FUSION*Plex* Pan-Heme v2

Description

The FUSION*Plex* Pan-Heme v2 panel is a balanced pool of gene-specific primer (GSP) oligonucleotides that is optimized for use with FUSION*Plex* reagents and molecular barcode (MBC) adapters to produce targeted NGS libraries. This product insert should be used in conjunction with FUSIONPlex protocol for Illumina® (RA-DOC-047), FUSIONPlex-LAC protocol for Illumina® (RA-DOC-471), or FUSION*Plex* protocol for Ion Torrent™ (RA-DOC-048).

FUSION*Plex* Pan-Heme v2 contains 1748 GSPs targeting 218 genes commonly mutated in hematological malignancies.

Description	Part number	Storage
FUSION*Plex* Pan-Heme v2 GSP1, 8 reactions	10032208	–20°C ± 10°C
FUSION*Plex* Pan-Heme v2 GSP2, 8 reactions	10034011	
10X VCP Primer Mix	SA0126	

Recommended PCR cycling

	Step	Temperature (°C)	Time	Cycles
First PCR reaction	1	95	3 min	1
	2	95	30 sec	15
	3	60	10 sec	
	4	62	5 min (100% ramp rate)	
	5	72	3 min	1
	6	4	Hold	1

Recommended PCR cycling *(cont.)*

	Step	Temperature (°C)	Time	Cycles
Second PCR reaction	**1**	95	3 min	1
	2	95	30 sec	20†
	3	60	10 sec	
	4	65	5 min (100% ramp rate)	
	5	72	3 min	1
	6	4	Hold	1

†The number of PCR2 cycles may be decreased if you regularly experience library yields greater than 200 nM.

Recommended reads and multiplexing

FUSION*Plex* Pan-Heme v2 libraries should be sequenced to a minimum of **5M reads**. Starting read depth recommendations for standard profiling may be adjusted based on user needs.

Archer™ Analysis settings

Sequencing data should be processed using Archer Analysis (7.5, or greater). The FUSION*Plex* Pan-Heme v2 panel requires selection of the ***Fusion*** and (optional) ***SNV/Indel*** pipeline(s), found under the ***RNA*** Input Type (see the Archer Analysis User Guide for more details on setting up your analysis).

Processing of FUSION*Plex* Pan-Heme v2 libraries requires a one-time upload of the Panel GTF. Files can be obtained by contacting archer-tech@idtdna.com.

Assay targets

Gene	Accession	Exon	Assay Type	Description**
ABL1	NM_005157	–	Expression Imbalance	–
ABL1	NM_005157	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	Fusion	5'
ABL1	NM_005157	4, 5, 6	Mutation	Full exon coverage including, p.Y253–p.E255, p.V299, p.T315–p.F317, p.M351–p.F359

Gene	Accession	Exon	Assay Type	Description**
ABL2	NM_005158	2, 3, 4, 5, 6, 7, 8	Fusion	5'
AICDA	NM_020661	–	Expression	–
AKT3	NM_005465	6	Mutation	p.K172
ALK	NM_004304	2, 4, 6, 8, 10, 12, 13, 14, 16, 17, 18, 19, intron19, 20, mid–exon20, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29	Fusion, ALK ATI^{V} Internal deletion (ALKΔ2–17, ALKΔ2-3), Expression	5'
ALK	NM_004304	1, 2	Internal deletion (ALKΔ2–17, ALKΔ2–3)	3'
ALK	NM_004304	21, 22, 23, 24, 25	Mutation	Full exon coverage including p.P1153–p.C1156, p.F1174, p.L1196–p.S1206, p.G1269
ALK	NM_004304	9, 12, 16, 20	Mutation	Hotspot coverage including p.V597, p.H694, p.G881, p.K1062
ASB13	NM_024701	–	Expression	–
ASXL1	NM_015338	11, 12, 13	Mutation	Full exon coverage including p.Y591, p.H630–p.E635, p.I641–p.G646, p.R693, p.E1102
BATF3	NM_018664	–	Expression	–
BAX	NM_138761	6	Mutation	p.G179
BCL11B	NM_138576	1, 2, 3, 4	Fusion, Expression	5'
BCL11B	NM_138576	2, 3	Fusion, Expression	3'
BCL2	NM_000633	*1, 2, 3	Fusion, Expression	3'
BCL2	NM_000633	1*, 2, 3*, mid exon 3	Fusion, Expression	5'

