

FUSIONPlex Pan-Heme v2

Description

The FUSIONPlex Pan-Heme v2 panel is a balanced pool of gene-specific primer (GSP) oligonucleotides that is optimized for use with FUSIONPlex 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 FUSIONPlex protocol for Ion Torrent™ (RA-DOC-048).

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

Description	Part number	Storage
FUSIONPlex Pan-Heme v2 GSP1, 8 reactions	10032208	
FUSIONPlex Pan-Heme v2 GSP2, 8 reactions	10034011	-20°C ± 10°C
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	
	3	60	10 sec	15
	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	
	3	60	10 sec	20†
	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

FUSIONPlex 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 FUSIONPlex 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 FUSIONPlex 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**
<i>ABL2</i>	NM_005158	2, 3, 4, 5, 6, 7, 8	Fusion	5'
<i>AICDA</i>	NM_020661	–	Expression	–
<i>AKT3</i>	NM_005465	6	Mutation	p.K172
<i>ALK</i>	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 ATIV Internal deletion (ALKΔ2–17, ALKΔ2–3), Expression	5'
<i>ALK</i>	NM_004304	1, 2	Internal deletion (ALKΔ2–17, ALKΔ2–3)	3'
<i>ALK</i>	NM_004304	21, 22, 23, 24, 25	Mutation	Full exon coverage including p.P1153–p.C1156, p.F1174, p.L1196–p.S1206, p.G1269
<i>ALK</i>	NM_004304	9, 12, 16, 20	Mutation	Hotspot coverage including p.V597, p.H694, p.G881, p.K1062
<i>ASB13</i>	NM_024701	–	Expression	–
<i>ASXL1</i>	NM_015338	11, 12, 13	Mutation	Full exon coverage including p.Y591, p.H630–p.E635, p.I641–p.G646, p.R693, p.E1102
<i>BATF3</i>	NM_018664	–	Expression	–
<i>BAX</i>	NM_138761	6	Mutation	p.G179
<i>BCL11B</i>	NM_138576	1, 2, 3, 4	Fusion, Expression	5'
<i>BCL11B</i>	NM_138576	2, 3	Fusion, Expression	3'
<i>BCL2</i>	NM_000633	*1, 2, 3	Fusion, Expression	3'
<i>BCL2</i>	NM_000633	1*, 2, 3*, mid exon 3	Fusion, Expression	5'

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

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

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

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

Gene	Accession	Exon	Assay Type	Description**
<i>ENTPD1</i>	NM_001776	–	Expression	–
<i>EPOR</i>	NM_000121	6, 7, 8	Fusion	3'
<i>ERG</i>	NM_004449	2*, 3*, 4, 5, 6, 7, 8, 9, 10, 11	Fusion	5'
<i>ETV6</i>	NM_001987	2, 3, 4, 5, 6, 7	Fusion	5'
<i>ETV6</i>	NM_001987	1, 2, 3, 4, 5, 6	Fusion	3'
<i>ETV6</i>	NM_001987	3	Mutation	p.Y104–p.R105
<i>EXOC2</i>	NM_018303	–	Expression	–
<i>EZH2</i>	NM_004456	15, 16, 18	Mutation	p.Y602, p.Y646, p.R690
<i>FAM216A</i>	NM_013300	–	Expression	–
<i>FBXW7</i>	NM_033632	4, 7, 8, 9, 10	Mutation	R224–p.T226, p.R338–p.I347, p.T385, p.R465, p.R479, p.R505
<i>FGFR1</i>	NM_023110	2*, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18	Fusion	5'
<i>FGFR1</i>	NM_023110	12, 17	Fusion	3'
<i>FGFR1</i>	NM_023110	4, 12, 13, 14	Mutation	Hotspot coverage including p.T141, p.V561, p.N546, p.K656
<i>FGFR2</i>	NM_000141	2*, 3, 5, 6, 7, 8, 9, 10	Fusion	5'
<i>FGFR2</i>	NM_000141	11, 16, 17, 18	Fusion	3'
<i>FGFR2</i>	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
<i>FGFR3</i>	NM_000142	3, 5, 8, 10, 11, 12, 13, 14	Fusion	5'

