

Targeted Gene Fusions

5'-Gene (exon)	3'-Gene (exon)	5' Transcript	5' Exon	5' Breakpoint	3' Transcript	3' Exon	3' Breakpoint
<i>NRF1</i>	<i>BRAF</i>	NM_001293163.1	5	chr7:129330386	NM_004333.4	9	chr7:140487384
<i>ATG7</i>	<i>RAF1</i>	NM_006395.2	18	chr3:11468400	NM_002880.3	8	chr3:12641914
<i>EGFR</i>	<i>SEPTIN14</i> (previously <i>SEPT14</i>)	NM_005228.3	24	chr7:55268106	NM_207366.2	10	chr7:55863785
<i>MN1</i>	<i>BEND2</i>	NM_002430.2	1	chr22:28192751	NM_153346.4	7	chrX:18213562
<i>MN1</i>	<i>BEND2</i>	NM_002430.2	1	chr22:28192751	NM_153346.4	9	chrX:18198770
<i>MN1</i>	<i>BEND2</i>	NM_002430.2	1	chr22:28192751	NM_153346.4	9	chrX:18198770
<i>FAM131B</i>	<i>BRAF</i>	NM_001031690.2	2	chr7:143057133	NM_004333.4	9	chr7:140487384
<i>FAM131B</i>	<i>BRAF</i>	NM_001031690.2	3	chr7:143056825	NM_004333.4	9	chr7:140487384
<i>KIAA1549</i>	Variable	NM_001164665.1	1	chr7:138665829	Variable	Variable	Variable
<i>KIAA1549</i>	Variable	NM_001164665.1	2	chr7:138601494	Variable	Variable	Variable
<i>KIAA1549</i>	Variable	NM_001164665.1	3	chr7:138597118	Variable	Variable	Variable
<i>KIAA1549</i>	Variable	NM_001164665.1	4	chr7:138595892	Variable	Variable	Variable
<i>KIAA1549</i>	Variable	NM_001164665.1	5	chr7:138593737	Variable	Variable	Variable
<i>KIAA1549</i>	Variable	NM_001164665.1	6	chr7:138591665	Variable	Variable	Variable
<i>KIAA1549</i>	Variable	NM_001164665.1	7	chr7:138589768	Variable	Variable	Variable
<i>KIAA1549</i>	Variable	NM_001164665.1	8	chr7:138588334	Variable	Variable	Variable
<i>KIAA1549</i>	Variable	NM_001164665.1	9	chr7:138583701	Variable	Variable	Variable
<i>KIAA1549</i>	Variable	NM_001164665.1	10	chr7:138579088	Variable	Variable	Variable
<i>KIAA1549</i>	Variable	NM_001164665.1	11	chr7:138566134	Variable	Variable	Variable
<i>KIAA1549</i>	Variable	NM_001164665.1	12	chr7:138564284	Variable	Variable	Variable
<i>KIAA1549</i>	Variable	NM_001164665.1	13	chr7:138555903	Variable	Variable	Variable
<i>KIAA1549</i>	Variable	NM_001164665.1	14	chr7:138554284	Variable	Variable	Variable
<i>KIAA1549</i>	Variable	NM_001164665.1	17	chr7:138536969	Variable	Variable	Variable
<i>KIAA1549</i>	Variable	NM_001164665.1	20	chr7:138516126	Variable	Variable	Variable
Variable	<i>BRAF</i>	Variable	Variable	Variable	NM_004333.4	1	chr7:140624503
Variable	<i>BRAF</i>	Variable	Variable	Variable	NM_004333.4	2	chr7:140550012
Variable	<i>BRAF</i>	Variable	Variable	Variable	NM_004333.4	3	chr7:140534672