Gene	Accession	Exon	Assay Type	Description**
BCL2	NM_000633	2	Mutation	p.F104
BCL2A1	NM_004049	–	Expression	–
BCL3	NM_005178	–	Expression	–
BCL6	NM_001706	2, 3, 4, 5, 8, 9	Fusion, Expression	5'
BCR	NM_004327	1, 2, 3, 4, 8, 12, 13, 14, 15, 16	Fusion	3'
BIRC3	NM_182962	4, 5, 6, 7, 8	Fusion, Expression	3'
BIRC3	NM_182962	9	Mutation	p.Q547
BLNK	NM_013314	–	Expression	–
BMF	NM_033503	–	Expression	–
BMP7	NM_001719	–	Expression	–
BRAF	NM_004333	1, 2, 3, 7, 8, 10, 13, 14, 18	Fusion, Kinase Domain Duplication, BRAFΔ2–10, BRAFΔ4–10, BRAFΔ2–8, BRAFΔ3–8, BRAFΔ4–8, Expression	3'
BRAF	NM_004333	2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 15, 16	Fusion, Kinase Domain Duplication, BRAFΔ2–10, BRAFΔ4–10, BRAFΔ2–8, BRAFΔ3–8, BRAFΔ4–8, Expression	5'
BRAF	NM_004333	11, 15	Mutation	Full exon coverage including p.V600
BTK	NM_000061	11, 15, 16	Mutation	p.C481, p.T474, p.L528, p.T316, p.V537

Gene	Accession	Exon	Assay Type	Description**
CALR	NM_004343	9	Mutation	p.E364–p.L367, p.K385
CARD11	NM_032415	5, 6	Mutation	p.D230 p.K215T
CBFB	NM_022845	4, 5	Fusion	3'
CBL	NM_005188	8, 9	Mutation	Full exon coverage including p.Q367–p.Y371, p.L380–p.C384, p.C404–p.W408, p.R420
CCDC50	NM_174908	–	Expression	–
CCND1	NM_053056	2, 3, 4, 5	Fusion, Expression	5'
CCND1	NM_053056	1, 2, 3, 4, mid–exon5*	Fusion, Expression	3'
CCND1	NM_053056	1	Mutation	p.E36, p.V42–p.C47
CCND2	NM_001759	–	Expression	–
CCND3	NM_001760	2, 3, 4, 5	Fusion, Expression	5'
CCND3	NM_001760	2, 4	Fusion, Expression	3'
CD274	NM_014143	–	Expression	–
CD28	NM_006139	2, 4	Fusion	5'
CD44	NM_000610	–	Expression	–
CD79B	NM_000626	–	Expression	5'
CD79B	NM_000626	5	Mutation	p.Y196
CDC25A	NM_001789	–	Expression	5'

Gene	Accession	Exon	Assay Type	Description**
CDK6	NM_001259	1, 2, 3, 4	Fusion, Expression	3'
CDKN2A	NM_000077	–	Expression	–
CDKN2B	NM_004936	–	Expression	–
CEBPA	NM_004364	1	Mutation	Full exon coverage
CEBPD	NM_005195	–	Expression	–
CEBPE	NM_001805	–	Expression	–
CEBPG	NM_001806	–	Expression	–
CHD1	NM_001270	2*, 3	Fusion	5'
CHIC2	NM_012110	1, 2, 3	Fusion	3'
CIITA	NM_000246	1, 2	Fusion	3'
CREB3L2	NM_194071	–	Expression	–
CREBBP	NM_004380	–	Expression	–
CREBBP	NM_004380	16, 20, 26, 30	Mutation	p.P1053, p.C1240, p.R1446, p.S1680–p.L1681
CRLF2	NM_022148	–	Expression	–
CRLF2	NM_022148	1*	Fusion	5'
CRLF2	NM_022148	6	Mutation	p.F232
CSF1R	NM_005211	9, 10, 11, 12, 13, 14	Fusion	5'

