

Supplementary Table S1. Coordinates of the exons of human *BRAF* analyzed in this study.

Exon	GRCh38		GRCh37		length
	start	end	start	end	
E1	140,924,764	140,924,566	140,624,564	140,624,366	199
E2	140,850,212	140,850,111	140,550,012	140,549,911	102
E3	140,834,872	140,834,609	140,534,672	140,534,409	264
E4	140,808,995	140,808,892	140,508,795	140,508,692	104
E5	140,808,062	140,807,960	140,507,862	140,507,760	103
E6	140,801,560	140,801,412	140,501,360	140,501,212	149
E7	140,800,481	140,800,362	140,500,281	140,500,162	120
E8	140,794,467	140,794,308	140,494,267	140,494,108	160
E9	140,787,584	140,787,548	140,487,384	140,487,348	37
E10	140,783,157	140,783,021	140,482,957	140,482,821	137
E11	140,781,693	140,781,576	140,481,493	140,481,376	118
E12	140,778,075	140,777,991	140,477,875	140,477,791	85
E13	140,777,088	140,776,912	140,476,888	140,476,712	177
E14	140,754,233	140,754,187	140,454,033	140,453,987	47
E15	140,753,393	140,753,275	140,453,193	140,453,075	119
E16	140,749,418	140,749,287	140,449,218	140,449,087	132
E17	140,739,946	140,739,812	140,439,746	140,439,612	135
E18.1	140,734,770	140,734,012	140,434,570	140,433,812	759
E18.2	140,734,770	140,734,617	140,434,570	140,434,417	154
E18.3	140,734,770	140,734,521	140,434,570	140,434,321	250
E18.4	140,734,770	140,734,479	140,434,570	140,434,279	292
E18.5	140,734,770	140,734,597	140,434,570	140,434,397	174
E19	140,726,516	140,719,334	140,426,316	140,419,134	7183
NE1	140,749,052	140,748,932	140,448,852	140,448,732	121
NE2	140,747,447	140,747,366	140,447,247	140,447,166	82
NE3	140,716,036	140,715,951	140,415,836	140,415,751	86
NE4	140,749,052	140,748,995	140,448,852	140,448,795	58
NE5	140,808,316	140,808,237	140,508,116	140,508,037	80
NE6	140,834,872	140,834,061	140,534,672	140,533,861	812

Supplementary Table S2. List of the human tumor samples used in this study.

Cancer	# Sample	Sample Type				
		1	2	3	4	5
Breast Cancer	1250	1130			7	113
Colon Cancer	544	310	1		1	41
Head and Neck Cancer	551	505			2	44
Lung Adenocarcinoma	596	536	2			58
Lung Squamous Cell Carcinoma (SCC)	555	504				51
Melanoma	472	103			365	1
Thyroid Cancer	620	529			10	81
Acute Myeloid Leukemia (AML)	171			171		
Diffuse Large B-Cell Lymphoma (DLBCL)	48			48		
Total number of samples	4807					

1. primary solid tumor
2. recurrent solid tumor
3. primary blood-derived cancer
4. metastatic solid tumor
5. normal solid tissue

Supplementary Table S3. Real-time PCR primers.

Name	Sequence	Purpose
tot <i>BRAF</i> qRT-PCR F	CAGCACCTACACCTCAGCAG	real-time PCR amplification of all <i>BRAF</i> isoforms
tot <i>BRAF</i> qRT-PCR R	GATACAAGCTGGAGCCCTCA	
ref <i>BRAF</i> qRT-PCR F*	CTGTCCACTGAAACAAATGAGTG	real-time PCR amplification of <i>BRAF</i> -ref
ref <i>BRAF</i> qRT-PCR R*	CATATGTTTCATTTATTTTCCTTTTGTT	
<i>BRAF</i> -X1 qRT-PCR F	AGTGCATCAGAACCCTCCTT	real-time PCR amplification of <i>BRAF</i> -X1
<i>BRAF</i> -X1 qRT-PCR R	CTTGAAGGCTGCAAATTCTC	
<i>BRAF</i> -X2 qRT-PCR F	AGAGACCACTCTTTCCCAAGAGAA	real-time PCR amplification of <i>BRAF</i> -X2
<i>BRAF</i> -X2 qRT-PCR R	TGTTAACAAATTGTACGAACAC	
<i>BRAF</i> -E19-1 qRT-PCR F**	ATGGAATTTCCCATCCAACA	real-time PCR amplification of <i>BRAF</i> -X1 plus X2 (different sections of E19)
<i>BRAF</i> -E19-1 qRT-PCR R**	TGAAGAAACACTGGCAGCAG	
<i>BRAF</i> -E19-2 qRT-PCR F	TCCTAGCTTCTGGTTTGTTG	
<i>BRAF</i> -E19-2 qRT-PCR R	GATCTGAGGAGGATGTGCAG	
<i>BRAF</i> -E19-3 qRT-PCR F	CTTGATTGCACATGAAGCTG	
<i>BRAF</i> -E19-3 qRT-PCR R	ATGGCCAGGTCATAAAGGAT	
<i>BRAF</i> -E19-4 qRT-PCR F	TTATGGCGACTCACACACAC	
<i>BRAF</i> -E19-4 qRT-PCR R	CTCCACGAGAACCCTTTTCAA	
fl <i>BRAF</i> qRT-PCR F	CCAGAGTGCTGTGCTGTTTA	real-time PCR amplification of full length <i>BRAF</i>
fl <i>BRAF</i> qRT-PCR R	CATTCTCCAACACTCCACA	
<i>BRAF</i> -E2 qRT-PCR F	GGGAGCATAATCCACCATCA	real-time PCR amplification of exon 2-3 junction
<i>BRAF</i> -E3 qRT-PCR R	CGTTCCCAGAGATTCCAA	
<i>BRAF</i> -E3 qRT-PCR F	CCCAACAAACAGAGGACAGTG	real-time PCR amplification of exon 3-4 junction
<i>BRAF</i> -E4a qRT-PCR R	GCACAGCACTCTGGATTAG	
<i>BRAF</i> -NE6p qRT-PCR F	TCACCATTTTGCTGTTTCTTTG	real-time PCR amplification of NE6p exon
<i>BRAF</i> -NE6p qRT-PCR R	GGATGCCTCTATTTGCATGA	
Δ [3-10] <i>BRAF</i> qRT-PCR F	CAATATATCTGGAGAAAACACTTGG	real-time PCR amplification of Δ [3-10] <i>BRAF</i>
Δ [3-10] <i>BRAF</i> qRT-PCR R	TGAGGTGTAGGTGCTGTCAC	
<i>GAPDH</i> qRT-PCR F	CGCTCTCTGCTCCTCCTGTT	house keeping genes for real-time PCR
<i>GAPDH</i> qRT-PCR R	CCATGGTGTCTGAGCGATGT	
<i>PBGD</i> qRT-PCR F	TCCAAGCGGAGCCATGTCTG	
<i>PBGD</i> qRT-PCR R	AGAATCTTGTCCTGTGGTGGGA	
<i>SDHA</i> qRT-PCR F	CCACTCGCTATTGCACACC	
<i>SDHA</i> qRT-PCR R	CACTCCCATTCTCCATCA	