Gene	Accession	Exon	Assay Type	Description**
<i>FGFR3</i>	NM_000142	16, 17, intron17, mid- exon18	Fusion	3'
<i>FGFR3</i>	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
<i>FLT3</i>	NM_004119	13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24	Fusion, Internal Tandem Duplication, Expression	5'
<i>FLT3</i>	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
<i>FOXP1</i>	NM_032682	–	Expression	–
<i>FUT8</i>	NM_004480	–	Expression	–
<i>GATA1</i>	NM_002049	2	Mutation	p.M1, p.S30, p.Y62–p.D65
<i>GATA2</i>	NM_032638	4, 5	Mutation	p.A318–p.L321, p.R362
<i>GLIS2</i>	NM_032575	2, 3	Fusion	5'
<i>GNAS</i>	NM_000516	11	Mutation	p.D323
<i>HOXA10</i>	NM_018951	–	Expression	–
<i>HOXA9</i>	NM_152739	–	Expression	–
<i>ID4</i>	NM_001546	–	Expression	–
<i>IDH1</i>	NM_005896	3, 4	Mutation	Full exon coverage including p.R132
<i>IDH2</i>	NM_002168	4, 6	Mutation	Full exon coverage including p.R140 and p.R172
<i>IKZF1</i>	NM_006060	1*, 2*, 3, 4, 5, 6, 7, 8	Fusion, Exon Skipping	5'
<i>IKZF1</i>	NM_006060	1*, 2, 3, 5	Fusion, Exon Skipping	3'

Gene	Accession	Exon	Assay Type	Description**
<i>IKZF2</i>	NM_016260	3, 4, 6	Fusion	3'
<i>IKZF3</i>	NM_012481	2, 3, 4, 5, 6, 7	Fusion	3'
<i>IKZF3</i>	NM_012481	5	Mutation	p.L162
<i>IL16</i>	NM_004513	–	Expression	–
<i>IL2RB</i>	NM_000878	2	Fusion	5'
<i>IL7R</i>	NM_002185	5, 6	Mutation	p.S185, p.P240–p.S246
<i>IRF4</i>	NM_002460	–	Expression	–
<i>IRF8</i>	NM_002163	–	Expression	–
<i>ITPKB</i>	NM_002221	–	Expression	–
<i>JAK1</i>	NM_002227	5, 14, 15, 16, 17	Mutation	Full exon coverage including, p.V658, p.S703, p.R724, p.A634D, p.V658, p.R724
<i>JAK1</i>	NM_002227	13	Mutation	p.R629_D630del
<i>JAK2</i>	NM_004972	6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22	Fusion	5'
<i>JAK2</i>	NM_004972	9, 10, 11, 12, 18, 19, 20, 22	Fusion	3'
<i>JAK2</i>	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
<i>JAK3</i>	NM_000215	22, 23	Fusion	3'
<i>JAK3</i>	NM_000215	10, 11, 12, 17, 18, 19	Fusion	5'
<i>JAK3</i>	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**
<i>JAK3</i>	NM_000215	11	Mutation	p.M511
<i>KAT6A</i>	NM_006766	13, 14, 15, 16, 17*	Fusion	3'
<i>KDM6A</i>	NM_021140	23	Mutation	p.V1113
<i>KIAA0101</i>	NM_014736	–	Expression	–
<i>KIT</i>	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
<i>KLF2</i>	NM_016270	2, 3	Fusion	5'
<i>KMT2A</i>	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'
<i>KMT2A</i>	NM_005933	2, 3	Fusion	5'
<i>KRAS</i>	NM_004985	2, 3, 4	Mutation	Full exon coverage including p.G12–p.G13, p.Q61, p.K117, p.A146
<i>KRAS</i>	NM_004985	5	Mutation	Hotspot coverage including p.D153–p.156
<i>LIMD1</i>	NM_014240	–	Expression	–
<i>LMO1</i>	NM_002315	–	Expression	–
<i>LMO2</i>	NM_005574	–	Expression	–
<i>LRMP</i>	NM_006152	–	Expression	–
<i>LYL1</i>	NM_005583	–	Expression	–

