3/3 (100)
Post-op ctDNA negative – no./total no. (%)		
CEA elevated	2/16 (13)	5/142 (4)
CEA not elevated	14/16 (87)	137/142 (96)

*Post-op CEA data not available in 6 cases

Table S2. Time-dependent predictive accuracy of postoperative ctDNA for recurrence at 5, 6, 12, 18, 24, 36, and 40 months. Time-dependent ROC analysis performed with the *R* package *survival ROC* (version 1.0.3).

Time (months)	Sample Size	Sensitivity	Specificity
5	178	0.99	0.93
6	178	0.59	0.94
12	178	0.43	0.97
18	178	0.45	0.98
24	178	0.48	1.00
36	178	0.48	1.00
40	178	0.37	1.00

Table S3. Serial circulating biomarker status and clinical characteristics of patients not treated with adjuvant chemotherapy who experienced recurrence.

Patient ID	Post-op ctDNA Status	ctDNA status up to the time of recurrence	Time from ctDNA detection to recurrence (days)	Post-op CEA status	CEA status up to the time of recurrence	Site(s) of Recurrence	Resectable recurrence
LCR 030	Positive	Positive	115	Not elevated	Elevated	Liver only mets	yes
LCR 153	Positive	Positive	641	Not elevated	Not elevated	Anastomotic recurrence	yes
LCR 196	Positive	Positive	175	Not elevated	Not elevated	Multiple lung mets	no
LCR 236	Positive	Positive	167	Not elevated	Not elevated	Liver only mets	yes
LCR 237	Positive	Positive	168	Not elevated	Elevated	Multiple disease sites	no
LCR 332*	Positive	Positive	279	Not elevated	Not elevated	Liver only mets	yes
LCR 394	Positive	Positive	136	Not elevated	Not elevated	Liver only mets	yes
LCR 398*	Positive	Positive	210	Not elevated	Elevated	Distant lymph nodes	no
LCR 431	Positive	Positive	99	Not elevated	Not elevated	Liver only mets	yes
LCR 495 [†]	Positive	Positive	181	Not elevated	Not elevated	Lung mets	no
LCR 507 [†]	Positive	Positive	381	Not elevated	Not elevated	Solitary liver met	yes
LCR 051	Negative	Positive	22	Not elevated	Not elevated	1 lung met only	yes
LCR 056	Negative	Positive	616	Not elevated	Elevated	Liver mets only	yes
LCR 062	Negative	Positive	81	Not elevated	Elevated	Extensive abdominal disease	no
LCR 137	Negative	Positive	11	Elevated	Elevated	Loco-regional recurrence	no
LCR 138	Negative	Positive	113	Not elevated	Not elevated	Liver met only	yes
LCR 235	Negative	Positive	92	Not elevated	Not elevated	Local recurrence, possible peritoneal	no
LCR 346	Negative	Positive	35	Not elevated	Elevated	Regional nodal recurrence	no
LCR 423	Negative	Positive	0	Elevated	Elevated	Multiple disease sites	no
LCR 353	Negative	Negative	Not detected	Not elevated	Elevated	Anastomotic recurrence	yes

*Serial blood samples not available; [†]LCR 495 and 507 received less than 4 weeks of adjuvant chemotherapy because of toxicity

Table S4. Serial circulating biomarker status and clinical characteristics of chemotherapy-treated patients who experienced recurrence.

Patient #	Post-op ctDNA Status	Post-Chemo ctDNA Status	ctDNA status up to the time of recurrence	Time from ctDNA detection to recurrence (days)	Post-op CEA status	CEA status up to the time of recurrence	Site(s) of recurrence	Resectable recurrence
LCR 325	Positive	Positive	Positive	343	Not elevated	Not elevated	Liver only	yes
LCR 409	Positive	Positive	Positive	472	Not elevated	Not elevated	Liver only	yes
LCR 148	Positive	Negative	Negative	Not detected	Elevated	Elevated	Liver only	yes
LCR 198	Negative	Negative	Positive	266	Not elevated	Not elevated	Submucosal rectal deposit	yes
LCR 207	Negative	Negative	Negative	Not detected	Not elevated	Not elevated	Isolated lung lesion	yes
LCR 224	Negative	Negative	Positive	0	Not elevated	Not elevated	Anastomotic recurrence	yes
LCR 415	Negative	Negative	Negative	Not detected	Elevated	Elevated	Mesenteric nodal mass	no

Table S5: Genomic and clinical summary for all patients included in the final evaluable population.