Gene	Accession	Exon	Assay Type	Description**
CSF3R	NM_156039	14, 17	Mutation	p.T618, p.Q766–p.Q768, p.Q776
CTLA4	NM_005214	–	Expression	–
CYB5R2	NM_016229	–	Expression	–
DCK	NM_000788	2, 3	Mutation	p.A32, p.E70
DDX4	NM_024415	–	Expression	–
DDX41	NM_016222	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17	Fusion, Expression	3'
DEK	NM_003472	2, 3	Fusion	3'
DENND3	NM_014957	–	Expression	–
DLEU1	NR_002605	–	Expression	–
DNM2	NM_004945	17	Mutation	p.V649, p.L789
DNMT3A	NM_175629	17, 23	Mutation	p.R688–p.K693, p.R882
DNMT3B	NM_006892	–	Expression	–
DNTT	NM_004088	–	Expression	–
DUSP22	NM_020185	1, 2	Fusion	3'
E2F2	NM_004091	–	Expression	–
EBF1	NM_024007	10, 11, 12, 13, 14, 15	Fusion	3'
EIF4A1	NM_001416	2, 3	Fusion	5'

Gene	Accession	Exon	Assay Type	Description**
ENTPD1	NM_001776	–	Expression	–
EPOR	NM_000121	6, 7, 8	Fusion	3'
ERG	NM_004449	2*, 3*, 4, 5, 6, 7, 8, 9, 10, 11	Fusion	5'
ETV6	NM_001987	2, 3, 4, 5, 6, 7	Fusion	5'
ETV6	NM_001987	1, 2, 3, 4, 5, 6	Fusion	3'
ETV6	NM_001987	3	Mutation	p.Y104–p.R105
EXOC2	NM_018303	–	Expression	–
EZH2	NM_004456	15, 16, 18	Mutation	p.K602, p.Y646, p.R690
FAM216A	NM_013300	–	Expression	–
FBXW7	NM_033632	4, 7, 8, 9, 10	Mutation	p.R224–p.T226, p.R338–p.I347, p.T385, p.R465, p.R479, p.R505
FGFR1	NM_023110	2*, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18	Fusion	5'
FGFR1	NM_023110	12, 17	Fusion	3'
FGFR1	NM_023110	4, 12, 13, 14	Mutation	Hotspot coverage including p.T141, p.V561, p.N546, p.K656
FGFR2	NM_000141	2*, 3, 5, 6, 7, 8, 9, 10	Fusion	5'
FGFR2	NM_000141	11, 16, 17, 18	Fusion	3'
FGFR2	NM_000141	2, 7, 9, 12, 13, 14	Mutation	p.R6, p.S252–p.P253, p.G305, p.Y375–V395, p.I547–p.N549, p.V564, p.A648–p.K659
FGFR3	NM_000142	3, 5, 8, 10, 11, 12, 13, 14	Fusion	5'

Gene	Accession	Exon	Assay Type	Description**
FGFR3	NM_000142	16, 17, intron17, mid–exon18	Fusion	3'
FGFR3	NM_000142	7, 9, 13, 14, 16	Mutation	Hotspot coverage including p.R248, p.S249, p.G370, p.S371, p.Y373, p.G380, p.R399, p.V555, p.D641, p.K650, p.G697, p.K715
FLT3	NM_004119	13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24	Fusion, Internal Tandem Duplication, Expression	5'
FLT3	NM_004119	8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21	Mutation	Full exon coverage including p.F590–p.N609, p.D835–p.S838
FOXP1	NM_032682	–	Expression	–
FUT8	NM_004480	–	Expression	–
GATA1	NM_002049	2	Mutation	p.M1, p.S30, p.Y62–p.D65
GATA2	NM_032638	4, 5	Mutation	p.A318–p.L321, p.R362
GLIS2	NM_032575	2, 3	Fusion	5'
GNAS	NM_000516	11	Mutation	p.D323
HOXA10	NM_018951	–	Expression	–
HOXA9	NM_152739	–	Expression	–
ID4	NM_001546	–	Expression	–
IDH1	NM_005896	3, 4	Mutation	Full exon coverage including p.R132
IDH2	NM_002168	4, 6	Mutation	Full exon coverage including p.R140 and p.R172
IKZF1	NM_006060	1*, 2*, 3, 4, 5, 6, 7, 8	Fusion, Exon Skipping	5'
IKZF1	NM_006060	1*, 2, 3, 5	Fusion, Exon Skipping	3'

