

Appendix 1. ddPCR result for SNV and INDEL (variants in purple are cell-derived).

Variant Name	AVG AF%	STDEV	Cosmic ID
KRAS G12C	4.47	0.51	COSV55497469
KRAS G12D	6.06	0.58	COSV55497369
KRAS G12V	2.58	0.24	COSV55497419
TP53 R248Q	1.95	0.18	COSV52661580
PIK3CA E545K	4.26	0.43	COSV55873239
PIK3CA H1047R	4.21	0.40	COSV55873195
EGFR T790M	2.55	0.25	COSV51765492
EGFR C797S	2.55	0.25	COSV51766493
EGFR D770_N771insG	2.55	0.25	COSV51769298
EGFR L858R	2.65	0.57	COSV51765161
BRAF V600E	4.22	1.40	COSV56056643
NRAS Q61R	3.21	0.30	COSV54736340
PTEN R130G	5.71	1.10	COSV64288384
TP53 R175H	2.15	0.38	COSV52661038
IDH1 R132H	4.24	0.37	COSV61615239
CTNNB1 T41A	2.09	0.38	COSV62687862
CTNNB1 S33C	2.09	0.38	COSV62687839
FGFR3 S249C	1.72	1.04	COSV53390026
APC Q1429*	3.75	0.30	COSV57322632
APC R1450*	3.75	0.30	COSV57321313
EGFR E746-A750del v1	2.72	0.16	COSV51765119
EGFR E746-A750del v2	3.96	0.46	COSV51765066
KIT D816V	3.33	0.40	COSV55386424
AKT1 E17K	2.66	0.27	COSV62571334
ATM R337C	6.43	0.65	COSV53723836
EGFR G719A	9.47	4.59	COSV51769339
CDKN2A R80*	1.95	0.10	COSV58682746
ESR1 D538G	2.21	0.20	COSV52781024
HRAS Q61R	1.94	0.20	COSV54242436
KIT W557_K558del	7.38	0.22	COSV55387046
MED12 G44D	3.34	1.23	COSV61329353
NOTCH1 H1601L	1.83	0.05	COSV99489272
PDGFRA D842V	3.05	0.05	COSV57264120
SMARCA4 T910M	2.30	0.22	COSV60785486
TP53 R273H	3.00	0.15	COSV52660980
ERBB2 (S310F)	1.91	0.48	COSV54062198
MAP2K1 (P124S)	2.91	0.22	COSV61068297
MET (Y1253D)	5.75	0.01	COSV59257036
STK11 F354L	3.55	0.07	COSV58819912
MDM2 R189H	4.28	0.76	COSV50698253
MDM4 Q118L	5.21	0.31	COSV65794868
ErbB4 p.R711C	3.36	0.21	COSV53505317
POLE P286R	5.88	0.36	COSV57673247
DDR2 R709*	4.45	0.23	COSV63370359

Appendix 2. ddPCR Result for Fusions with GRCh37/Hg19 and GRCh38/Hg38 coordinates at breakpoints (Brk) and fusion sequences

Variant Name	Partner1	Brk: Hg19	Brk: Hg38	Partner2	Brk: Hg19	Brk: Hg38	AVG AF%	STDEV
ETV6-NTRK3	chr12	11803817	11650883	chr15	88798120	88254889	7.71	1.87
CCDC6-RET	chr10	61665880	59906122	chr10	43574844	43079396	6.77	0.58
CD74-ROS1	chr5	149791873	150412310	chr6	117741471	117420308	7.22	0.21
SLC34A2-ROS1	chr4	25657863	25656241	chr6	117741780	117420617	6.33	0.29
KIF5B-RET	chr10	32306979	32018051	chr10	43612033	43116585	3.97	0.14
FGFR2-BICC1	chr10	123243213	121483699	chr10	60461833	58702073	3.55	0.06
EML4-ALK v1	chr2	42522655	42295515	chr2	29446395	29223529	2.96	0.30

Fusion sequences (In each fusion, partner 1 is in bold font and partner 2 is italic and underlined):

ETV6-NTRK3

ACTCCGATCCATATGAAAGTTGAGCAATCCCAAAGTAGAAA**CTCTGTGATGGAGGGAGAGGAAGAACTAAGCAACCAGGCAAAA***TTCCTAACCTACCACCTGGAGAAGGGTGTGGACCATACTGGAATTGCTCAGAGGATAATTCTCACCTCTTTCCCCCAAGGCTT*

CCDC6-RET

GAAGATAGAGCTGGAGACCTACAACTGAAGTGCAAGGCACTGCAGGAGGAGAACC**CGCACCTGCGCAAAGCCAGCGTGACCATCCAGC***CCAGGTATGCTGGAACCAGAGTGAGAGAACCTCCATCTAAAAGTTACATTCATTTAAAAGTTGCTCTTAAAGTTTCTGG*

CD74-ROS1

CATCACACCGCCTCTTCTGAAAAGCAGAAGAGAGCATGGGTTCTCTCCCTAGAGTTTCACATGCTATGCAGGGGCTTTGAGATC*TTGACTACTGGAAGCAGATAATTGGCGTAGTTGGAGCTAAGGCAAACCAGCGGGATCCTAATGTTCAAATGAAAAATGTGATT*