Patient ID	Adj chemo	Clinical risk group	Time to recurrence or last follow-up from surgery (mths)	Recurrence	Site of recurrence	Mutations identified in tumor tissue	Mutation identified in tumor tissue used for plasma analysis	Post-op sample - ng DNA recovered from 10mL-plasma	Post-op sample mutant allele fraction (%)	Post-op ctDNA status	Post-chemo ctDNA status	Recurrent cases - serial ctDNA status up to time of recurrence	Time from ctDNA detection to recurrence (days)	Post-op CEA elevated?	Post-op CEA level (µg/L)
LCR 021	No	Low	51.9	No		<i>TP53</i> p.R175H	<i>TP53</i> p.R175H	130	Not detected	Negative	.	.	.	Yes	7.3
LCR 022	No	Low	48.6	No		<i>PIK3CA</i> p.E545K	<i>PIK3CA</i> p.E545K	16	Not detected	Negative	.	.	.	No	1.8
LCR 023	Yes	High	51.3	No		<i>TP53</i> p.R273H; <i>KRAS</i> p.G12D; <i>APC</i> p.Q1429X	<i>TP53</i> p.R273H	47	Not detected	Negative	Negative	.	.	No	1.8
LCR 024	No	High	50.0	No		<i>BRAF</i> p.D594N	<i>BRAF</i> p.D594N	62	Not detected	Negative	.	.	.	No	1.0
LCR 025	No	Low	49.9	No		<i>PIK3CA</i> p.H1047R	<i>PIK3CA</i> p.H1047R	10	Not detected	Negative	.	.	.	No	<0.5
LCR 026	Yes	Low	47.5	No		<i>KRAS</i> p.G13D; <i>TP53</i> p.R282W; <i>FBXW7</i> p.R 505H	<i>KRAS</i> p.G13D	31	Not detected	Negative	Negative	.	.	No	2.4
LCR 027	No	Low	44.0	No		<i>BRAF</i> p.V600E	<i>BRAF</i> p.V600E	21	Not detected	Negative	.	.	.	No	0.8
LCR 028	No	Low	50.0	No		<i>APC</i> p.R1450X	<i>APC</i> p.R1450X	120	Not detected	Negative	.	.	.	No	1.1
LCR 029	No	Low	47.7	No		<i>KRAS</i> p.G12V; <i>TP53</i> p.V272Vfs	<i>KRAS</i> p.G12V	17	Not detected	Negative	.	.	.	Yes	5.9
LCR 030	No	Low	5.0	Yes	Liver	<i>TP53</i> p.R342X	<i>TP53</i> p.R342X	6.2	1.631	Positive	.	Positive	115	No	2.0
LCR 031	Yes	High	49.8	No		<i>TP53</i> p.V272fs; <i>APC</i> p.E1353X	<i>TP53</i> p.V272fs	160	Not detected	Negative	Negative	.	.	No	0.5
LCR 032	No	High	37.6	No		<i>TP53</i> p.S215R; <i>TP53</i> p.Y220C; <i>KRAS</i> p.A146T	<i>TP53</i> p.S215R	140	Not detected	Negative	.	.	.	No	1.3
LCR 033	No	Low	33.6	No		<i>KRAS</i> p.G12R	<i>KRAS</i> p.G12R	66	Not detected	Negative	.	.	.	No	0.5
LCR 034	No	Low	19.4	No		<i>BRAF</i> p.V600E	<i>BRAF</i> p.V600E	31	Not detected	Negative	.	.	.	No	2.5
LCR 035	No	High	44.5	No		<i>FBXW7</i> p.R479Q; <i>TP53</i> p.G245D	<i>FBXW7</i> p.R479Q	40	Not detected	Negative	.	.	.	No	1.3
LCR 036	Yes	Low	34.1	No		<i>TP53</i> p.G245D	<i>TP53</i> p.G245D	99	0.123	Positive	Negative	.	.	No	0.5
LCR 037	No	Low	37.8	No		<i>KRAS</i> p.G12R	<i>KRAS</i> p.G12R	31	Not detected	Negative	.	.	.	No	1.0
LCR 038	No	Low	27.4	No		<i>PIK3CA</i> p.H1047R; <i>TP53</i> p.R248Q; <i>NRAS</i> p.Q61K; <i>BRAF</i> p.V600E	<i>PIK3CA</i> p.H1047R	29	Not detected	Negative	.	.	.	No	1.0
LCR 039	No	High	8.3	Yes	Liver	<i>TP53</i> p.R282W	<i>TP53</i> p.R282W	23	Not detected	Negative	.	Not available	Not available	No	1.7
LCR 040	Yes	High	42.8	No		<i>BRAF</i> p.V600E; <i>TP53</i> p.R282W	<i>BRAF</i> p.V600E	42	Not detected	Negative	Negative	.	.	No	0.7
LCR 041	Yes	High	38.3	No		<i>TP53</i> p.Y126H	<i>TP53</i> p.Y126H	11	Not detected	Negative	Negative	.	.	No	0.9
LCR 042	Yes	High	46.4	No		<i>TP53</i> p.R273H	<i>TP53</i> p.R273H	85	Not detected	Negative	Negative	.	.	No	0.8
LCR 043	No	Low	46.4	No		<i>FBXW7</i> p.R505C	<i>FBXW7</i> p.R505C	26	Not detected	Negative	.	.	.	No	0.9

LCR 044	No	Low	44.8	No		<i>TP53</i> p.E294X	<i>TP53</i> p.E294X	16	Not detected	Negative	.	.	.	No	0.9
LCR 045	Yes	Low	39.6	No		<i>TP53</i> p.R273H; <i>KRAS</i> p.G13D	<i>TP53</i> p.R273H	40	Not detected	Negative	Negative	.	.	No	0.5
LCR 046	Yes	High	46.1	No		<i>TP53</i> p.R273C	<i>TP53</i> p.R273C	61	Not detected	Negative	Negative	.	.	No	0.5
LCR 047	Yes	High	31.5	No		<i>KRAS</i> p.G12C; <i>TP53</i> p.R282W	<i>KRAS</i> p.G12C	22	Not detected	Negative	Not available	.	.	No	1.4
LCR 048	Yes	High	43.1	No		<i>APC</i> p.S1298fs; <i>APC</i> p.R805X; <i>TP53</i> p.R342X	<i>APC</i> p.S1298fs	6.2	Not detected	Negative	Negative	.	.	No	1.4
LCR 049	No	Low	43.7	No		<i>APC</i> p.R1450X; <i>KRAS</i> p.G12V	<i>APC</i> p.R1450X	31	Not detected	Negative	.	.	.	No	1.7
LCR 050	No	Low	38.9	No		<i>BRAF</i> p.V600E	<i>BRAF</i> p.V600E	31	Not detected	Negative	.	.	.	Yes	5.5
LCR 051	No	High	7.7	Yes	Lung	<i>TP53</i> p.R273C	<i>TP53</i> p.R273C	75	Not detected	Negative	.	Positive	22	No	1.6
LCR 052	No	Low	35.6	No		<i>PIK3CA</i> p.Q546K; <i>KRAS</i> p.G12C	<i>PIK3CA</i> p.Q546K	16	Not detected	Negative	.	.	.	No	0.5
LCR 053	No	High	27.0	No		<i>APC</i> p.A1485fs; <i>TP53</i> g.7579310T>A.(splice site)	<i>APC</i> p.A1485fs	6.8	Not detected	Negative	.	.	.	No	2.3
LCR 054	No	Low	36.3	No		<i>TP53</i> p.R248Q	<i>TP53</i> p.R248Q	16	Not detected	Negative	.	.	.	No	4.1
LCR 055	No	High	36.3	No		<i>KRAS</i> p.G12A	<i>KRAS</i> p.G12A	31	Not detected	Negative	.	.	.	No	1.7
LCR 056	No	Low	38.4	Yes	Liver	<i>TP53</i> p.R213X	<i>TP53</i> p.R213X	36	Not detected	Negative	.	Positive	616	No	0.5
LCR 057	No	High	37.3	No		<i>KRAS</i> p.G12V; <i>FBXW7</i> p.R465H	<i>KRAS</i> p.G12V	31	Not detected	Negative	.	.	.	No	2.0
LCR 058	No	High	40.0	No		<i>TP53</i> p.R248Q; <i>FBXW7</i> p.R505C	<i>TP53</i> p.R248Q	18	Not detected	Negative	.	.	.	No	0.5
LCR 059	Yes	Low	35.7	No		<i>TP53</i> p.C135F; <i>KRAS</i> p.G12D	<i>TP53</i> p.C135F	41	Not detected	Negative	Negative	.	.	No	0.7
LCR 060	Yes	Low	42.3	No		<i>APC</i> p.S1426fs; <i>TP53</i> p.G244D	<i>APC</i> p.S1426fs	220	Not detected	Negative	Negative	.	.	No	2.0
LCR 061	No	Low	41.3	No		<i>APC</i> p.E1322X; <i>KRAS</i> p.G12D	<i>APC</i> p.E1322X	31	Not detected	Negative	.	.	.	No	1.5
LCR 062	No	Low	7.8	Yes	Peritoneal, omentum	<i>BRAF</i> p.V600E; <i>PIK3CA</i> p.E545K	<i>BRAF</i> p.V600E	20	Not detected	Negative	.	Positive	81	No	2.4
LCR 063	No	Low	41.3	No		<i>TP53</i> p.R175H; <i>KRAS</i> p.G12D	<i>TP53</i> p.R175H	31	Not detected	Negative	.	.	.	No	1.3
LCR 064	Yes	NA	36.0	No		<i>APC</i> p.Q1303fs; <i>APC</i> p.S836fs	<i>APC</i> p.Q1303fs	65	Not detected	Negative	Negative	.	.	No	0.5
LCR 066	No	Low	40.3	No		<i>BRAF</i> p.V600E	<i>BRAF</i> p.V600E	99	Not detected	Negative	.	.	.	No	0.9
LCR 067	No	Low	34.7	No		<i>KRAS</i> p.G12D	<i>KRAS</i> p.G12D	25	Not detected	Negative	.	.	.	No	1.1
LCR 133	No	Low	36.1	No		<i>APC</i> p.E1573X; <i>TP53</i> p.R342X	<i>APC</i> p.E1573X	27	Not detected	Negative	.	.	.	No	0.9
LCR 134	No	Low	35.1	No		<i>NRAS</i> p.Q61K	<i>NRAS</i> p.Q61K	15	Not detected	Negative	.	.	.	No	1.2
LCR 135	No	Low	32.3	No		<i>NRAS</i> p.Q61K; <i>APC</i> p.R876X	<i>NRAS</i> p.Q61K	38	Not detected	Negative	.	.	.	No	3.9
LCR 136	No	Low	37.4	No		<i>TP53</i> p.N29fs; <i>SMAD4</i> p.R361C	<i>TP53</i> p.N29fs	20	Not detected	Negative	.	.	.	No	0.9
LCR 137	No	High	7.8	Yes	Loco-regional recurrence	<i>TP53</i> p.M237I; <i>KRAS</i> p.G12D	<i>TP53</i> p.M237I	37	Not detected	Negative	.	Positive	11	Yes	6.2