Gene	Accession	Exon	Assay Type	Description**
IKZF2	NM_016260	3, 4, 6	Fusion	3'
IKZF3	NM_012481	2, 3, 4, 5, 6, 7	Fusion	3'
IKZF3	NM_012481	5	Mutation	p.L162
IL16	NM_004513	–	Expression	–
IL2RB	NM_000878	2	Fusion	5'
IL7R	NM_002185	5, 6	Mutation	p.S185, p.P240–p.S246
IRF4	NM_002460	–	Expression	–
IRF8	NM_002163	–	Expression	–
ITPKB	NM_002221	–	Expression	–
JAK1	NM_002227	5, 14, 15, 16, 17	Mutation	Full exon coverage including, p.V658, p.S703, p.R724, p.A634D, p.V658, p.R724
JAK1	NM_002227	13	Mutation	p.R629_D630del
JAK2	NM_004972	6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22	Fusion	5'
JAK2	NM_004972	9, 10, 11, 12, 18, 19, 20, 22	Fusion	3'
JAK2	NM_004972	12, 13, 14, 15, 16, 19, 20, 21, 22	Mutation	Full exon coverage including p.F537–F547, p.V617–C618, p.L681–R683, p.L855, p.V863, p.A880, p.V911, p.M929–R938, p.I960, p.R980–E985, p.D994
JAK3	NM_000215	22, 23	Fusion	3'
JAK3	NM_000215	10, 11, 12, 17, 18, 19	Fusion	5'
JAK3	NM_000215	4, 13, 15, 16, 18	Mutation	Full exon coverage including p.A572–A573, p.R657, p.S789

Gene	Accession	Exon	Assay Type	Description**
JAK3	NM_000215	11	Mutation	p.M511
KAT6A	NM_006766	13, 14, 15, 16, 17*	Fusion	3'
KDM6A	NM_021140	23	Mutation	p.V1113
KIAA0101	NM_014736	–	Expression	–
KIT	NM_000222	2, 8, 9, 10, 11, 12, 13, 14, 15, 17, 18	Mutation	Full exon coverage including p.T417–p.D419, p.T670, p.R796, p.D816, p.N822–p.V825
KLF2	NM_016270	2, 3	Fusion	5'
KMT2A	NM_005933	4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35	Fusion	3'
KMT2A	NM_005933	2, 3	Fusion	5'
KRAS	NM_004985	2, 3, 4	Mutation	Full exon coverage including p.G12–p.G13, p.Q61, p.K117, p.A146
KRAS	NM_004985	5	Mutation	Hotspot coverage including p.D153–p.156
LIMD1	NM_014240	–	Expression	–
LMO1	NM_002315	–	Expression	–
LMO2	NM_005574	–	Expression	–
LRMP	NM_006152	–	Expression	–
LYL1	NM_005583	–	Expression	–