SLC34A2-ROS1

AGTCGTGGTTTGAAGAGGAAAGGCCAGGGGATAGAAATCTCCACCTAGGAATCAGGATAGCTAGGCTCTTTGT*TATTATTATTATTATTATTATTTAAAATTTTATTATTATACTTTAAGTTTTAGGGTACATGTGCACAAATGTTCAAGTTTTGTTACATATGTAT*

KIF5B-RET

ATGACACCGGAGGCAGCGCTGCTCAGAAGCAAAAAATCTCCTTTCTTGAAAATAATCTTGAACAGCTCACTAAAGTGACAAAACAGG*AGGATCCAAAGTGGAATTCCTCGGAAGAAGTTGGTTCTTGAAAAACTCTAGGAGAAGGCGAATTTGAAAAGTGGTCAAG*

FGFR2-BICC1

GTTGGCATGCAGTGCCCTCCAGAGACCAACGTTCAAGCAGTTGGTAGAAGACTTGGATCGAATTCTCACTCTCACAACCAATGA*GATCATGGAGGAAACAAATACGCAGATTGCTTGGCCATCAAACCTGAAGATCGGAGCCAAATCCAAGAAAGATCCCATATTAAG*

EML4-ALK v1

GAGATGTTCTTACTGGAGACTCAGGTGGAGTCTATGCTTATATGGAGCAAACTACTGTAGAGCCCACACCTGGGAAAGGACCTAAA*AGTGTACCGCCGGAAGCACCAGGAGCTGCAAGCCATGCAGATGGAGCTGCAGAGCCCTGAGTACAAGCTGAGCAAGCTCCGCACCTCGACCATCA*

Appendix 3. NGS Results (variants in purple are cell-derived).

Variant Name	AVG AF%	STDEV	Cosmic ID
KRAS G12C	4.22	0.46	COSV55497469
KRAS G12D	3.09	0.58	COSV55497369
KRAS G12V	3.00	0.48	COSV55497419
TP53 R248Q	2.62	0.31	COSV52661580
PIK3CA E545K	4.05	0.37	COSV55873239
PIK3CA H1047R	4.16	1.38	COSV55873195
EGFR T790M	1.87	1.05	COSV51765492
EGFR C797S	3.83	1.41	COSV51766493
EGFR D770_N771insG	1.87	1.05	COSV51769298
EGFR L858R	2.52	0.38	COSV51765161
BRAF V600E	4.52	1.04	COSV56056643
NRAS Q61R	3.36	0.59	COSV54736340
PTEN R130G	2.99	0.38	COSV64288384
TP53 R175H	1.80	0.23	COSV52661038
IDH1 R132H	3.40	0.44	COSV61615239
CTNNB1 T41A	1.16	0.33	COSV62687862
CTNNB1 S33C	3.67	0.83	COSV62687839
FGFR3 S249C	1.44	0.30	COSV53390026
APC Q1429*	Not Tested	Not Tested	COSV57322632
APC R1450*	2.58	0.33	COSV57321313
EGFR E746-A750del v1	3.32	0.45	COSV51765119
EGFR E746-A750del v2	3.38	0.44	COSV51765066
KIT D816V	Not Tested	Not Tested	COSV55386424
AKT1 E17K	9.73	1.82	COSV62571334
ATM R337C	0.18	0.22	COSV53723836
EGFR G719A	4.48	1.01	COSV51769339
CDKN2A R80*	18.99	2.34	COSV58682746
ESR1 D538G	8.97	1.03	COSV52781024
HRAS Q61R	12.06	1.69	COSV54242436
KIT W557_K558del	2.18	0.47	COSV55387046
MED12 G44D	9.80	1.40	COSV61329353
NOTCH1 H1601L	12.20	1.35	COSV99489272
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MET (Y1253D)	18.33	2.13	COSV59257036
STK11 F354L	13.12	1.70	COSV58819912
MDM2 R189H	8.32	0.84	COSV50698253
MDM4 Q118L	15.05	2.06	COSV65794868
ErbB4 p.R711C	0.04	1.87	COSV53505317
POLE P286R	14.79	2.36	COSV57673247
DDR2 R709*	16.30	2.57	COSV63370359

Appendix 4. NGS Results for fusions with GRCh37/Hg19 and GRCh38/Hg38 coordinates at breakpoints (Brk)

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CCDC6-RET	chr10	61665880	59906122	chr10	43574844	43079396	19.0%	3.0%
CD74-ROS1	chr5	149791873	150412310	chr6	117741471	117420308	13.4%	2.0%
SLC34A2-ROS1	chr4	25657863	25656241	chr6	117741780	117420617	Not Tested	Not Tested
KIF5B-RET	chr10	32306979	32018051	chr10	43612033	43116585	8.4%	1.7%
FGFR2-BICC1	chr10	123243213	121483699	chr10	60461833	58702073	10.9%	2.4%
EML4-ALK v1	chr2	42522655	42295515	chr2	29446395	29223529	8.6%	1.9%