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

Gene	Accession	Exon	Assay Type	Description**
<i>MUC1</i>	NM_002456	–	Expression	–
<i>MYBL1</i>	NM_001080416	–	Expression	–
<i>MYC</i>	NM_002467	1, 2	Fusion, Expression	3'
<i>MYC</i>	NM_002467	1, 2, 3	Fusion, Expression	5'
<i>MYD88</i>	NM_002468	3, 4, 5	Mutation	p.V217–p.S219, p.M232, p.S243, p.L265
<i>MYH11</i>	NM_002474	–	Expression Imbalance	–
<i>MYH11</i>	NM_002474	5, 6, 7, 8, 9, 10, 11, 14, 15, 16, 18, 19, 20, 33	Fusion	5'
<i>NEK6</i>	NM_014397	–	Expression	–
<i>NF1</i>	NM_000267	14	Fusion	3'
<i>NF1</i>	NM_000267	36	Fusion	5'
<i>NFKB1</i>	NM_003998	–	Expression	–
<i>NFKB2</i>	NM_002502	14, 15, 16, 17, 18, 19, 20, 21	Fusion	3'
<i>NME1</i>	NM_000269	–	Expression	–
<i>NOTCH1</i>	NM_017617	34	Exon Skipping	N/A
<i>NOTCH1</i>	NM_017617	2, 4, 24, 29, 30, 31	Fusion	3'
<i>NOTCH1</i>	NM_017617	5, 24, 25, 26, 27, 28, 29	Fusion	5'
<i>NOTCH1</i>	NM_017617	26, 27, 34	Mutation	p.L1574, p.V1578, p.L1585, p.F1592–p.L1593, p.R1598–p.L1600, p.L1678–p.L1680, p.P2514–p.E2515, p.P2525

Gene	Accession	Exon	Assay Type	Description**
<i>NOTCH2</i>	NM_024408	24, 25, 26, 27, 28, 29	Fusion	5'
<i>NOTCH2</i>	NM_024408	5, 6, 7	Fusion	3'
<i>NOTCH2</i>	NM_024408	34	Mutation	p.R2400
<i>NPM1</i>	NM_002520	11	Mutation	p.W22–W290
<i>NRAS</i>	NM_002524	2, 3, 4	Mutation	Full exon coverage including p.G12, p.G13, p.Q61, p.K117, p.A146
<i>NT5C2</i>	NM_012229	11, 15	Mutation	p.R238, p.R367
<i>NTRK1</i>	NM_001007792	1, 2	Fusion	5'
<i>NTRK1</i>	NM_002529	15, 16, 17	Fusion	3'
<i>NTRK1</i>	NM_002529	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14	Fusion	5'
<i>NTRK1</i>	NM_002529	13, 14, 15, 16, 17	Mutation	Full kinase domain coverage for resistance mutations including p.G595
<i>NTRK2</i>	NM_006180	4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18	Fusion	5'
<i>NTRK2</i>	NM_006180	11, 14	Fusion	3'
<i>NTRK2</i>	NM_006180	16, 17, 18, 19, 20, 21	Mutation	Full kinase domain coverage for resistance mutations
<i>NTRK3</i>	NM_001007156	15	Fusion	5'
<i>NTRK3</i>	NM_002530	3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16	Fusion	5'
<i>NTRK3</i>	NM_002530	13, 14, 15, 17	Fusion	3'
<i>NTRK3</i>	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**
<i>NUDT15</i>	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)
<i>NUP214</i>	NM_005085	17, 18, 19	Fusion	5'
<i>NUP98</i>	NM_016320	8, 9, 10, 11, 12, 13, 14, 15, 16, 17	Fusion	3'
<i>NUP98</i>	NM_016320	12, 13	Fusion	5'
<i>NUTM1</i>	NM_175741	2*, 3, mid-exon3, 4, 5, mid-exon6, 6	Fusion	5'
<i>P2RY8</i>	NM_178129	1	Fusion	3'
<i>PAG1</i>	NM_018440	2	Fusion	5'
<i>PAICS</i>	NM_006452	–	Expression	–
<i>PAX5</i>	NM_016734	6, 7, 8	Fusion	5'
<i>PAX5</i>	NM_016734	1, 4, 5, 6, 7, 8	Fusion	3'
<i>PAX5</i>	NM_016734	3	Mutation	p.P80
<i>PBX1</i>	NM_002585	1*, 2, 3, 4, 5, 6, 7, 8, 9	Fusion	5'
<i>PDCD1</i>	NM_005018	–	Expression	–
<i>PDCD1LG2</i>	NM_025239	3, 5, 6	Fusion	3'
<i>PDCD1LG2</i>	NM_025239	1*, 2, 3	Fusion	5'