Gene	Accession	Exon	Assay Type	Description**
LYN	NM_001111097	2*, 3, 4, 5, 6, 7, 8	Fusion	5'
LZTS1	NM_021020	–	Expression	–
MAL	NM_002371	–	Expression	–
MALT1	NM_006785	9	Fusion	3'
MAML3	NM_018717	–	Expression	–
MAML3	NM_018717	2	Fusion	5'
MECOM	NM_004991	1*, 2, 3, 4, 5, 8	Fusion, Expression	5'
MEF2C	NM_002397	5	Fusion	3'
MEF2D	NM_005920	3, 4, 5, 6, 7, 9	Fusion	3'
MEN1	NM_130799	2, 3, 4, 5, 6, 7, 8, 9, 10	Mutation	Full exon coverage
MKL1	NM_020831	4, 5, 6	Fusion	5'
MLF1	NM_022443	2, 3, 4	Fusion	5'
MLLT10	NM_004641	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18	Fusion	5'
MLLT10	NM_004641	7, 8, 9, 10	Fusion	3'
MLLT4	NM_001040000	2	Fusion	5'
MME	NM_000902	–	Expression	–
MPL	NM_005373	10	Mutation	p.S505, p.W515

Gene	Accession	Exon	Assay Type	Description**
MUC1	NM_002456	–	Expression	–
MYBL1	NM_001080416	–	Expression	–
MYC	NM_002467	1, 2	Fusion, Expression	3'
MYC	NM_002467	1, 2, 3	Fusion, Expression	5'
MYD88	NM_002468	3, 4, 5	Mutation	p.V217–p.S219, p.M232, p.S243, p.L265
MYH11	NM_002474	–	Expression Imbalance	–
MYH11	NM_002474	5, 6, 7, 8, 9, 10, 11, 14, 15, 16, 18, 19, 20, 33	Fusion	5'
NEK6	NM_014397	–	Expression	–
NF1	NM_000267	14	Fusion	3'
NF1	NM_000267	36	Fusion	5'
NFKB1	NM_003998	–	Expression	–
NFKB2	NM_002502	14, 15, 16, 17, 18, 19, 20, 21	Fusion	3'
NME1	NM_000269	–	Expression	–
NOTCH1	NM_017617	34	Exon Skipping	–
NOTCH1	NM_017617	2, 4, 24, 29, 30, 31	Fusion	3'
NOTCH1	NM_017617	5, 24, 25, 26, 27, 28, 29	Fusion	5'
NOTCH1	NM_017617	26, 27, 34	Mutation	p.L1574, p.V1578, p.L1585, p.F1592–p.L1593, p.R1598–p.L1600, p.L1678–p.I1680, p.P2514–p.E2515, p.P2525

Gene	Accession	Exon	Assay Type	Description**
NOTCH2	NM_024408	24, 25, 26, 27, 28, 29	Fusion	5'
NOTCH2	NM_024408	5, 6, 7	Fusion	3'
NOTCH2	NM_024408	34	Mutation	p.R2400
NPM1	NM_002520	11	Mutation	p.W22–W290
NRAS	NM_002524	2, 3, 4	Mutation	Full exon coverage including p.G12, p.G13, p.Q61, p.K117, p.A146
NT5C2	NM_012229	11, 15	Mutation	p.R238, p.R367
NTRK1	NM_001007792	1, 2	Fusion	5'
NTRK1	NM_002529	15, 16, 17	Fusion	3'
NTRK1	NM_002529	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14	Fusion	5'
NTRK1	NM_002529	13, 14, 15, 16, 17	Mutation	Full kinase domain coverage for resistance mutations including p.G595
NTRK2	NM_006180	4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18	Fusion	5'
NTRK2	NM_006180	11, 14	Fusion	3'
NTRK2	NM_006180	16, 17, 18, 19, 20, 21	Mutation	Full kinase domain coverage for resistance mutations
NTRK3	NM_001007156	15	Fusion	5'
NTRK3	NM_002530	3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16	Fusion	5'
NTRK3	NM_002530	13, 14, 15, 17	Fusion	3'
NTRK3	NM_002530	15, 16, 17, 18, 19	Mutation	Full kinase domain coverage for resistance mutations detection including p.F617, p.G623, p.G696