LCR 138	No	Low	17.4	Yes	Liver	TP53 p.L264(in frame deletion); APC p.R876X	TP53 p.L264(in frame deletion)	20	Not detected	Negative	.	Positive	113	No	2.2
LCR 139	Yes	High	36.4	No		TP53 p.R248Q	TP53 p.R248Q	13	Not detected	Negative	Negative	.	.	No	1.4
LCR 140	No	Low	38.2	No		TP53 p.R282W; APC p.E1408X	TP53 p.R282W	12	Not detected	Negative	.	.	.	No	0.6
LCR 141	No	Low	33.5	No		TP53 p.R282W	TP53 p.R282W	15	Not detected	Negative	.	.	.	No	3.3
LCR 142	No	Low	32.3	No		BRAF p.V600E	BRAF p.V600E	58	Not detected	Negative	.	.	.	No	2.9
LCR 143	No	Low	29.4	No		TP53 p.R213X ; APC p.E1309fs	TP53 p.R213X	24	Not detected	Negative	.	.	.	No	1.1
LCR 144	No	Low	34.7	No		TP53 p.G245V	TP53 p.G245V	130	Not detected	Negative	.	.	.	No	1.3
LCR 145	No	Low	32.5	No		CTNNB1 p.D32N	CTNNB1 p.D32N	19	Not detected	Negative	.	.	.	No	1.5
LCR 146	No	Low	32.4	No		BRAF p.V600E; TP53 p.I255T	BRAF p.V600E	110	Not detected	Negative	.	.	.	No	1.4
LCR 147	No	Low	31.3	No		BRAF p.V600E	BRAF p.V600E	38	Not detected	Negative	.	.	.	No	0.2
LCR 148	Yes	Low	9.3	Yes	Liver	APC p.L878fs; KRAS p.G12S	APC p.L878fs	12	0.11	Positive	Negative	Negative	Not detected at recurrence	Yes	9.5
LCR 149	No	High	7.7	No		TP53 p.R213L	TP53 p.R213L	15	Not detected	Negative	.	.	.	No	0.7
LCR 150	No	Low	8.3	No		KRAS p.G12D; TP53 p.R248W	KRAS p.G12D	17	Not detected	Negative	.	.	.	No	2.6
LCR 151	No	Low	11.2	Yes	Liver	TP53 p.R273C; APC p.E1306X	TP53 p.R273C	27	Not detected	Negative	.	Not available	Not available	No	1.9
LCR 152	No	Low	35.2	No		KRAS p.G12D; PIK3CA p.E545K	KRAS p.G12D	25	Not detected	Negative	.	.	.	No	0.5
LCR 153	No	High	23.8	Yes	Anastomotic recurrence	TP53 p.R248Q; APC p.R1114X	TP53 p.R248Q	30	0.01	Positive	.	Positive	641	No	0.9
LCR 154	No	Low	32.4	No		APC p.E1374X; TP53 p.L130V	APC p.E1374X	13	Not detected	Negative	.	.	.	No	1.9
LCR 155	Yes	High	32.8	No		TP53 p.R248Q; APC p.Q1378X	TP53 p.R248Q	70	0.006	Positive	Negative	.	.	No	1.0
LCR 156	No	Low	1.6	No		BRAF p.V600E	BRAF p.V600E	55	Not detected	Negative	.	.	.	No	1.2
LCR 157	No	Low	22.0	No		KRAS p.G13D; PIK3CA p.E545K	KRAS p.G13D	22	Not detected	Negative	.	.	.	No	0.5
LCR 158	No	High	30.4	No		KRAS p.G12V	KRAS p.G12V	6.8	Not detected	Negative	.	.	.	No	3.2
LCR 159	No	Low	34.5	No		TP53 p.K164N; TP53 p.Q165K; APC p.E1397X	TP53 p.K164N	11	Not detected	Negative	.	.	.	No	1.7
LCR 160	Yes	High	27.6	No		FBXW7 p.R465C; SMAD4 p.R361H	FBXW7 p.R465C	8.4	Not detected	Negative	Negative	.	.	No	0.8
LCR 187	No	Low	29.5	No		KRAS p.G12D; PPP2RIA p.R183W	KRAS p.G12D	21	Not detected	Negative	.	.	.	No	0.5
LCR 188	Yes	High	31.4	No		APC p.C1578fs; KRAS p.G12D	APC p.C1578fs	17	Not detected	Negative	Negative	.	.	No	1.0
LCR 189	No	Low	31.2	No		APC p.R1450X; KRAS p.G13D	APC p.R1450X	38	Not detected	Negative	.	.	.	No	4.8
LCR 190	No	Low	35.2	No		BRAF p.V600E	BRAF p.V600E	53	Not detected	Negative	.	.	.	No	0.6
LCR 191	No	Low	15.6	No		APC p.S1415fs; TP53 p.C275F	APC p.S1415fs	23	Not detected	Negative	.	.	.	No	<0.5
LCR 192	No	Low	24.4	No		APC p.T1537fs; APC p.Y935fs; KRAS p.A146V	APC p.T1537fs	33	Not detected	Negative	.	.	.	No	3.1