Variable	<i>BRAF</i>	Variable	Variable	Variable	NM_004333.4	4	chr7:140508795
Variable	<i>BRAF</i>	Variable	Variable	Variable	NM_004333.4	5	chr7:140507862
Variable	<i>BRAF</i>	Variable	Variable	Variable	NM_004333.4	6	chr7:140501360
Variable	<i>BRAF</i>	Variable	Variable	Variable	NM_004333.4	7	chr7:140500281
Variable	<i>BRAF</i>	Variable	Variable	Variable	NM_004333.4	12	chr7:140477875
Variable	<i>BRAF</i>	Variable	Variable	Variable	NM_004333.4	13	chr7:140476888
Variable	<i>BRAF</i>	Variable	Variable	Variable	NM_004333.4	14	chr7:140454033
Variable	<i>BRAF</i>	Variable	Variable	Variable	NM_004333.4	15	chr7:140453193
Variable	<i>BRAF</i>	Variable	Variable	Variable	NM_004333.4	16	chr7:140449218
Variable	<i>BRAF</i>	Variable	Variable	Variable	NM_004333.4	17	chr7:140439746
Variable	<i>BRAF</i>	Variable	Variable	Variable	NM_004333.4	18	chr7:140434570
<i>KIAA1549</i>	<i>BRAF</i>	NM_001164665.1	15	chr7:138552721	NM_004333.4	9	chr7:140487384
<i>KIAA1549</i>	<i>BRAF</i>	NM_001164665.1	16	chr7:138545885	NM_004333.4	9	chr7:140487384
<i>KIAA1549</i>	<i>BRAF</i>	NM_001164665.1	19	chr7:138524878	NM_004333.4	9	chr7:140487384

RNA Targeted Gene Fusions and Abnormal Transcript Variants (continued)

5'-Gene (exon)	3'-Gene (exon)	5' Transcript	5' Exon	5' Breakpoint	3' Transcript	3' Exon	3' Breakpoint
<i>RNF130</i>	<i>BRAF</i>	NM_018434.5	3	chr5:179440061	NM_004333.4	9	chr7:140487384
<i>FAM131B</i>	<i>BRAF</i>	NM_001031690.2	1	chr7:143059669	NM_004333.4	10	chr7:140482957
<i>FXR1</i>	<i>BRAF</i>	NM_005087.3	13	chr3:180680878	NM_004333.4	10	chr7:140482957
<i>GNAI1</i>	<i>BRAF</i>	NM_002069.5	1	chr7:79764594	NM_004333.4	10	chr7:140482957
<i>KIAA1549</i>	<i>BRAF</i>	NM_001164665.1	18	chr7:138529062	NM_004333.4	10	chr7:140482957
<i>KIAA1549</i>	<i>BRAF</i>	NM_001164665.1	18	chr7:138529062	NM_004333.4	10	chr7:140482957
<i>CLCN6</i>	<i>BRAF</i>	NM_001286.3	2	chr1:11867247	NM_004333.4	11	chr7:140481493
<i>KIAA1549</i>	<i>BRAF</i>	NM_001164665.1	15	chr7:138552721	NM_004333.4	11	chr7:140481493
<i>KIAA1549</i>	<i>BRAF</i>	NM_001164665.1	16	chr7:138545885	NM_004333.4	11	chr7:140481493
<i>MKRN1</i>	<i>BRAF</i>	NM_013446.3	4	chr7:140158807	NM_004333.4	11	chr7:140481493
<i>MN1</i>	<i>CXXC5</i>	NM_002430.2	1	chr22:28192753	NM_016463.8	2	chr5:139060786
<i>FGFR3</i>	<i>ELAVL3</i>	NM_001163213.1	17	chr4:1808661	NM_001420.3	2	chr19:11577642
<i>MYB</i>	<i>ESR1</i>	NM_001130173.1	9	chr6:135517140	NM_001291230.1	intron 6	chr6:152338245