Gene	Accession	Exon	Assay Type	Description**
NUDT15	NM_018283	1, 2, 3	Mutation	p.M1T (rs769369441), p.M1I , p.del17_18GV (rs746071566), p.V18I (rs186364861), p.C28fs (rs777311140), p.L30V (rs1202487323), p.R34T (rs766023281), p.K35E , p.G47R (rs1950545307), p.F52L (rs149436418), p.N74fs (rs1457579126), p.E115fs (rs761191455), p.E118X (rs1368252918), p.P129R (rs768324690), p.R139C (rs116855232), p.R139H (rs147390019), p.L156Q (rs139551410)
NUP214	NM_005085	17, 18, 19	Fusion	5'
NUP98	NM_016320	8, 9, 10, 11, 12, 13, 14, 15, 16, 17	Fusion	3'
NUP98	NM_016320	12, 13	Fusion	5'
NUTM1	NM_175741	2*, 3, mid–exon3, 4, 5, mid–exon6, 6	Fusion	5'
P2RY8	NM_178129	1	Fusion	3'
PAG1	NM_018440	2	Fusion	5'
PAICS	NM_006452	–	Expression	–
PAX5	NM_016734	6, 7, 8	Fusion	5'
PAX5	NM_016734	1, 4, 5, 6, 7, 8	Fusion	3'
PAX5	NM_016734	3	Mutation	p.P80
PBX1	NM_002585	1*, 2, 3, 4, 5, 6, 7, 8, 9	Fusion	5'
PDCD1	NM_005018	–	Expression	–
PDCD1LG2	NM_025239	3, 5, 6	Fusion	3'
PDCD1LG2	NM_025239	1*, 2, 3	Fusion	5'

Gene	Accession	Exon	Assay Type	Description**
PDGFRA	NM_006206	9, 10, 11, 12, mid–exon12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23	Fusion, PDGFRAΔ8,9	5'
PDGFRA	NM_006206	7	Fusion, PDGFRAΔ8,9	3'
PDGFRA	NM_006206	12, 14, 18	Mutation	Full exon coverage including p.D842
PDGFRA	NM_006206	6, 15	Mutation	Hotspot coverage including p.Y288, p.T674
PDGFRB	NM_002609	8, 9, 10, 11, 12, mid–exon 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23	Fusion	5'
PHF6	NM_032458	4, 8, 9	Mutation	p.R116, p.R274–p.G275, p.I314–p.R319
PICALM	NM_007166	16, 17, 18, 19	Fusion	3'
PIM1	NM_002648	–	Expression	–
PIM2	NM_006875	–	Expression	–
PIM2	NM_006875	2, 3, 5, 6	Fusion	5'
PLCG1	NM_002660	11	Mutation	p.S345
PLCG2	NM_002661	19, 20, 24	Mutation	p.R665, p.L845, p.S707
PML	NM_002675	2, 3, 4, 5, 6, 7*	Fusion	3'
PML	NM_002675	2	Fusion	5'
PML	NM_002675	3	Mutation	p.C212–p.S220
PPAT	NM_002703	–	Expression	–

Gene	Accession	Exon	Assay Type	Description**
PRDM16	NM_022114	1*, 2, 3, 4	Fusion	5'
PRKAR2B	NM_002736	–	Expression	–
PTK2B	NM_173176	2*, 3, 4, 5, 6, 7, 8	Fusion	5'
PTPN1	NM_002827	–	Expression	–
PTPN11	NM_002834	3, 13	Mutation	p.G60–p.D61, p.E69–p.T73, p.E76, p.S502–p.G503
PYCR1	NM_006907	–	Expression	–
RAB29	NM_003929	–	Expression	–
RAG1	NM_000448	–	Expression	–
RAG2	NM_000536	–	Expression	–
RANBP1	NM_002882	–	Expression	–
RARA	NM_000964	–	Expression Imbalance	–
RARA	NM_000964	1*, 2*, 3, 4, 5, 6, 8, 9	Fusion	5'
RARA	NM_000964	5, 7, 9	Mutation	p.E197, p.R272, p.T283–p.M284, p.L290–p.M297, p.R394, p.Q411
RBM15	NM_022768	1	Fusion	3'
RET	NM_020630	2, 4, 6, 8, 9, 10, 11, mid–exon11, 12, 13, 14	Fusion	5'
RET	NM_020630	8, 10, 11, 13, 14, 15, 16	Mutation	Hotspot coverage including p.A883, p.M918
RHOA	NM_001664	2	Mutation	p.G17

