|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Canine tumors | Gene 1 | Gene 2 | Chromosomal positions and strand | Reads spanning the fusion junction | Readsencompassing the two fusion transcripts | filter for manual curation |
| Ensembl ID | Gene Name | Ensembl ID | Gene Name |
| Dermatofibrosarcoma protuberans–like (DFSP-like) | **ENSCAFG00000001356** | ***PDGFB*** | **ENSCAFG00000014812** | ***COL3A1*** | **10:25807321,-1 / 36:30511682,-1** | **181** | **491** | **No\_paralogy** |
| NA | *NA* | ENSCAFG00000005042 | *RAB3GAP1* | 7:44081193,-1 / 19:37888785,-1 | 24 | 26 | unannoted gene |
| ENSCAFG00000007832 | *TCF7L1* | NA | *NA* | 17:39857421,-1 / 17:7827833,-1 | 8 | 12 | unannoted gene |
| ENSCAFG00000015770 | *PLD5* | ENSCAFG00000017167ENSCAFG00000017177 | *KCNN3UBE2Q1* | 7:33541075,-1 / 7:42807018,-1 | 7 | 9 | No\_paralogy |
| ENSCAFG00000009721 | *ALCAM* | ENSCAFG00000008481 | *VPS29* | 33:11182640,-1 / 26:8306617,-133:11182640,-1 / 26:8306656,-1 | 13 | 8 | No\_paralogy |
| ENSCAFG00000008039 | *DIP2B* | ENSCAFG00000005074 | *MYO7A* | 27:4110471,1 / 21:21606078,-1 | 5 | 5 | No\_paralogy |
| ENSCAFG00000012143 | *NPEPL1* | ENSCAFG00000029257 | *NA* | 24:43475290,1 / 24:43459903,124:43475290,1 / 24:43457764,1 | 17 | 35 | read through |
| ENSCAFG00000020031 | *WWOX* | NA | *WWOX* | 5:72965167,-1 / 5:72299345,-1 | 28 | 20 | Paralogous |
| ENSCAFG00000002743 | *MYEOV2* | NA | *MYEOV2* | 14:36752071,-1 / 25:50301922,-1 | 48 | 13 | Paralogous |
| ENSCAFG00000015878 | *UCHL1* | ENSCAFG00000015887 | *APBB2* | 3:71407039,-1 / 3:71512266,-1 | 11 | 18 | read through |
| ENSCAFG00000023425 | *NA* | ENSCAFG00000031979 | *PRKG1* | 26:36497064,-1 / 26:36175693,-1 | 5 | 11 | read through |
| ENSCAFG00000009230,ENSCAFG00000009249 | *CMSS1TMEM30C* | ENSCAFG00000031675 | *COL8A1* | 33:6785046,-1 / 33:6423659,-1 | 6 | 6 | read through |
| ENSCAFG00000018981 | *C16orf72* | ENSCAFG00000019025 | *NA* | 6:33151010,1 / X:110022775,-1 | 64 | 47 | Paralogous |
| ENSCAFG00000032099 | *NA* | ENSCAFG00000013770 | *ARHGAP27* | 9:10370985,1 / 9:18195693,1 | 25 | 39 | Paralogous |
| ENSCAFG00000031015 | *YWHAH* | ENSCAFG00000013549 | *YWHAG* | 26:24785598,-1 / 6:7532376,1 | 53 | 33 | Paralogous |
| ENSCAFG00000029171 | *NA* | ENSCAFG00000015864 | *NA* | 7:36719055,1 / 7:37064042,1 | 12 | 15 | Paralogous |
| ENSCAFG00000016270 | *FYTTD1* | ENSCAFG00000029695 | *NA* | 27:45855329,1 / 33:28945695,-1 | 9 | 5 | Paralogous |
| Anaplastic oligodendroglioma 1 | ENSCAFG00000008804 | *MARCH1* | ENSCAFG00000014251 | *DDX3X* | 15:60179225,1 / X:35772912,115:60179196,-1 / X:35772890,-1 | 112 | 162 | Paralogous |
| ENSCAFG00000020411 | *NEGR1* | NA | *NA* | 6:74164512,-1 / 6:73824002,-1 | 92 | 138 | read through |
| ENSCAFG00000031492 | *MRPL21* | ENSCAFG00000010757 | *CPT1A* | 18:49094671,-1 / 18:49148330,-118:49097274,-1 / 18:49148332,-1 | 9 | 32 | read through |
| ENSCAFG00000010858 | *LSAMP* | NA | *NA* | 33:20136575,1 / 33:20478619,1 | 12 | 15 | read through |