LCR 193	No	Low	26.7	No		<i>BRAF</i> p.V600E; <i>PIK3CA</i> p.Q546R	<i>BRAF</i> p.V600E	57	Not detected	Negative	.	.	.	No	1.8
LCR 194	No	Low	31.7	No		<i>CTNNB1</i> p.T41A; <i>TP53</i> g.7576851T>C (splice site); <i>AKT1</i> p.E17K	<i>CTNNB1</i> p.T41A	110	Not detected	Negative	.	.	.	Yes	8.7
LCR 195	No	High	27.2	No		<i>APC</i> p.D1486fs; <i>TP53</i> p.C238Y; <i>KRAS</i> p.G12D	<i>APC</i> p.D1486fs	25	Not detected	Negative	.	.	.	No	1.2
LCR 196	No	High	7.6	Yes	Lung	<i>TP53</i> p.R248Q; <i>NRAS</i> p.G12V	<i>TP53</i> p.R248Q	43	0.017	Positive	.	Positive	175	No	2.1
LCR 197	No	Low	24.3	No		<i>TP53</i> p.P301fs; <i>BRAF</i> p.V600E	<i>TP53</i> p.P301fs	37	Not detected	Negative	.	.	.	Not available	Not available
LCR 198	Yes	NA	31.9	Yes	Submucosal rectal deposit	<i>TP53</i> p.L252fs; <i>TP53</i> p.E349X; <i>APC</i> p.Q1429X	<i>TP53</i> p.L252fs	24	Not detected	Negative	Negative	Positive	266	No	0.5
LCR 200	No	Low	37.2	No		<i>APC</i> p.S1436fs; <i>TP53</i> p.R306X	<i>APC</i> p.S1436fs	44	Not detected	Negative	.	.	.	No	1.0
LCR 201	No	Low	37.7	No		<i>BRAF</i> p.V600E	<i>BRAF</i> p.V600E	59	Not detected	Negative	.	.	.	No	2.0
LCR 202	Yes	High	32.3	No		<i>TP53</i> p.R282W; <i>BRAF</i> p.V600E	<i>TP53</i> p.R282W	13	Not detected	Negative	Negative	.	.	Not available	Not available
LCR 203	No	Low	28.0	No		<i>TP53</i> p.C229X; <i>APC</i> p.G1094X	<i>TP53</i> p.C229X	65	Not detected	Negative	.	.	.	No	0.7
LCR 204	No	High	32.1	No		<i>APC</i> p.P1159fs; <i>APC</i> p.E941X	<i>APC</i> p.P1159fs	32	Not detected	Negative	.	.	.	No	0.9
LCR 205	No	Low	32.6	No		<i>APC</i> p.V1414fs; <i>TP53</i> p.T125R	<i>APC</i> p.V1414fs	33	Not detected	Negative	.	.	.	No	2.5
LCR 206	No	Low	33.4	No		<i>FBXW7</i> p.E471fs; <i>BRAF</i> p.V600E; <i>PIK3CA</i> p.E545K	<i>FBXW7</i> p.E471fs	54	Not detected	Negative	.	.	.	No	0.5
LCR 207	Yes	High	23.5	Yes	Lung	<i>TP53</i> p.G245S; <i>APC</i> p.R1450X; <i>KRAS</i> p.G12C	<i>TP53</i> p.G245S	35	Not detected	Negative	Negative	Negative	Not detected at recurrence	No	3.1
LCR 208	No	High	41.6	No		<i>APC</i> p.K1308fs; <i>TP53</i> p.R248W	<i>APC</i> p.K1308fs	40	Not detected	Negative	.	.	.	No	2.8
LCR 209	No	High	29.1	No		<i>APC</i> p.L1488X	<i>APC</i> p.L1488X	45	Not detected	Negative	.	.	.	No	1.8
LCR 210	Yes	Low	23.0	No		<i>APC</i> p.A1351fs	<i>APC</i> p.A1351fs	25	Not detected	Negative	Negative	.	.	Yes	6.4
LCR 211	No	Low	30.0	No		<i>APC</i> p.S1545X; <i>APC</i> p.R1114X; <i>KRAS</i> p.A146T; <i>POLE</i> p.P286R	<i>APC</i> p.S1545X	22	Not detected	Negative	.	.	.	No	0.9
LCR 212	Yes	High	31.6	No		<i>SMAD4</i> p.S178X; <i>KRAS</i> p.G12D	<i>SMAD4</i> p.S178X	29	Not detected	Negative	Negative	.	.	No	2.0
LCR 213	No	High	30.6	No		<i>TP53</i> p.E287 (In frame deletion)	<i>TP53</i> p.E287 (In frame deletion)	19	Not detected	Negative	.	.	.	No	0.5
LCR 214	Yes	Low	33.4	No		<i>APC</i> p.T1487fs; <i>TP53</i> p.R342X; <i>APC</i> p.Y935fs	<i>APC</i> p.T1487fs	34	Not detected	Negative	Negative	.	.	No	0.5
LCR 215	Yes	High	32.3	No		<i>APC</i> p.N1300fs; <i>TP53</i> p.K320X	<i>APC</i> p.N1300fs	23	Not detected	Negative	Negative	.	.	No	0.5
LCR 216	No	High	28.5	No		<i>TP53</i> p.H193Y; <i>APC</i> p.Q1291X	<i>TP53</i> p.H193Y	22	Not detected	Negative	.	.	.	Yes	6.8
LCR 217	No	Low	33.2	No		<i>APC</i> p.T1556fs; <i>APC</i> p.R805X	<i>APC</i> p.T1556fs	36	Not detected	Negative	.	.	.	No	2.6
LCR 218	Yes	Low	26.1	No		<i>APC</i> p.R1331X; <i>TP53</i> p.R248Q; <i>KRAS</i> p.G13D	<i>APC</i> p.R1331X	19	Not detected	Negative	Negative	.	.	No	4.6
LCR 219	Yes	NA	12.0	No		<i>BRAF</i> p.V600E	<i>BRAF</i> p.V600E	32	Not detected	Negative	Negative	.	.	No	2.0
LCR 220	Yes	High	29.0	No		<i>TP53</i> p.R248W	<i>TP53</i> p.R248W	31	Not detected	Negative	Negative	.	.	No	1.3