Gene	Accession	Exon	Assay Type	Description**
ROS1	NM_002944	–	Expression Imbalance	–
ROS1	NM_002944	2, 4, 7, 31, 32, 33, 34, 35, 36, 37	Fusion	5'
ROS1	NM_002944	38, 39, 40	Mutation	Hotspot coverage including p.G2032, p.C2060, p.V2098, p.G2101
RUNX1	NM_001122607	1, 5	Mutation	Full exon coverage
RUNX1	NM_001754	–	Expression Imbalance	–
RUNX1	NM_001754	2, 3, 4, 5, 6, 7, 8	Fusion	3'
RUNX1	NM_001754	2, 3, 4, 5, 6, 7, 8, 9	Fusion	5'
RUNX1	NM_001754	2, 3, 4, 5, 6, 7, 8, 9	Mutation	Full exon coverage
RUNX1T1	NM_001198679	–	Expression Imbalance	–
RUNX1T1	NM_001198679	2, 3	Fusion	5'
S1PR2	NM_004230	–	Expression	–
SEMA6A	NM_020796	1*, 2	Fusion	3'
SERPINA9	NM_175739	–	Expression	–
SETBP1	NM_015559	2*, 3	Fusion	5'
SETBP1	NM_015559	4	Mutation	p.D868–p.I871
SETD2	NM_014159	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Fusion	3'
SF3B1	NM_012433	14, 15, 16	Mutation	p.E622–p.N626, p.H662–p.K666, p.K700, p.I704, pG740, p.G742

Gene	Accession	Exon	Assay Type	Description**
SH2B3	NM_005475	2, 3, 6, 7	Mutation	p.E208, p.M211fs, p.D231–p.D234, p.M268, p.R392, p.E400, p.L438
SH3BP5	NM_004844	–	Expression	–
SLC29A1	NM_001078175	4, 13	Mutation	p.Y11, p.P419
SOX11	NM_003108	–	Expression	–
SRSF2	NM_003016	1	Mutation	p.P95
STAT3	NM_003150	21, 23	Fusion	3'
STAT3	NM_003150	21	Mutation	p.Y640–p.N647, p.D661
STAT5B	NM_012448	16	Mutation	p.N642
STAT6	NM_003153	12	Mutation	p.D419
STIL	NM_003035	1*, 2	Fusion	3'
STRBP	NM_018387	–	Expression	–
TAL1	NM_001290404	2, 3	Fusion	5'
TAL1	NM_003189	–	Expression	–
TAL1	NM_003189	2, 4	Fusion	5'
TCF3	NM_003200	11, 12, 13, 14, 15, 16, 17, 18	Fusion	3'
TFG	NM_006070	2, 3, 4, 5, 6, 7, 8	Fusion	3'
TFG	NM_006070	6	Fusion	5'

Gene	Accession	Exon	Assay Type	Description**
TLX1	NM_005521	–	Expression	–
TLX3	NM_021025	–	Expression	–
TNFRSF13B	NM_012452	–	Expression	–
TNFSF4	NM_003326	–	Expression	–
TP53	NM_000546	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	Mutation	Full exon coverage
TP53	NM_001276695	10	Mutation	Full exon coverage
TP53	NM_001276696	10	Mutation	Full exon coverage
TP63	NM_003722	3, 4, 5	Fusion	5'
TPMT	NM_000367	2, 3, 4, 5, 6, 7, 8, 9	Mutation	Full exon coverage including p.Y240C, p.Y240S, p.K238E (rs150900439), p.H227Q (rs72552736), p.R226Q (rs139392616), p.C216X (rs398122996), p.R215H (rs56161402), p.C212R (rs377085266), rs1800584, p.F208L (rs72556347), p.I204T (rs79901429), p.V199I, p.Y180F (rs75543815), p.Q179H (rs6921269), p.S172P (rs772832951), p.A167G (rs74423290), p.Y166C (rs201695576), rs9333570, p.R163H, p.R163P, p.R163C (rs112339338), p.A154T (rs1800460), p.G144R (rs72552737), p.C132Y (rs72552738), p.S125L (rs200220210), p.K122T, p.K119T (rs151149760), p.G117R, p.E114K (rs115106679), p.Y107D, p.G88S (rs753545734), p.R82W (rs111901354), p.A80P (rs1800462), p.W78C (rs1256618794), p.A73V (rs281874771), p.G71R (rs777686348), p.L69V (rs200591577), p.F67S, p.L49S (rs72552740), p.Q42E, p.G36S (rs750424422), p.K32KfsX58 (rs759836180), p.E28V (rs72552742), p.M1T (rs267607275), p.M1V (rs9333569)
TSLP	NM_033035	1, 3	Fusion	3'