| NA | *NA* | ENSCAFG00000010343 | *KIRREL3* | 5:7583858,1 / 5:8000445,1 | 7 | 12 | read through |
| ENSCAFG00000003935 | *BEND5* | NA | *AGBL4* | 15:11751795,-1 / 15:11345952,-1 | 6 | 9 | read through |
| ENSCAFG00000015518 | *NLGN1* | ENSCAFG00000015488 | *NA* | 34:38196938,-1 / 34:37776648,-1 | 5 | 6 | read through |
| ENSCAFG00000002743 | *MYEOV2* | NA | *MYEOV2* | 14:36752071,-1 / 25:50301922,-1 | 29 | 5 | Paralogous |
| Anaplastic oligodendroglioma 2 | ENSCAFG00000010858 | *LSAMP* | NA | *NA* | 33:20136575,1 / 33:20478619,1 | 185 | 179 | read through |
| **ENSCAFG00000000016** | ***MBP*** | **ENSCAFG00000003907** | ***BRAF*** | **1:2919660,1 / 16:8270092,11:2923624,1 / 16:8264593,116:8262734,1 / 1:2926747,1 16:8270092,-1 / 1:2919740,-1** | **115** | **344** | **No\_paralogy** |
| NA | *LSAMP* | NA | *NA* | 33:21902041,-1 / 33:20478701,-1 | 113 | 137 | read through |
| ENSCAFG00000015488 | *NA* | ENSCAFG00000015518 | *NLGN1* | 34:37776648,1 / 34:38196938,1 | 37 | 50 | read through |
| ENSCAFG00000015441 | *C10orf11* | NA | *NA* | 4:26177597,-1 / 4:25617633,-1 | 42 | 47 | read through |
| NA | *FGF12* | ENSCAFG00000031187 | *FGF12* | 34:24357360,-1 / 34:24024135,-1 | 15 | 38 | read through |
| ENSCAFG00000008149 | *LRRTM4* | NA | *NA* | 17:46095281,1 / 17:46795796,117:46095281,1 / 17:46795793,1 | 11 | 34 | read through |
| NA | *NA* | ENSCAFG00000008418 | *NCAM2* | 31:16912961,1 / 31:17213666,1 | 7 | 30 | read through |
| ENSCAFG00000002743 | *MYEOV2* | NA | *MYEOV2* | 14:36752071,-1 / 25:50301922,-1 | 133 | 28 | paralogous |
| NA | *U7* | ENSCAFG00000004944 | *PCDH9* | 22:21636432,1 / 22:22207872,122:21884799,1 / 22:22207872,1 | 7 | 22 | read through |
| NA | *NA* | NA | *U7* | 22:21328248,1 / 22:21636229,1 | 18 | 21 | read through |
| NA | *CADM2* | ENSCAFG00000007806 | *CADM2* | 31:2931390,-1 / 31:2118428,-1 | 17 | 21 | read through |
| NA | *NA* | ENSCAFG00000020411 | *NEGR1* | 6:73824002,1 / 6:74164512,1 | 24 | 18 | read through |
| NA | *NA* | ENSCAFG00000001026 | *NKAIN2* | 1:62910895,1 / 1:63353544,1 | 9 | 17 | read through |
| NA | *NA* | NA | *NA* | 32:15625134,-1 / 32:15322825,-1 | 14 | 16 | read through |
| NA | *NA* | ENSCAFG00000014164 | *MDGA2* | 8:24607586,-1 / 8:24276858,-1 | 13 | 14 | read through |
| NA | *NA* | ENSCAFG00000000786 | *CSMD3* | 13:13601956,1 / 13:13397946,1 | 10 | 11 | read through |
| ENSCAFG00000004544 | *DLG2* | NA | *NA* | 21:14779244,-1 / 21:14412223,-1 21:14779245,-1 / 21:14412223,-1 | 5 | 10 | read through |
| NA | *NA* | ENSCAFG00000024991ENSCAFG00000024643 | *NANA* | 32:15625290,1 / 32:16099541,1 | 9 | 8 | read through |
| ENSCAFG00000002716 | *NA* | ENSCAFG00000030961ENSCAFG00000002712 | *NRXN1NA* | 10:52665869,-1 / 10:52258100,-1 | 5 | 7 | read through |
| NA | *NA* | ENSCAFG00000006768 | *LRRC4C* | 18:27918122,1 / 18:28273325,1 18:27918122,1 / 18:28361730,1 | 16 | 6 | read through |
| NA | *NA* | ENSCAFG00000015441 | *C10orf11* | 4:25617631,1 / 4:26199496,1 | 8 | 6 | read through |