<i>MYB</i>	<i>ESR1</i>	NM_001130173.1	intron 15	chr6:135524462	NM_001291230.1	intron 6	chr6:152382126
<i>YAP1</i>	<i>FAM118B</i>	NM_001130145.2	7	chr11:102094483	NM_005491.4	3	chr11:126104890
<i>EWSR1</i>	<i>FLI1</i>	NM_013986.3	8	chr22:29683123	NM_002017.4	6	chr11:128675261
<i>EWSR1</i>	<i>FLI1</i>	NM_013986.3	8	chr22:29683123	NM_002017.4	9	chr11:128680354
<i>JPX</i>	<i>FOXR2</i>	NR_024582.1	NA	chrX:73164498	NM_198451.3	chrX	chrX:55562067
<i>LOC550643</i>	<i>FOXR2</i>	NR_015367.2	NA	chrX:56758633	NM_198451.3	chrX	chrX:55634636
<i>enhancer hijacking</i>	<i>GFI1</i>	NA	NA	NA	NM_001127215.1	2	chr1:92949044
<i>enhancer hijacking</i>	<i>GFI1</i>	NA	NA	NA	NM_001127215.1	2	chr1:92949143
<i>enhancer hijacking</i>	<i>GFI1</i>	NA	NA	NA	NM_001127215.1	1UTR	chr1:92949356
<i>DDX31</i>	<i>GFI1B</i>	NM_022779.8	19	chr9:135487474	NM_004188.6	6	chr9:135862046
<i>DDX31</i>	<i>GFI1B</i>	NM_022779.8	19	chr9:135487474	NM_004188.6	7	chr9:135862669
<i>BRAF</i>	<i>MACF1</i>	NM_004333.4	8	chr7:140494108	NM_012090.5	15	chr1:39757582
<i>YAP1</i>	<i>MAMLD1</i>	NM_001130145.2	6	chr11:102080295	NM_005491.4	2	chrX:149631038
<i>YAP1</i>	<i>MAMLD1</i>	NM_001130145.2	5	chr11:102076805	NM_005491.4	3	chrX:149638017
<i>PTPRZ1</i>	<i>MET</i>	NM_002851.2	1	chr7:121513611	NM_001127500.1	2	chr7:116339125
<i>PTPRZ1</i>	<i>MET</i>	NM_002851.2	2	chr7:121568275	NM_001127500.1	2	chr7:116339125
<i>PTPRZ1</i>	<i>MET</i>	NM_002851.2	3	chr7:121608184	NM_001127500.1	2	chr7:116339125
<i>PTPRZ1</i>	<i>MET</i>	NM_002851.2	8	chr7:121624171	NM_001127500.1	2	chr7:116339125
<i>CLIP2</i>	<i>MET</i>	NM_003388.4	12	chr7:73800934	NM_001127500.1	15	chr7:116414935
<i>TFG</i>	<i>MET</i>	NM_001007565.2	5	chr3:100451516	NM_001127500.1	15	chr7:116414935
<i>MYBL1</i>	<i>MMP16</i>	NM_001080416.2	9	chr8:67492368	NM_005941.4	1	chr8:89339435
<i>MYBL1</i>	<i>MMP16</i>	NM_001080416.2	9	chr8:67492368	NM_005941.4	UTR	chr8:89339717
<i>C8orf34</i>	<i>MYBL1</i>	NM_052958.2	10	chr8:69633672	NM_001080416.2	10	chr8:67488610
<i>PVT1</i>	<i>MYC</i>	NR_003367.3	3	chr8:128951922	NM_002467.4	2	chr8:128750494
<i>PVT1</i>	<i>NDRG1</i>	NR_003367.3	1	chr8:128806980	NM_001135242.1	10	chr8:134262786
<i>TPM3</i>	<i>NTRK1</i>	NM_001278189.1	7	chr1:154142876	NM_002529.3	10	chr1:156844363
<i>BCAN</i>	<i>NTRK1</i>	NM_021948.4	13	chr1:156628525	NM_002529.3	11	chr1:156844698
