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| **Table S1. Description of NRG1 Fusions Identified** |
| **Frame Prediction** | ***NRG1* Breakpoints** | **Fusion Partner Breakpoints** | **Tumor, n** |
| In-Frame | **NRG1**(+)NM\_001159995.2|**Exon:5**|chr8:32585467,chr8:32585494 | **CD74**(-)NM\_004355.3| **Exon:6**|chr5:149784243,chr5:149784330 | NSCLC, n=7 |
| **CD74**(-)NM\_004355.3| **Exon:7**|chr5:149782126,chr5:149782174 | NSCLC, n=4 |
| **CD74**(-)NM\_001025158.2| **Exon:7**| chr5:149782126,chr5:149782188 | NSCLC, n=1 |
| **SLC3A2**(+)NR\_037193.1| **Exon:1**|chr11:62649440,chr11:62649538 | NSCLC, n=1 |
| **SDC4**(-)NM\_002999.3|**Exon:2**|chr20:43964422,chr20:43964556 | NSCLC, n=3 |
| **TNC**(-)NM\_002160.3| **Exon:10**|chr9:117835882,chr9:117836145 | NSCLC, n=1 |
| **TSHZ2**(+)NM\_173485.5| **Exon:1**|chr20:51589826,chr20:51589872 | Ovarian, n=1 |
| **NOTCH2**(-)NM\_024408.3| **Exon:4**|chr1:120539620,chr1:120539870 | GBC, n=1 |
| **RBPMS**(-)NM\_006867.3|**Exon:5**|chr8:30361803,chr8:30361953 | NSCLC, n=1 |
| **MDK** (-)NM\_002391.4|**Exon:4|** chr11:46404256,chr11:46404298 | NSCLC, n=1 |
| VUS | **HMBOX1**(+)NM\_001135726.1| **Exon:1**|chr8:28748072,chr8:28748195 | NET, n=1 |
| In-Frame | **NRG1**(+)NM\_001159995.2|**Exon:2**|chr8:32453346,chr8:32453372| chr8:32453346,chr8:32453371| chr8:32453346,chr8:32453523 | **ATP1B1**(+)NM\_001677.3| **Exon:2**|chr1:169080670,chr1:169080736 | NSCLC, n=1GBC, n=1 |
| **MRPL13**(-)NM\_014078.5| **Exon:2**|chr8:121455425,chr8:121455531 | NSCLC, n=1 |
| **CDH1**(+)NM\_004360.3| **Exon:2**|chr16:68772200,chr16:68772314 | Pancreatic, n=1 |
| **DIP2B** (+)NM\_173602.2**Exon:1**|chr12:50898965,chr12:50899023 | NSCLC, n=1 |
| **SETD4**(-)NM\_017438.3| **Exon:2**|chr21:37431114,chr21:37431212 | Ovarian, n=1 |
| **ADAM9**(+)NM\_003816.2|**Exon:18**|chr8:38940487,chr8:38940592 | Breast, n=1 |
| **RBPMS**(+)NM\_006867.3|**Exon:5**|chr8:30361847,chr8:30361953 | RCC, n=1 |
| **GDF15** (+)NM\_004864.2**Exon 1|** chr19:18497219,chr19:18497276 | Bladder, n=1 |
| **PARP8(**+)XM\_005248598.1| **Exon:**1|chr5:49963905:chr5:49963959 | NSCLC, n=1 |
| **ZMYM2**(+)NM\_003453.3| **Exon:2**|chr13:20534098,chr13:20534166 | \*Ovarian, n=1 |
| **COX10-AS1**(-)NR\_049718.1| **Exon:1**|chr17:13972589,chr17:13972726 | \*Breast, n=1 |
| **POMK**(+)NM\_032237.4| **Exon:2**|chr8:42952667,chr8:42952758 | \*CRC, n=1 |
| **WHSC1L1**(-)NM\_017778.2| **Exon:1**|chr8:38239317:chr8:38239354 | \*Sarcoma, n=1 |
| In-Frame | **NRG1**(+)NM\_001159995.2| **Exon:1**|chr8:31496931,chr8:31496947 | **ATP1B1**(+)NM\_001677.3|**Exon:2**|chr1:169080608,chr1:169080719 | Pancreatic, n=1GBC, n=1 |
| **NRG1**(+)NM\_001159995.2| **Exon:4**|chr8:32472032,chr8:32472082 | **VTCN1**(-)NM\_001253849.1| **Exon:2**|chr1:117712729:chr1:117712793 | Pancreatic, n=1 |
| VUS | **NRG1**(+)NM\_001159995.2|**Exon:2**|chr8:32453346,chr8:32453372 | **ROCK1**(-)NM\_005406.2| **Exon:1**|chr18:18690779:chr18:18690892 | NSCLC, n=2 |
| **NRG1**(+)NM\_001159995.2|**Exon:5**|chr8:32585467:chr8:32585494 | **DPYSL2**(+)NM\_001197293.2| **Exon:7**|chr8:26485388:chr8:26485456 |

**Table S1.** Descriptions of *NRG1* Fusions Identified. \*Novel fusion. Abbreviations: NSCLC, non-small cell lung cancer; PDAC, pancreatic ductal adenocarcinoma; GBC, gallbladder cancer (cholangiocarcinoma); CRC, colorectal cancer. RCC, renal cell carcinoma; NET, neuroendocrine tumor.