| ENSCAFG00000000786 | *CSMD3* | NA | *NA* | 13:13397946,-1 / 13:13615380,-1 | 5 | 6 | read through |
| NA | *ROBO1* | ENSCAFG00000007903 | *ROBO1* | 31:7626212,1 / 31:8082560,1 | 9 | 5 | read through |
| ENSCAFG00000024630 | *NA* | ENSCAFG00000005403 | *LRP1B* | 19:44090533,-1 / 19:43782306,-1 | 6 | 5 | read through |
| ENSCAFG00000010745 | *IGHMBP2* | ENSCAFG00000010757 | *CPT1A* | 18:49084620,-1 / 18:49148330,-1 | 7 | 3 | read through |
| ENSCAFG00000003457 | *NA* | ENSCAFG00000024216 | *NA* | 14:58897219,-1 / 14:58442433,-1 | 54 | 93 | Paralogous |
| ENSCAFG00000008115 | *CTNNA2* | ENSCAFG00000008079 | *NA* | 17:44184779,-1 / 17:43742837,-1 | 12 | 42 | Paralogous |
| ENSCAFG00000007956 | *ROBO2* | ENSCAFG00000007980 | *NA* | 31:9590907,1 / 31:9935974,1 | 11 | 25 | Paralogous |
| ENSCAFG00000019025 | *NA* | ENSCAFG00000018981 | *C16orf72* | X:110022775,1 / 6:33151010,-1 | 22 | 20 | Paralogous |
| ENSCAFG00000031015 | *YWHAH* | ENSCAFG00000013549 | *YWHAG* | 26:24785598,-1 / 6:7532376,1 | 25 | 14 | Paralogous |
| ENSCAFG00000029171 | *NA* | ENSCAFG00000015864 | *NA* | 7:36719055,1 / 7:37064042,1 | 12 | 14 | Paralogous |
| Lymphoma T | ENSCAFG00000032099 | *NA* | ENSCAFG00000013770 | *ARHGAP27* | 9:10370985,1 / 9:18195693,1 | 5 | 47 | Paralogous |
| ENSCAFG00000019025 | *NA* | ENSCAFG00000018981 | *C16orf72* | X:110022775,1 / 6:33151010,-1 | 8 | 9 | Paralogous |
| NA | *NA* | ENSCAFG00000002645 | *KCNQ5* | 12:34872998,1 / 12:35194979,1 | 5 | 5 | read through |
| DLBCL 1 | ENSCAFG00000008804 | *MARCH1* | ENSCAFG00000014251 | *DDX3X* | 15:60179225,1 / X:35772912,1 15:60179196,-1 / X:35772890,-1 | 126 | 121 | Paralogous |
| ENSCAFG00000019025 | *NA* | ENSCAFG00000018981 | *C16orf72* | X:110022775,1 / 6:33151010,-1 | 16 | 17 | Paralogous |
| **ENSCAFG00000001618** | ***CCND3*** | **ENSCAFG00000031753ENSCAFG00000032691** | ***IGKV*** | **12:10687874,-1 / 17:37727274,1 12:10687876,-1 / 17:37709802,1** | **15** | **10** | **No\_paralogy** |
| ENSCAFG00000010757 | *CPT1A* | ENSCAFG00000031492 | *MRPL21* | 18:49148332,1 / 18:49097274,1 18:49148330,1 / 18:49094671,1 | 10 | 10 | read through |
| ENSCAFG00000002743 | *MYEOV2* | NA | *NA* | 14:36752071,-1 / 25:50301922,-1 | 25 | 5 | Paralogous |
| DLBCL 2 | NA | *NA* | ENSCAFG00000002498 | *HDAC9* | 14:32469462,1 / 14:32789338,1 | 6 | 5 | read through |
| ENSCAFG00000031492 | *MRPL21* | ENSCAFG00000010757 | *CPT1A* | 18:49094671,-1 / 18:49148330,-1 | 5 | 11 | read through |
| ENSCAFG00000018981 | *C16orf72* | ENSCAFG00000019025 | *NA* | 6:33151010,1 / X:110022775,-1 | 51 | 63 | Paralogous |

Supplementary Table 1: Fusions identified by RNA-Seq in the analyzed canine tumors. Partners’ genes and chromosomal positions of chimeric transcripts were indicated for the six canine tumors with the number of reads
spanning the fusion junction and encompassing the two fusion transcripts. The gene fusions further analyzed in this work are represented in yellow. CFA: *Canis* *familiaris* Autosome.