<i>NFASC</i>	<i>NTRK1</i>	NM_001005388.2	21	chr1:204951148	NM_002529.3	10	chr1:156844363
<i>NAV1</i>	<i>NTRK2</i>	NM_020443.4	16	chr1:201772842	NM_006180.4	11	chr9:87342569
<i>AFAP1</i>	<i>NTRK2</i>	NM_001134647.1	14	chr4:7780489	NM_006180.4	12	chr9:87356807
<i>VCL</i>	<i>NTRK2</i>	NM_014000.2	16	chr10:75865111	NM_006180.4	12	chr9:87356807

RNA Targeted Gene Fusions and Abnormal Transcript Variants (continued)

5'-Gene (exon)	3'-Gene (exon)	5' Transcript	5' Exon	5' Breakpoint	3' Transcript	3' Exon	3' Breakpoint
<i>NACC2</i>	<i>NTRK2</i>	NM_144653.4	5	chr9:138905045	NM_006180.4	13	chr9:87359888
<i>AGBL4</i>	<i>NTRK2</i>	NM_001323574.1	5	chr1:49511256	NM_006180.4	16	chr9:87482158
<i>QKI</i>	<i>NTRK2</i>	NM_006775.2	6	chr6:163984751	NM_006180.4	16	chr9:87482158
<i>BTBD1</i>	<i>NTRK3</i>	NM_025238.3	4	chr15:83710480	NM_001012338.2	14	chr15:88576276
<i>ETV6</i>	<i>NTRK3</i>	NM_001987.4	4	chr12:12006495	NM_001012338.2	14	chr15:88576276
<i>ETV6</i>	<i>NTRK3</i>	NM_001987.4	5	chr12:12022903	NM_001012338.2	15	chr15:88483984
<i>MYB</i>	<i>PCDHGA1</i>	NM_001130173.1	9	chr6:135517140	NM_018912.2	2	chr5:140874374
<i>DIP2C</i>	<i>PDGFRA</i>	NM_014974.2	1	chr10:735434	NM_001347828.1	12	chr4:55140698
<i>UBE2J2</i>	<i>PKD1</i>	NM_194315.1	4	chr1:1198726	NM_00109944.2	2	chr16:2169379
<i>SLC44A1</i>	<i>PRKCA</i>	NM_080546.4	15	chr9:108147783	NM_002737.2	9	chr17:64728806
<i>MYB</i>	<i>QKI</i>	NM_001130173.1	9	chr6:135517140	NM_006775.2	5	chr6:163983014
<i>MYB</i>	<i>QKI</i>	NM_001130173.1	10	chr6:135518461	NM_006775.2	5	chr6:163983014
<i>MYB</i>	<i>QKI</i>	NM_001130173.1	15	chr6:135524462	NM_006775.2	5	chr6:163983014
<i>FYC01</i>	<i>RAF1</i>	NM_024513.3	11	chr3:46003717	NM_002880.3	6	chr3:12647798
<i>SRGAP3</i>	<i>RAF1</i>	NM_014850.3	11	chr3:9079747	NM_002880.3	7	chr3:12645788
<i>QKI</i>	<i>RAF1</i>	NM_006775.2	3	chr6:163899928	NM_002880.3	8	chr3:12641914
<i>SRGAP3</i>	<i>RAF1</i>	NM_014850.3	11	chr3:9079747	NM_002880.3	8	chr3:12641914
<i>SRGAP3</i>	<i>RAF1</i>	NM_014850.3	10	chr3:9089075	NM_002880.3	9	chr3:12641778
<i>SRGAP3</i>	<i>RAF1</i>	NM_014850.3	12	chr3:9074334	NM_002880.3	10	chr3:12641307
<i>PCSK5</i>	<i>RECK</i>	NM_001190482.1	5	chr9:78641953	NM_021111.2	7	chr9:36080602
<i>ZFTA</i> (previously <i>C11orf95</i>)	<i>RELA</i>	NM_001144936.1	mid exon 4	chr11:63531978	NM_021975.3	1	chr11:65430303
<i>ZFTA</i> (previously <i>C11orf95</i>)	<i>RELA</i>	NM_001144936.1	2	chr11:63533279	NM_021975.3	2	chr11:65429676