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

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

Gene	Accession	Exon	Assay Type	Description**
<i>ROS1</i>	NM_002944	–	Expression Imbalance	–
<i>ROS1</i>	NM_002944	2, 4, 7, 31, 32, 33, 34, 35, 36, 37	Fusion	5'
<i>ROS1</i>	NM_002944	38, 39, 40	Mutation	Hotspot coverage including p.G2032, p.C2060, p.V2098, p.G2101
<i>RUNX1</i>	NM_001122607	1, 5	Mutation	N/A
<i>RUNX1</i>	NM_001754	–	Expression Imbalance	–
<i>RUNX1</i>	NM_001754	2, 3, 4, 5, 6, 7, 8	Fusion	3'
<i>RUNX1</i>	NM_001754	2, 3, 4, 5, 6, 7, 8, 9	Fusion	5'
<i>RUNX1</i>	NM_001754	2, 3, 4, 5, 6, 7, 8, 9	Mutation	N/A
<i>RUNX1T1</i>	NM_001198679	–	Expression Imbalance	–
<i>RUNX1T1</i>	NM_001198679	2, 3	Fusion	5'
<i>S1PR2</i>	NM_004230	–	Expression	–
<i>SEMA6A</i>	NM_020796	1*, 2	Fusion	3'
<i>SERPINA9</i>	NM_175739	–	Expression	–
<i>SETBP1</i>	NM_015559	2*, 3	Fusion	5'
<i>SETBP1</i>	NM_015559	4	Mutation	p.D868–p.I871
<i>SETD2</i>	NM_014159	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Fusion	3'
<i>SF3B1</i>	NM_012433	14, 15, 16	Mutation	p.E622–p.N626, p.H662–p.K666, p.K700, p.I704, p.G740, p.G742

Gene	Accession	Exon	Assay Type	Description**
<i>SH2B3</i>	NM_005475	2, 3, 6, 7	Mutation	p.E208, p.M211fs, p.D231–p.D234, p.M268, p.R392, p.E400, p.L438
<i>SH3BP5</i>	NM_004844	–	Expression	–
<i>SLC29A1</i>	NM_001078175	4, 13	Mutation	p.Y11, p.P419
<i>SOX11</i>	NM_003108	–	Expression	–
<i>SRSF2</i>	NM_003016	1	Mutation	p.P95
<i>STAT3</i>	NM_003150	21, 23	Fusion	3'
<i>STAT3</i>	NM_003150	21	Mutation	p.Y640–p.N647, p.D661
<i>STAT5B</i>	NM_012448	16	Mutation	p.N642
<i>STAT6</i>	NM_003153	12	Mutation	p.D419
<i>STIL</i>	NM_003035	1*, 2	Fusion	3'
<i>STRBP</i>	NM_018387	–	Expression	–
<i>TAL1</i>	NM_001290404	2, 3	Fusion	5'
<i>TAL1</i>	NM_003189	–	Expression	–
<i>TAL1</i>	NM_003189	2, 4	Fusion	5'
<i>TCF3</i>	NM_003200	11, 12, 13, 14, 15, 16, 17, 18	Fusion	3'
<i>TFG</i>	NM_006070	2, 3, 4, 5, 6, 7, 8	Fusion	3'
<i>TFG</i>	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**
<i>TSLP</i>	NM_033035	1, 2, 4	Fusion	5'
<i>TYK2</i>	NM_003331	16, 18, 19	Fusion	5'
<i>TYK2</i>	NM_003331	7	Mutation	p.W327
<i>U2AF1</i>	NM_006758	2, 6	Mutation	p.S34, p.R156–p.Q157
<i>UBA1</i>	NM_003334	3	Mutation	p.M41
<i>UBTF</i>	NM_014233	14, 15, 16, 17, 18, 19, 20	Fusion, Internal Tandem Duplication, Expression	3'
<i>UBTF</i>	NM_014233	14	Fusion, Internal Tandem Duplication, Expression	5'
<i>UBTF</i>	NM_014233	9, 13	Mutation	Full exon coverage
<i>WT1</i>	NM_000378	–	Expression	–
<i>WT1</i>	NM_000378	4, 6, 8	Mutation	p.Q301–p.T303, p.G352–p.Q354, p.V359– p.T365, p.Q445–p.F448
<i>XPO1</i>	NM_003400	15	Mutation	p.E571
<i>ZCCHC7</i>	NM_032226	2*, 3, 4	Fusion	5'
<i>ZCCHC7</i>	NM_032226	1*, 2, 3	Fusion	3'
<i>ZNF384</i>	NM_001039920	5	Fusion	5'
<i>ZNF384</i>	NM_001135734	8	Fusion	5'
<i>ZNF384</i>	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.

∇ALK–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.

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Revision History

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