Gene	Accession	Exon	Assay Type	Description**
TSLP	NM_033035	1, 2, 4	Fusion	5'
TYK2	NM_003331	16, 18, 19	Fusion	5'
TYK2	NM_003331	7	Mutation	p.W327
U2AF1	NM_006758	2, 6	Mutation	p.S34, p.R156–p.Q157
UBA1	NM_003334	3	Mutation	p.M41
UBTF	NM_014233	14, 15, 16, 17, 18, 19, 20	Fusion, Internal Tandem Duplication, Expression	3'
UBTF	NM_014233	14	Fusion, Internal Tandem Duplication, Expression	5'
UBTF	NM_014233	9, 13	Mutation	Full exon coverage
WT1	NM_000378	–	Expression	–
WT1	NM_000378	4, 6, 8	Mutation	p.Q301–p.T303, p.G352–p.Q354, p.V359–p.T365, p.Q445–p.F448
XPO1	NM_003400	15	Mutation	p.E571
ZCCHC7	NM_032226	2*, 3, 4	Fusion	5'
ZCCHC7	NM_032226	1*, 2, 3	Fusion	3'
ZNF384	NM_001039920	5	Fusion	5'
ZNF384	NM_001135734	8	Fusion	5'
ZNF384	NM_133476	2*, 3, 4, 5, 6, 7, 8	Fusion	5'

*Indicates exons that are entirely untranslated region (UTR), or for which the UTR is targeted.

**The mutations listed under the Description column are targeted by the assay design. *De Novo* RNA SNV/Indel and Internal Tandem Duplication mutation detection are not supported on the Ion Torrent Sequencing System.

ᵞALK–ATI currently requires review outside of Archer Analysis.

Note: Fusions involving BCR and TCR loci, including IGH, IGL and IGK, are targeted for expression and may not be explicitly called as a fusion because these often do not result in chimeric transcripts. For the “Expression” assay type, unique molecules originating from probes across these genes can be counted and normalized to target control genes to enable relative expression level detection. Results are visualized in Archer Analysis.

SNPs and sites targeted for sample tracking

rs560681	rs430046	rs987640	rs10776839	rs12393891
rs740598	rs8078417	rs6444724	rs6530357	chrX 4429309
rs1498553	rs9951171	rs6811238	rs5971553	chrX 11314433
rs10773760	rs576261	rs13182883	rs5953060	chrY 6738552
rs1058083	rs1109037	rs214955	rs6524626	chrY 19490214
rs4530059	rs1523537	rs321198	rs5940270	
rs1821380	rs221956	rs4606077	rs722847	

SNPs may be used in combination to uniquely tag and track samples over time. Contact archer–tech@idtdna.com for further details.

Limitations of use

For research use only. Not for use in diagnostic procedures. Unless otherwise agreed to in writing, IDT does not intend these products to be used in clinical applications and does not warrant their fitness or suitability for any clinical diagnostic use. Purchaser is solely responsible for all decisions regarding the use of these products and any associated regulatory or legal obligations.

Safety data sheets pertaining to this product are available upon request.

Revision History

Document Number	Date	Description of change
RA-DOC-648/REV01	March 2026	Initial release.