<i>ZFTA</i> (previously <i>C11orf95</i>)	<i>RELA</i>	NM_001144936.1	3	chr11:63532340	NM_021975.3	2	chr11:65429676
<i>ZFTA</i> (previously <i>C11orf95</i>)	<i>RELA</i>	NM_001144936.1	3	chr11:63532340	NM_021975.3	2	chr11:65429676
<i>ZFTA</i> (previously <i>C11orf95</i>)	<i>RELA</i>	NM_001144936.1	2	chr11:63533279	NM_021975.3	3	chr11:65429559
<i>ZFTA</i> (previously <i>C11orf95</i>)	<i>RELA</i>	NM_001144936.1	3	chr11:63532340	NM_021975.3	3	chr11:65429559
<i>ZFTA</i> (previously <i>C11orf95</i>)	<i>RELA</i>	NM_001144936.1	mid exon 4	chr11:63532010	NM_021975.3	intron 1	chr11:65429801
<i>PKD1</i>	<i>SLIT1</i>	NM_001009944.2	15	chr16:2158836	NM_003061.2	5	chr10:98825843
<i>NAB2</i>	<i>STAT6</i>	NM_005967.3	4	chr12:57486751	NM_001178078.1	1	chr12:57505196
<i>NAB2</i>	<i>STAT6</i>	NM_005967.3	4	chr12:57486751	NM_001178078.1	2	chr12:57502082
<i>NAB2</i>	<i>STAT6</i>	NM_005967.3	14 bp from end of exon 7	chr12:57488489	NM_001178078.1	2	chr12:57502082
<i>NAB2</i>	<i>STAT6</i>	NM_005967.3	26 bp from end of exon 7	chr12:57488477	NM_001178078.1	2	chr12:57502082
<i>NAB2</i>	<i>STAT6</i>	NM_005967.3	33 bp from end of exon 7	chr12:57488468	NM_001178078.1	2	chr12:57502082
<i>NAB2</i>	<i>STAT6</i>	NM_005967.3	8 bp from end of exon 3	chr12:57486356	NM_001178078.1	2	chr12:57502082
<i>NAB2</i>	<i>STAT6</i>	NM_005967.3	mid exon 2	chr12:57485330	NM_001178078.1	2	chr12:57502082
<i>NAB2</i>	<i>STAT6</i>	NM_005967.3	4	chr12:57486751	NM_001178078.1	3	chr12:57501526
<i>NAB2</i>	<i>STAT6</i>	NM_005967.3	6	chr12:57487381	NM_001178078.1	3	chr12:57501526
<i>NAB2</i>	<i>STAT6</i>	NM_005967.3	6	chr12:57487381	NM_001178078.1	15	chr12:57493686

RNA Targeted Gene Fusions and Abnormal Transcript Variants (continued)

5'-Gene (exon)	3'-Gene (exon)	5' Transcript	5' Exon	5' Breakpoint	3' Transcript	3' Exon	3' Breakpoint
<i>NAB2</i>	<i>STAT6</i>	NM_005967.3	6	chr12:57487381	NM_001178078.1	16	chr12:57493223
<i>NAB2</i>	<i>STAT6</i>	NM_005967.3	6	chr12:57487381	NM_001178078.1	16	chr12:57493180
<i>NAB2</i>	<i>STAT6</i>	NM_005967.3	6	chr12:57487381	NM_001178078.1	17	chr12:57492861
<i>NAB2</i>	<i>STAT6</i>	NM_005967.3	7	chr12:57488846	NM_001178078.1	intron 16	chr12:57493258
<i>NAB2</i>	<i>STAT6</i>	NM_005967.3	6	chr12:57487381	NM_001178078.1	mid exon 16	chr12:57493154
<i>FGFR1</i>	<i>TACC1</i>	NM_001174067.1	18	chr8:38271436	NM_006283.2	7	chr8:38693680
<i>FGFR3</i>	<i>TACC3</i>	NM_001163213.1	intron 17	chr4:1808724	NM_006342.2	9	chr4:1738990