LCR 221	No	Low	25.0	No		APC p.T1301fs; TP53 p.R213Q; KRAS p.G12V; PIK3CA p.E545K	APC p.T1301fs	26	Not detected	Negative	.	.	.	No	1.0
LCR 222	No	Low	31.9	No		KRAS p.G12C; TP53 p.R175H	KRAS p.G12C	19	Not detected	Negative	.	.	.	No	0.5
LCR 223	No	Low	30.7	No		RNF43 p.R657fs	RNF43 p.R657fs	43	Not detected	Negative	.	.	.	No	0.9
LCR 224	Yes	High	15.1	Yes	Anastomotic recurrence	TP53 p.W91X; KRAS p.G13D	TP53 p.W91X	42	Not detected	Negative	Negative	Positive	0	No	0.5
LCR 225	No	High	26.7	No		APC p.S1400fs; TP53 p.R175H	APC p.S1400fs	58	Not detected	Negative	.	.	.	No	1.4
LCR 226	No	Low	31.1	No		TP53 p.Q52X; KRAS p.G12D	TP53 p.Q52X	37	Not detected	Negative	.	.	.	No	0.5
LCR 227	Yes	High	27.3	No		APC p.E1379X; TP53 p.R282W; KRAS p.G12D	APC p.E1379X	21	Not detected	Negative	Negative	.	.	No	0.7
LCR 228	No	Low	29.7	No		APC p.E868X; KRAS p.G12V	APC p.E868X	120	Not detected	Negative	.	.	.	No	0.8
LCR 229	Yes	High	31.8	No		SMAD4 p.E526X; APC p.S1201X; APC p.R1450X; POLE p.P286R	SMAD4 p.E526X	25	Not detected	Negative	Not available	.	.	No	1.4
LCR 230	No	Low	27.3	No		APC p.Q1338X; TP53 p.R248W	APC p.Q1338X	42	Not detected	Negative	.	.	.	No	1.3
LCR 231	Yes	High	31.5	No		TP53 p.H179Y; KRAS p.G12D	TP53 p.H179Y	52	Not detected	Negative	Negative	.	.	No	0.9
LCR 232	No	Low	28.3	No		PIK3CA p.Q546R; KRAS p.G12D; GNAS p.R201H; APC p.I1307fs	PIK3CA p.Q546R	38	Not detected	Negative	.	.	.	No	0.8
LCR 233	No	Low	31.1	No		APC p.T1493fs; KRAS p.G13D; APC p.R876X; PIK3CA p.E545K	APC p.T1493fs	51	Not detected	Negative	.	.	.	No	0.5
LCR 234	No	High	24.9	No		TP53 p.A159P; KRAS p.G12D; SMAD4 p.R361H; APC p.E1322X	TP53 p.A159P	220	Not detected	Negative	.	.	.	No	1.5
LCR 235	No	Low	7.7	Yes	Local and peritoneal	KRAS p.G12C; TP53 p.R175H; SMAD4 p.P356L	KRAS p.G12C	39	Not detected	Negative	.	Positive	92	No	3.5
LCR 236	No	High	6.5	Yes	Liver	APC p.Q1406fs; TP53 p.P250L; PIK3CA p.E545K	APC p.Q1406fs	32	0.059	Positive	.	Positive	167	No	1.3
LCR 237	No	High	6.1	Yes	Liver, lung, and lymph nodes	APC p.E1379X; TP53 p.R306X	APC p.E1379X	270	0.235	Positive	.	Positive	168	No	2.8
LCR 316	Yes	High	24.8	No		TP53 p.E258K; APC p.Q1360X	TP53 p.E258K	11	Not detected	Negative	Negative	.	.	No	1.6
LCR 317	No	Low	24.8	No		APC p.P1373fs; TP53 p.V216M	APC p.P1373fs	8.3	Not detected	Negative	.	.	.	No	1.5
LCR 318	No	Low	24.0	No		BRAF p.V600E; TP53 p.C238Y	BRAF p.V600E	10	Not detected	Negative	.	.	.	No	0.6
LCR 319	No	Low	20.5	No		APC p.T1556fs; KRAS p.G12D	APC p.T1556fs	33	Not detected	Negative	.	.	.	No	1.3
LCR 320	No	Low	18.5	No		TP53 p.R175fs; KRAS p.G12C; APC p.R858X; APC p.Q1276X	TP53 p.R175fs	20	Not detected	Negative	.	.	.	No	3.3
LCR 321	No	High	18.8	Yes	Brain	TP53 p.T312fs; KRAS p.G12C; APC p.1441fs	TP53 p.T312fs	33	Not detected	Negative	.	Not available	Not available	No	0.9
LCR 322	No	Low	24.1	No		TP53 p.R248Q; KRAS p.A146T; APC p.R858X	TP53 p.R248Q	49	Not detected	Negative	.	.	.	No	1.9
LCR 323	No	High	20.5	No		TP53 p.R282W	TP53 p.R282W	30	Not detected	Negative	.	.	.	No	1.2
LCR 324	No	Low	16.1	No		APC p.I1307fs; TP53 p.R116W	APC p.I1307fs	29	Not detected	Negative	.	.	.	No	4.0