* real-time PCR primers used for the detection of the reference (canonical) 3'UTR of *BRAF* in Marranci et al., JID 2015

** real-time PCR primers used for the detection of the X1 3'UTR of *BRAF* in Marranci et al., JID 2015

Supplementary Table S4. PCR primers.

Name	Sequence	Purpose
<i>BRAF</i> -E19-1 F	ATGGAATTTCCCATCCAACA	PCR amplification of <i>BRAF</i> -X1 plus X2 (different sections of E19)
<i>BRAF</i> -E19-1 R	CTGGACCCAATGAGAAAGA	
<i>BRAF</i> -E19-2 F	GGCTGTGTTCCCTTTACCAA	
<i>BRAF</i> -E19-2 R	CAGTGACGCAGCCACATACT	
<i>BRAF</i> -E19-3 F	CATGAAGCTGGACTGCGTTA	
<i>BRAF</i> -E19-3 R	CTAATTGCCCATGCATTTT	
<i>BRAF</i> -E19-4 F	TGACCGCTGGTTCTCATGTA	
<i>BRAF</i> -E19-4 R	AGAAGGGGACAGCACAGAGA	
<i>BRAF</i> -E7 F	AGGCGTCCTTAGCAGAGACT	PCR amplification of <i>BRAF</i> -X1 and X2 CDS
<i>BRAF</i> -E8 F	AAATCCATTCCAATTCCACA	
<i>BRAF</i> -E9-10 F	ATTCGTGGTGATGGAGGAT	
<i>BRAF</i> -E19-1 qRT-PCR R	TGAAGAAACACTGGCAGCAG	
<i>BRAF</i> -E1/2 F*	CGGAGGAGGTGTGGAATATC	PCR amplification of <i>BRAF</i> -004 transcript variant
<i>BRAF</i> -E4b R	CCTCTCATCATCAGTGCTTTCTT	PCR amplification of the CDS of Δ [3-10] <i>BRAF</i> transcript variants
<i>BRAF</i> -E1/2 F*	CGGAGGAGGTGTGGAATATC	
ref <i>BRAF</i> -STOP R	TCAGTGGACAGGAAACGCACCATATC	
<i>BRAF</i> -X1-STOP R	CTACTTGAAGGCTGCAAATTCTC	
Mut X2 Lys>Arg F	GTTTCGTACAATTTGTTAACATCAGAACACAGTTCTGTTCCCTCAAATC	mutagenesis of Lysine 739 residue to Arg within <i>BRAF</i> -X2 C-term
Mut X2 Lys>Arg R	GATTTGAGGAACAGAACTGTGTTCTGATGTTAACAAATTGTACGAAC	

Supplementary Table S5. siRNA sequences.

Name	Sequence	Purpose
si-tot <i>BRAF</i>	AGAAUUGGAUCUGGAUCAUUU	knock-down of all <i>BRAF</i> isoforms
si-ref <i>BRAF</i>	UCCUGUCCACUGAAACAAA	knock-down of <i>BRAF</i> -ref
si- <i>BRAF</i> -E19-1	UGCUGCCAGUGUUUCUUCA	knock-down of <i>BRAF</i> -X1 plus X2
si- <i>BRAF</i> -E19-2	AGGGCAGUGUCUUAACAAA	knock-down of <i>BRAF</i> -X1 plus X2
si- <i>BRAF</i> -E19-3	AUGAUGGGCAGCAAUCAUGUAUU	knock-down of <i>BRAF</i> -X1 plus X2
si-fl <i>BRAF</i>	CUGUCAACAUGUGGUUUAU	knock-down of fl <i>BRAF</i>
si- Δ [3-10] <i>BRAF</i>	UGGAGAAAACACUUGGUAG	knock-down of Δ [3-10] <i>BRAF</i>
si-CT	CUCCGAACGUGUCACGUU	control siRNA