<i>FGFR3</i>	<i>TACC3</i>	NM_001163213.1	17	chr4:1808661	NM_006342.2	8	chr4:1737458
<i>FGFR3</i>	<i>TACC3</i>	NM_001163213.1	17	chr4:1808661	NM_006342.2	10	chr4:1739325
<i>FGFR3</i>	<i>TACC3</i>	NM_001163213.1	17	chr4:1808661	NM_006342.2	11	chr4:1741429
<i>ST6GAL1</i>	<i>NSD2</i> (previously <i>WHSC1</i>)	NM_173216.2	2	chr3:186681714	NM_133330.2	3	chr4:1900948

Abnormal Transcript Variants

Gene	Variant	RefSeq ID	Chromosome	Missing Exons	5' Transcript site	3' Transcript Site
<i>GLI1</i>	DN(E1)	NM_005269	chr12	2–3	57853984	57858456
<i>GLI1</i>	DN(E1A)	NM_005269	chr12	2–3	57854337	57858456
<i>GLI1</i>	tGLI1	NM_005269	chr12	3-partial 4	57857574	57858485
<i>BIRC5</i>	uc002jve and uc002jvi	NM_001168	chr17	include additional exon	76212862	76218908
<i>PDGFRA</i>	D8–9	NM_006206	chr4	8–9	55133908	55139704
<i>EGFR</i>	mutant vII	NM_005228	chr7	14–15	55229324	55238868
<i>EGFR</i>	mutant vII-extended	NM_005228	chr7	13–16	55228031	55240676
<i>EGFR</i>	mutant vIII	NM_005228	chr7	2–7	55087058	55223523
<i>EGFR</i>	mutant vIVa	NM_005228	chr7	25–27	55268106	55272949
<i>EGFR</i>	mutant vIVb	NM_005228	chr7	25–26	55268106	55270210
<i>EGFR</i>	de4	NM_005228	chr7	partial 3–partial 5	55229249	55233060
<i>EGFR</i>	mLEEK	NM_005228	chr7	2–22	55087058	55266410
<i>EGFR</i>	splice variants 5 and 7	NM_005228	chr7	Variable	55211181	55218987
<i>EGFR</i>	splice variants 4 and 2	NM_005228	chr7	Variable	55233130	55237999
<i>EGFR</i>	splice variant 8	NM_005228	chr7	Variable	55177651	55209979
<i>EGFR</i>	Exon 1-variable	NM_005228	chr7	Variable	55087058	55209979
<i>EGFR</i>	Exon 5-variable	NM_005228	chr7	Variable	55219055	55220239
<i>EGFR</i>	Exon 7-variable	NM_005228	chr7	Variable	55221845	55223523
<i>EGFR</i>	Exon 15-variable	NM_005228	chr7	Variable	55238868	55233130
<i>EGFR</i>	Exon 26-variable	NM_005228	chr7	Variable	55270210	55269475
<i>EGFR</i>	Exon 27-variable	NM_005228	chr7	Variable	55270318	55272949
<i>EGFR</i>	D12–13	NM_005228	chr7	12–13	55225446	55231426
<i>MST1R</i>	D11	NM_002447	chr3	11	49933628	49933313
<i>FGFR1</i>	FGFR1b	NM_023110	chr8	3	38314874	38285953
<i>FGFR1</i>	NA	NM_001174067	chr8	9–19	38279315	38271155
<i>FGFR1</i>	NA	NM_001174067	chr8	partial 10–19	38277106	38271149
<i>NELFE</i>	NA	NM_002904	chr6	partial 7	31922472	31922345
<i>PCSK5</i>	NA	NM_001190482	chr9	3–5	78547399	78682871
<i>RELA</i>	NA	NM_021975	chr11	2	65430297	65429559