LCR 325	Yes	High	13.1	Yes	Liver	<i>KRAS</i> p.G13D	<i>KRAS</i> p.G13D	30	0.066	Positive	Positive	Positive	343	No	1.6
LCR 326	No	Low	16.0	No		<i>TP53</i> p.Y126C	<i>TP53</i> p.Y126C	38	Not detected	Negative	.	.	.	No	1.9
LCR 327	No	Low	17.9	No		<i>APC</i> p.S1415fs; <i>TP53</i> p.R141C	<i>APC</i> p.S1415fs	8.6	Not detected	Negative	.	.	.	No	1.2
LCR 328	No	High	8.2	No		<i>KRAS</i> p.G12V	<i>KRAS</i> p.G12V	11	Not detected	Negative	.	.	.	No	0.3
LCR 329	No	Low	5.5	No		<i>BRAF</i> p.V600E	<i>BRAF</i> p.V600E	28	Not detected	Negative	.	.	.	Not available	Not available
LCR 330	Yes	High	22.0	No		<i>APC</i> p.E1309fs; <i>TP53</i> p.R116W; <i>KRAS</i> p.G12D	<i>APC</i> p.E1309fs	34	Not detected	Negative	Negative	.	.	No	1.2
LCR 331	No	High	20.0	No		<i>APC</i> p.E1552X; <i>BRAF</i> p.V600E; <i>PIK3CA</i> p.E545K	<i>APC</i> p.E1552X	17	Not detected	Negative	.	.	.	No	1.9
LCR 332	No	Low	11.7	Yes	Liver	<i>TP53</i> p.R248Q; <i>APC</i> p.E1322X; <i>FBXW7</i> p.R465C	<i>TP53</i> p.R248Q	21	0.678	Positive	.	Positive	279	No	1.0
LCR 333	No	Low	23.9	No		<i>APC</i> p.Y1183fs; <i>KRAS</i> p.G12V; <i>PIK3CA</i> p.E545K	<i>APC</i> p.Y1183fs	22	Not detected	Negative	.	.	.	No	1.0
LCR 334	No	High	16.2	No		<i>APC</i> p.Q1378X; <i>TP53</i> p.R213X	<i>APC</i> p.Q1378X	49	Not detected	Negative	.	.	.	No	<1
LCR 335	Yes	High	20.3	No		<i>APC</i> p.E1552fs; <i>TP53</i> p.R175H	<i>APC</i> p.E1552fs	18	Not detected	Negative	Negative	.	.	No	1.0
LCR 337	No	Low	16.3	No		<i>SMAD4</i> p.P298fs; <i>APC</i> p.E941X; <i>APC</i> p.R1450X; <i>KRAS</i> p.G12D; <i>FBXW7</i> p.R479Q; <i>PIK3CA</i> p.E542K	<i>SMAD4</i> p.P298fs	22	Not detected	Negative	.	.	.	No	1.4
LCR 339	No	Low	28.4	No		<i>BRAF</i> p.V600E; <i>PIK3CA</i> p.H1047Y	<i>BRAF</i> p.V600E	21	Not detected	Negative	.	.	.	No	0.5
LCR 340	No	Low	28.0	No		<i>APC</i> p.E1322X; <i>TP53</i> p.R81X	<i>APC</i> p.E1322X	22	Not detected	Negative	.	.	.	No	1.6
LCR 341	No	Low	21.6	No		<i>APC</i> p.Q1406X; <i>TP53</i> p.R43H; <i>KRAS</i> p.G12D; <i>PIK3CA</i> p.E545K	<i>APC</i> p.Q1406X	20	Not detected	Negative	.	.	.	No	1.2
LCR 342	Yes	High	23.2	No		<i>APC</i> p.K792fs; <i>TP53</i> p.C3F	<i>APC</i> p.K792fs	13	Not detected	Negative	Negative	.	.	No	0.5
LCR 343	No	High	25.9	No		<i>APC</i> p.E1353X; <i>TP53</i> p.R43H; <i>KRAS</i> p.G13D	<i>APC</i> p.E1353X	30	Not detected	Negative	.	.	.	No	0.5
LCR 344	No	Low	22.7	Yes	Liver and lymph nodes	<i>TP53</i> p.L50fs; <i>APC</i> p.S1382X	<i>TP53</i> p.L50fs	29	Not detected	Negative	.	Not available	Not available	No	0.5
LCR 345	No	Low	18.5	No		<i>TP53</i> p.D259Y; <i>BRAF</i> p.V600E	<i>TP53</i> p.D259Y	38	Not detected	Negative	.	.	.	Not available	Not available
LCR 346	No	High	5.7	Yes	Regional nodal recurrence	<i>APC</i> p.A1485fs; <i>KRAS</i> p.G12S; <i>PIK3CA</i> p.E545K	<i>APC</i> p.A1485fs	28	Not detected	Negative	.	Positive	35	No	2.4
LCR 347	No	High	21.8	No		<i>APC</i> p.R1432X; <i>KRAS</i> p.G13D	<i>APC</i> p.R1432X	20	Not detected	Negative	.	.	.	Not available	Not available
LCR 348	No	Low	18.2	No		<i>APC</i> p.E1309fs; <i>PIK3CA</i> p.H1047R	<i>APC</i> p.E1309fs	9.2	Not detected	Negative	.	.	.	No	2.0
LCR 349	No	Low	29.5	No		<i>TP53</i> p.G262V; <i>KRAS</i> p.G13D; <i>APC</i> p.E1291X	<i>TP53</i> p.G262V	48	Not detected	Negative	.	.	.	No	0.5
LCR 350	No	Low	8.1	Yes	Liver and lung	<i>CTNNB1</i> p.S45F; <i>TP53</i> p.R116Q; <i>KRAS</i> p.G12D	<i>CTNNB1</i> p.S45F	32	Not detected	Negative	.	Not available	Not available	No	3.4
LCR 351	No	Low	21.8	No		<i>APC</i> p.E1464fs; <i>KRAS</i> p.G13D	<i>APC</i> p.E1464fs	26	Not detected	Negative	.	.	.	No	0.5
LCR 352	No	Low	24.9	No		<i>APC</i> p.R876X; <i>APC</i> p.R1450X; <i>KRAS</i> p.G12D	<i>APC</i> p.R876X	6.7	Not detected	Negative	.	.	.	Not available	Not available
LCR 353	No	High	6.7	Yes	Anastomotic recurrence	<i>APC</i> p.S1328X; <i>KRAS</i> p.G12D	<i>APC</i> p.S1328X	260	Not detected	Negative	.	Negative	Not detected at recurrence	No	0.5

