ENSP00000288602/1-766 MAALSGGGGGGAEPGQALFNGDMEPEAGAGAGAAASSAADPAIPEEVWNIKQMIKLTQEH ENSCAFP00000005842/1-761 ---------------------------------------------QVWNIKQMIKLTQEH

 :\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ENSP00000288602/1-766 IEALLDKFGGEHNPPSIYLEAYEEYTSKLDALQQREQQLLESLGNGTDFSVSSSASMDTV ENSCAFP00000005842/1-761 IEALLDKFGGEHNPPSIYLEAYEEYTSKLDALQQREQQLLESLGNGTDFSVSSSASTDTV

 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* \*\*\*

ENSP00000288602/1-766 TSSSSSSLSVLPSSLSVFQNPTDVARSNPKSPQKPIVRVFLPNKQRTVVPARCGVTVRDS ENSCAFP00000005842/1-761 TSSSSSSLSVLPSSLSVFQNPTDISRSNPKSPQKPIVRVFLPNKQRTVVPARCGVTVRDS \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*::\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ENSP00000288602/1-766 LKKALMMRGLIPECCAVYRIQDGEKKPIGWDTDISWLTGEELHVEVLENVPLTTHNFVRK ENSCAFP00000005842/1-761 LKKALMMRGLIPECCAVYRIQDGEKKPIGWDTDISWLTGEELHVEVLENVPLTTHNFVRK \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ENSP00000288602/1-766 TFFTLAFCDFCRKLLFQGFRCQTCGYKFHQRCSTEVPLMCVNYDQLDLLFVSKFFEHHPI ENSCAFP00000005842/1-761 TFFTLAFCDFCRKLLFQGFRCQTCGYKFHQRCSTEVPLMCVNYDQLDLLFVSKFFEHHPI \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ENSP00000288602/1-766 PQEEASLAETALTSGSSPSAPASDSIGPQILTSPSPSKSIPIPQPFRPADEDHRNQFGQR ENSCAFP00000005842/1-761 PQEEASIAETALTSGSSPSAPPSDSPGPPILTSPSPSKSIPIPQPFRPADEDHRNQFGQR \*\*\*\*\*\*:\*\*\*\*\*\*\*\*\*\*\*\*\*\*.\*\*\* \*\* \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

 ↓

ENSP00000288602/1-766 DRSSSAPNVHINTIEPVNID|DLIRDQGFRGDG---------------------------- ENSCAFP00000005842/1-761 DRSSSAPNVHINTIEPVNID|DLIRDQGFRSDGAPLNHLMRCLRKCQSRTPSPLLHSVPSE \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*|\*\*\*\*\*\*\*\*\*.\*\*

ENSP00000288602/1-766 ------------GSTTGLSATPPASLPGSLTNVKALQKSPGPQRERKSSSSSEDRNRMKT ENSCAFP00000005842/1-761 IVFDFEPGPVFRGSTTGLSATPPASLPGSLTNVKALQKSPGPQRERKSSSSSEDRNRMKT \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ENSP00000288602/1-766 LGRRDSSDDWEIPDGQITVGQRIGSGSFGTVYKGKWHGDVAVKMLNVTAPTPQQLQAFKN ENSCAFP00000005842/1-761 LGRRDSSDDWEIPDGQITVGQRIGSGSFGTVYKGKWHGDVAVKMLNVTAPTPQQLQAFKN \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ENSP00000288602/1-766 EVGVLRKTRHVNILLFMGYSTKPQLAIVTQWCEGSSLYHHLHIIETKFEMIKLIDIARQT ENSCAFP00000005842/1-761 EVGVLRKTRHVNILLFMGYSTKPQLAIVTQWCEGSSLYHHLHIIETKFEMIKLIDIARQT \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ENSP00000288602/1-766 AQGMDYLHAKSIIHRDLKSNNIFLHEDLTVKIGDFGLATVKSRWSGSHQFEQLSGSILWM ENSCAFP00000005842/1-761 AQGMDYLHAKSIIHRDLKSNNIFLHEDLTVKIGDFGLATVKSRWSGSHQFEQLSGSILWM \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ENSP00000288602/1-766 APEVIRMQDKNPYSFQSDVYAFGIVLYELMTGQLPYSNINNRDQIIFMVGRGYLSPDLSK ENSCAFP00000005842/1-761 APEVIRMQDKNPYSFQSDVYAFGIVLYELMTGQLPYSNINNRDQIIFMVGRGYLSPDLSK \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ENSP00000288602/1-766 VRSNCPKAMKRLMAECLKKKRDERPLFPQILASIELLARSLPKIHRSASEPSLNRAGFQT ENSCAFP00000005842/1-761 VRSNCPKAMKRLMAECLKKKRDERPLFPQILASIELLARSLPKIHRSASEPSLNRAGFQT \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ENSP00000288602/1-766 EDFSLYACASPKTPIQAGGYGAFPVH

ENSCAFP00000005842/1-761 EDFSLYACASPKTPIQAGGYGAFPVH

 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Supplementary Figure 4: Alignment of the human and canine BRAF proteins from Ensembl (http://www.ensembl.org/). Amino acids resulting from the transcription and translation of different exons are alternatively in black or blue. The Raf-like Ras-binding domain, involved in auto-inhibition, is indicated in yellow. The region coding this domain is conserved in the canine *BRAF* gene and lost in the glioma canine fusion. ↓ breakpoint.