LCR 354	No	High	26.1	No		APC p.R876X; KRAS p.G12V; GNAS p.R201H; PIK3CA p.Q546R	APC p.R876X	41	Not detected	Negative	.	.	.	No	0.5
LCR 355	Yes	High	21.6	No		TP53 p.P295fs; KRAS p.G12D	TP53 p.P295fs	31	Not detected	Negative	Not available	.	.	No	<0.5
LCR 356	No	Low	24.4	No		CTNNB1 p.T41A; PIK3CA p.H1047R	CTNNB1 p.T41A	26	Not detected	Negative	.	.	.	No	1.5
LCR 357	No	Low	23.2	No		APC p.E1464fs; TP53 p.R273C; ERBB3 p.V104L; NRAS p.G12D	APC p.E1464fs	17	Not detected	Negative	.	.	.	No	0.9
LCR 358	No	Low	24.5	No		PIK3CA p.Q546R; APC p.R1450X; KRAS p.G12D	PIK3CA p.Q546R	81	Not detected	Negative	.	.	.	No	<0.5
LCR 389	No	Low	23.2	No		TP53 p.R196X	TP53 p.R196X	24	Not detected	Negative	.	.	.	No	1.8
LCR 390	No	Low	14.8	No		CTNNB1 p.S33P	CTNNB1 p.S33P	17	Not detected	Negative	.	.	.	No	0.8
LCR 391	No	Low	12.2	No		APC p.T1487fs; TP53 p.R248Q; NRAS p.G13D; APC p.Y1031X	APC p.T1487fs	19	Not detected	Negative	.	.	.	No	1.6
LCR 392	Yes	High	13.6	No		APC p.E1309X; APC p.R1114X; TP53 p.R213Q; POLE p.V411L; PIK3CA p.E81K	APC p.E1309X	19	Not detected	Negative	Not available	.	.	No	2.0
LCR 393	Yes	High	21.3	No		KRAS p.G12A; PIK3CA p.H1047R	KRAS p.G12A	8.4	Not detected	Negative	Negative	.	.	No	2.0
LCR 394	No	High	4.8	Yes	Liver	APC p.C1578fs; TP53 p.G245S; KRAS p.G12S	APC p.C1578fs	10	0.140	Positive	.	Positive	136	No	1.0
LCR 395	No	Low	18.7	No		KRAS p.G12D; APC p.E1309X; APC p.A1485fs; PIK3CA p.E542K	KRAS p.G12D	16	0.027	Positive	.	.	.	No	2.9
LCR 396	No	High	17.8	No		TP53 p.K132E; APC p.E1145X	TP53 p.K132E	19	Not detected	Negative	.	.	.	No	0.7
LCR 397	No	Low	12.5	No		APC p.P1319fs; TP53 p.R282W; PIK3CA p.C420R	APC p.P1319fs	27	Not detected	Negative	.	.	.	No	0.6
LCR 398	No	Low	7.3	Yes	Lymph nodes	KRAS p.G12V	KRAS p.G12V	42	0.008	Positive	.	Positive	210	No	2.4
LCR 399	No	Low	19.3	No		CTNNB1 p.S45P	CTNNB1 p.S45P	53	Not detected	Negative	.	.	.	No	2.1
LCR 400	No	Low	13.1	No		TP53 p.P151fs	TP53 p.P151fs	100	0.003	Positive	.	.	.	No	2.1
LCR 401	No	High	11.8	No		APC p.E1306X; KRAS p.G12V	APC p.E1306X	85	Not detected	Negative	.	.	.	No	4.3
LCR 402	No	Low	15.6	No		APC p.I1269fs; KRAS p.G12D; PIK3CA p.Q546K	APC p.I1269fs	100	Not detected	Negative	.	.	.	No	<1
LCR 403	No	High	11.0	No		APC p.S1436fs; TP53 g.7576928T>C (splice site); NRAS p.G13V	APC p.S1436fs	17	0.046	Positive	.	.	.	No	1.0
LCR 404	Yes	Low	11.8	No		APC p.E918X; TP53 p.R110L	APC p.E918X	20	Not detected	Negative	Not available	.	.	No	1.0
LCR 405	No	High	13.5	No		APC p.D1285fs; TP53 p.C238F	APC p.D1285fs	17	Not detected	Negative	.	.	.	No	1.0
LCR 406	No	High	6.8	Yes	Liver	APC p.P1427fs; KRAS p.G13D; TP53 p.R175H; APC p.Q1062X	APC p.P1427fs	20	Not detected	Negative	.	Not available	Not available	No	0.5
LCR 407	No	Low	18.7	No		APC p.S1104X	APC p.S1104X	21	Not detected	Negative	.	.	.	No	1.2
LCR 408	No	High	13.1	No		POLE p.P286R; KRAS p.A146T; APC p.R1114X; APC p.S943X; PIK3CA p.E545K	POLE p.P286R	55	Not detected	Negative	.	.	.	No	1.1

LCR 409	Yes	Low	16.7	Yes	Liver	TP53 p.R282W	TP53 p.R282W	57	1.774	Positive	Positive	Positive	472	No	0.5
LCR 410	No	Low	12.6	No		BRAF p.V600E; TP53 p.W52X; PIK3CA p.E542K	BRAF p.V600E	28	Not detected	Negative	.	.	.	No	2.5
LCR 411	No	Low	19.5	No		KRAS p.G12D	KRAS p.G12D	22	Not detected	Negative	.	.	.	No	2.6
LCR 412	No	Low	18.2	No		TP53 p.Q167X; KRAS p.G12D; APC p.R787X; APC p.Q1411X	TP53 p.Q167X	92	Not detected	Negative	.	.	.	No	1.7
LCR 413	No	Low	13.4	No		TP53 p.F328fs; KRAS p.G13D; APC p.S1374X; FBXW7 p.R347C	TP53 p.F328fs	20	Not detected	Negative	.	.	.	No	2.6
LCR 414	Yes	High	15.5	No		APC p.D1178fs; KRAS p.G13D; TP53 p.N235D; APC p.H1375fs; PIK3CA p.E542K	APC p.D1178fs	78	0.007	Positive	Negative	.	.	No	0.7
LCR 415	Yes	High	8.5	Yes	Mesenteric nodal mass	TP53 p.K381fs; APC p.K1462fs; APC p.R1450X; PIK3CA p.C420R	TP53 p.K381fs	28	Not detected	Negative	Negative	Negative	Not detected at recurrence	Yes	10.8
LCR 416	Yes	Low	15.4	No		TP53 p.R248Q; APC p.E1309X	TP53 p.R248Q	48	Not detected	Negative	Positive	.	.	No	1.7
LCR 417	Yes	High	13.9	No		APC p.L1488fs; TP53 p.R175H; KRAS p.G12V	APC p.L1488fs	36	Not detected	Negative	Negative	.	.	No	1.0
LCR 419	No	Low	22.3	No		APC p.Q1041fs; TP53 p.P190L; KRAS p.G12V	APC p.Q1041fs	31	Not detected	Negative	.	.	.	No	2.0
LCR 420	No	High	16.3	No		TP53 p.Y126D; APC p.R1450X	TP53 p.Y126D	15	Not detected	Negative	.	.	.	No	1.9
LCR 421	Yes	High	21.0	No		APC p.C995fs; POLE p.P286R	APC p.C995fs	14	Not detected	Negative	Negative	.	.	No	2.3
LCR 422	No	Low	21.7	No		TP53 p.R273H	TP53 p.R273H	30	Not detected	Negative	.	.	.	No	0.5
LCR 423	No	Low	9.2	Yes	Liver, omentum, anastomotic	KRAS p.G12S; TP53 p.R282W; PIK3CA p.E545K	KRAS p.G12S	10	Not detected	Negative	.	Positive	0	Yes	6.3
LCR 424	No	Low	17.4	No		KRAS p.G12C	KRAS p.G12C	16	Not detected	Negative	.	.	.	No	0.5
LCR 425	No	High	19.1	No		TP53 p.Y327X; APC p.Q1303X; KRAS p.Q61H	TP53 p.Y327X	74	Not detected	Negative	.	.	.	No	1.2
LCR 426	No	Low	17.7	No		APC p.L1423fs; TP53 p.C275Y; PIK3CA p.R88Q	APC p.L1423fs	56	Not detected	Negative	.	.	.	No	1.3
LCR 427	No	Low	17.7	No		PIK3CA p.H1047R; BRAF p.V600E	PIK3CA p.H1047R	31	Not detected	Negative	.	.	.	No	1.0
LCR 428	No	High	5.9	Yes	Peritoneal, omentum	TP53 p.M66fs; KRAS p.Q61K	TP53 p.M66fs	35	Not detected	Negative	.	Not available	Not available	No	0.7
LCR 429	No	Low	17.2	No		APC p.T1493fs; TP53 p.R273C	APC p.T1493fs	68	Not detected	Negative	.	.	.	No	1.4
LCR 430	No	Low	3.8	No		PIK3CA p.H1047R; BRAF p.V600E	PIK3CA p.H1047R	38	Not detected	Negative	.	.	.	No	0.5
LCR 431	No	Low	4.6	Yes	Liver	APC p.E1408fs; TP53 p.I232S	APC p.E1408fs	19	0.046	Positive	.	Positive	99	No	2.9
LCR 432	No	Low	13.7	No		APC p.R876X; TP53 g.7578555C>T (splice site); KRAS p.G12D	APC p.R876X	24	Not detected	Negative	.	.	.	No	4.0
LCR 433	No	Low	12.7	No		BRAF p.V600E; APC p.T1556fs; PIK3CA p.C420R	BRAF p.V600E	23	Not detected	Negative	.	.	.	No	2.0
LCR 493	No	High	11.4	No		BRAF p.V600E; TP53 p.R43H	BRAF p.V600E	18	Not detected	Negative	.	.	.	No	1.2
LCR 494	No	Low	10.9	No		APC p.F1396fs	APC p.F1396fs	22	Not detected	Negative	.	.	.	No	1.2

LCR 495	No	Low	6.8	Yes	Lung	<i>TP53</i> p.I254fs; <i>KRAS</i> p.G12V; <i>APC</i> p.E1390X; <i>PIK3CA</i> p.E542K	<i>TP53</i> p.I254fs	5.4	0.05	Positive	.	Positive	181	No	1.1
LCR 497	Yes	High	8.9	No		<i>TP53</i> p.E217X; <i>KRAS</i> p.G12D	<i>TP53</i> p.E217X	21	Not detected	Negative	Not available	.	.	No	1.0
LCR 498	No	Low	10.5	No		<i>APC</i> p.P1319fs; <i>TP53</i> p.R43H; <i>KRAS</i> p.G12V	<i>APC</i> p.P1319fs	23	Not detected	Negative	.	.	.	No	1.0
LCR 499	No	High	10.6	No		<i>APC</i> p.L1488fs; <i>KRAS</i> p.G12C; <i>PIK3CA</i> Q546K	<i>APC</i> p.L1488fs	77	Not detected	Negative	.	.	.	No	1.5
LCR 500	No	Low	10.0	No		<i>APC</i> p.T909fs; <i>KRAS</i> p.G12D; <i>APC</i> p.R1432X; <i>PIK3CA</i> p.E542K	<i>APC</i> p.T909fs	78	Not detected	Negative	.	.	.	No	2.2
LCR 501	No	Low	8.6	No		<i>BRAF</i> p.V600E; <i>AKT1</i> p.E17K	<i>BRAF</i> p.V600E	47	Not detected	Negative	.	.	.	No	3.0
LCR 502	Yes	High	14.8	No		<i>APC</i> p.Q1406X; <i>APC</i> p.C1231X; <i>TP53</i> p.R141H	<i>APC</i> p.Q1406X	25	Not detected	Negative	Not available	.	.	No	0.8
LCR 503	No	Low	11.2	No		<i>RNF43</i> p.R657fs	<i>RNF43</i> p.R657fs	40	Not detected	Negative	.	.	.	No	3.7
LCR 504	No	Low	15.7	No		<i>CTNNB1</i> p.S45P; <i>TP53</i> p.R141C; <i>KRAS</i> p.G12D; <i>PIK3CA</i> p.H1047R	<i>CTNNB1</i> p.S45P	21	Not detected	Negative	.	.	.	Not available	Not available
LCR 505	No	Low	15.4	No		<i>APC</i> p.K1363fs; <i>KRAS</i> p.G12C	<i>APC</i> p.K1363fs	64	Not detected	Negative	.	.	.	No	0.5
LCR 506	No	High	13.2	No		<i>APC</i> p.D1422fs; <i>TP53</i> p.R43H	<i>APC</i> p.D1422fs	24	Not detected	Negative	.	.	.	No	1.1
LCR 507	No	High	14.2	Yes	Liver	<i>APC</i> p.S1010fs	<i>APC</i> p.S1010fs	60	0.006	Positive	.	Positive	381	No	1.9
LCR 508	No	Low	9.6	No		<i>RNF43</i> p.R657fs; <i>KRAS</i> p.Q61K	<i>RNF43</i> p.R657fs	32	Not detected	Negative	.	.	.	No	2.6
LCR 509	No	Low	10.7	No		<i>APC</i> p.R876X	<i>APC</i> p.R876X	40	Not detected	Negative	.	.	.	No	1.0
LCR 510	No	High	9.4	No		<i>APC</i> p.N1255fs; <i>TP53</i> p.R141H	<i>APC</i> p.N1255fs	56	Not detected	Negative	.	.	.	No	2.0
LCR 511	Yes	Low	5.2	No		<i>APC</i> p.P1526fs; <i>KRAS</i> p.G12V; <i>APC</i> p.E923X; <i>PIK3CA</i> p.E542K	<i>APC</i> p.P1526fs	18	Not detected	Negative	Not available	.	.	No	0.8
LCR 521	No	Low	10.1	No		<i>TP53</i> p.R175H	<i>TP53</i> p.R175H	12	Not detected	Negative	.	.	.	No	1.9
LCR 522	No	Low	17.4	No		<i>BRAF</i> p.V 600E	<i>BRAF</i> p.V 600E	36	Not detected	Negative	.	.	.	No	1.6
LCR 523	Yes	Low	10.2	No		<i>TP53</i> g.chr17:7577156C>T(splice site); <i>KRAS</i> p.G12V; <i>APC</i> p.Y917X; <i>APC</i> p.E1532X	<i>TP53</i> g.chr17:7577156C>T(splice site)	84	Not detected	Negative	Negative	.	.	No	2.0

Table S6. Panel of 15 genes used for identification of somatic mutations in tumor tissue.

Gene	Codons
<i>SMAD4</i>	Entire coding region
<i>TP53</i>	Entire coding region
<i>AKT1</i>	Codons 10 to 30
<i>APC</i>	Codons 789 to 1589
<i>BRAF</i>	Codons 582 to 605
<i>CTNNB1</i>	Codons 20 to 46
<i>ERBB3</i>	Codons 85 to 105
<i>FBXW7</i>	Codons 448 to 461 and 474 to 510
<i>HRAS</i>	Codons 10 to 15
<i>KRAS</i>	Codons 10 to 15, 51 to 63, and 120 to 130
<i>NRAS</i>	Codons 10 to 15 and 51 to 63
<i>PIK3CA</i>	Codons 64 to 94, 316 to 346, 418 to 434, 527 to 560, 1002 to 1054
<i>PPP2R1A</i>	Codons 176 to 198 and 250 to 275
<i>RNF43</i>	Codons 657 to 686
<i>POLE</i>	Codons 279 to 303 and 410 to 414