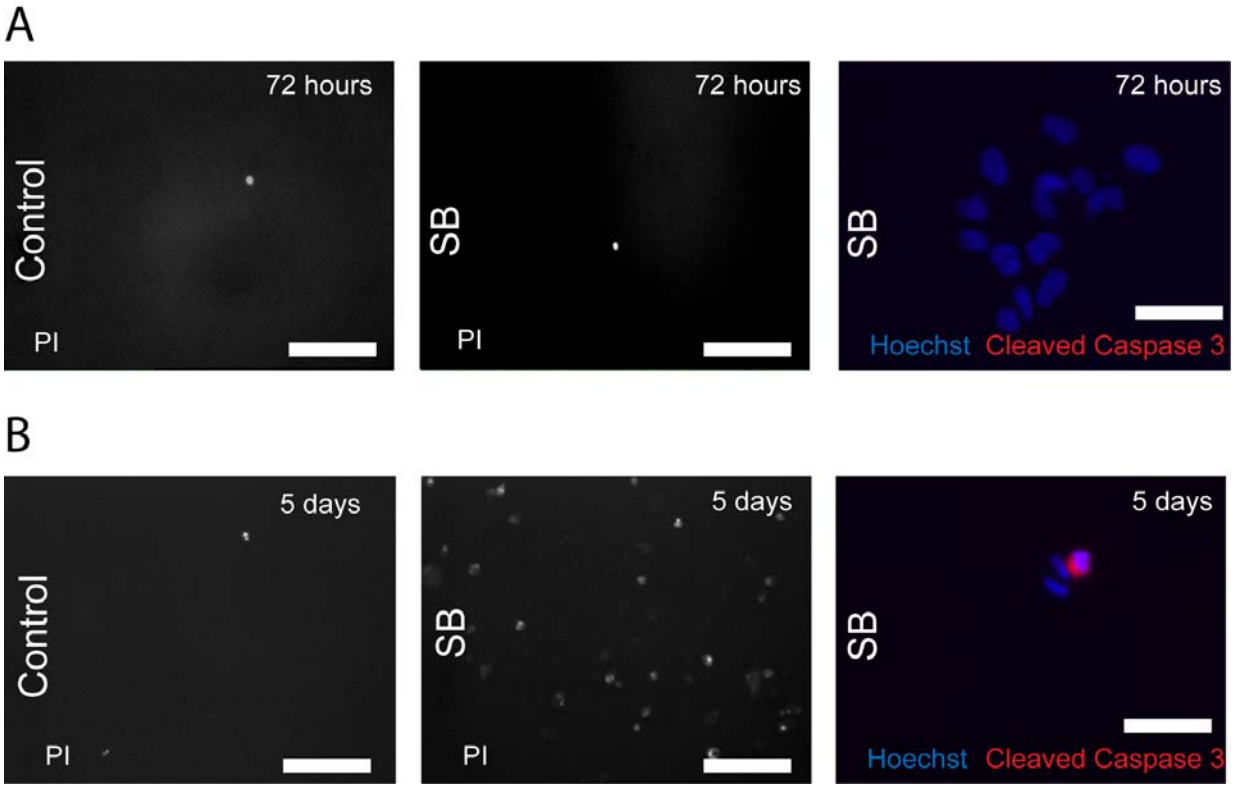
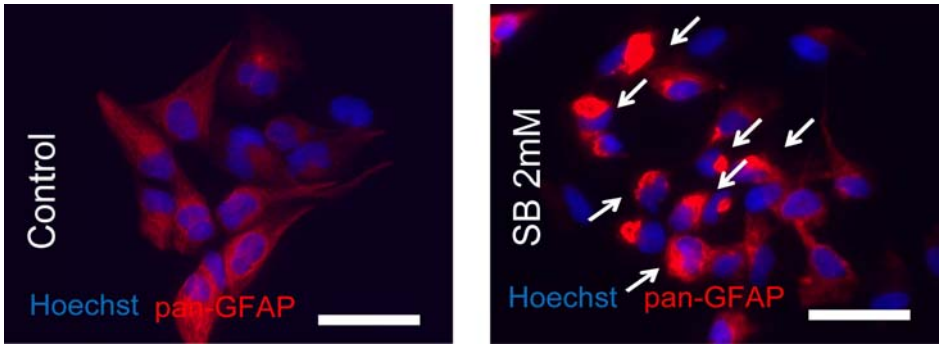
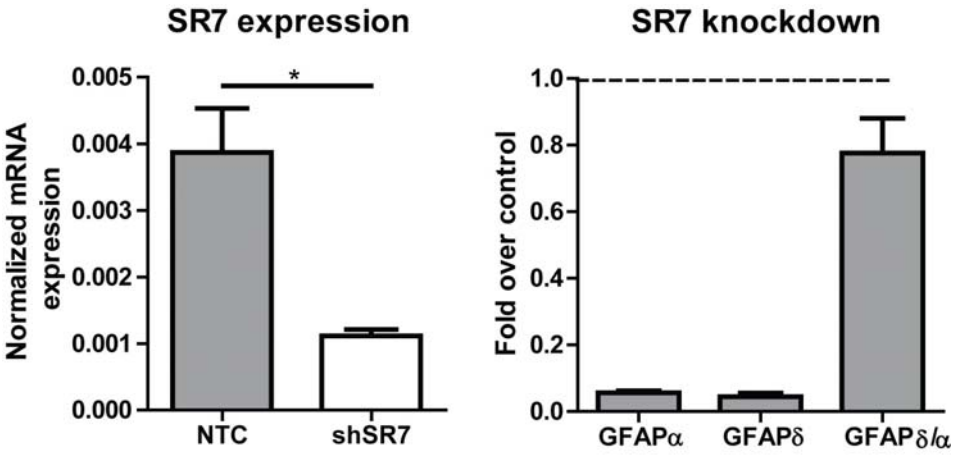
Supplementary data:



Supplementary Figure 1: HDAC inhibition induces apoptosis in a time-dependent manner. A) The DNA was stain with propidium iodide (PI) after 72 hours of vehicle (Control) or SB treatment (SB). In addition, cells were stained for cleaved caspase 3. B) Cultures treated for 5 days with SB showed a high number of PI positive cells, which were not present in the control condition. The presence of cleaved-caspase 3 confirmed the induction of apoptosis upon HDAC inhibition for 5 days. The scale bars represent 50 μm.

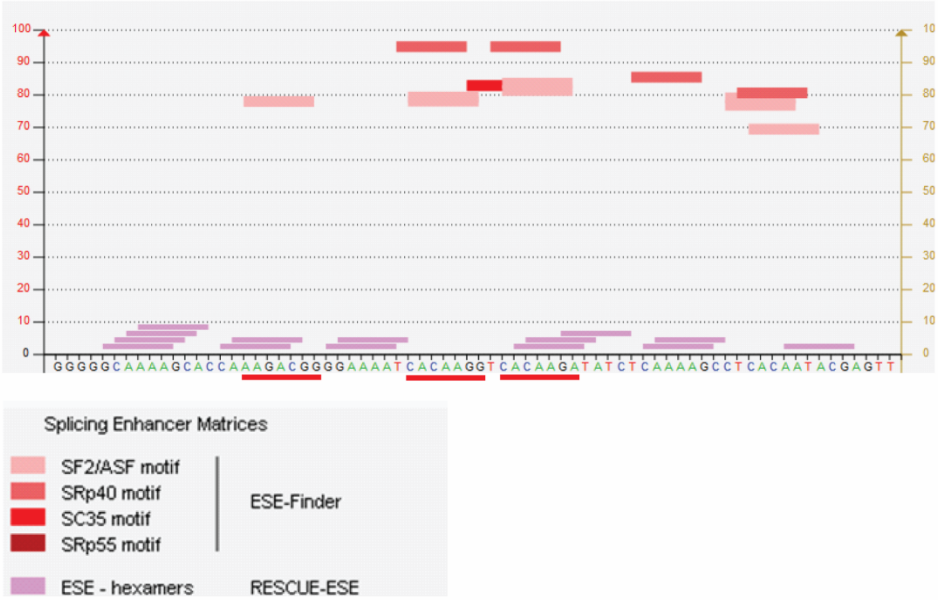


Supplementary Figure 2: Re-organization of the IF network upon HDAC inhibition using 2mM sodium butyrate. The IF network of GFAP is redistributed upon treatment with the HDACi SB in a concentration of 2mM. U343 cells were stained with a pan-GFAP together with the DNA stain Hoechst. 2 mM SB treatment for 72 hours induced a drastic redistribution of the GFAP network which aggregated in close proximity to the nucleus. Arrows indicate cells with a re-organized IF network. The scale bars represent 50 µm.

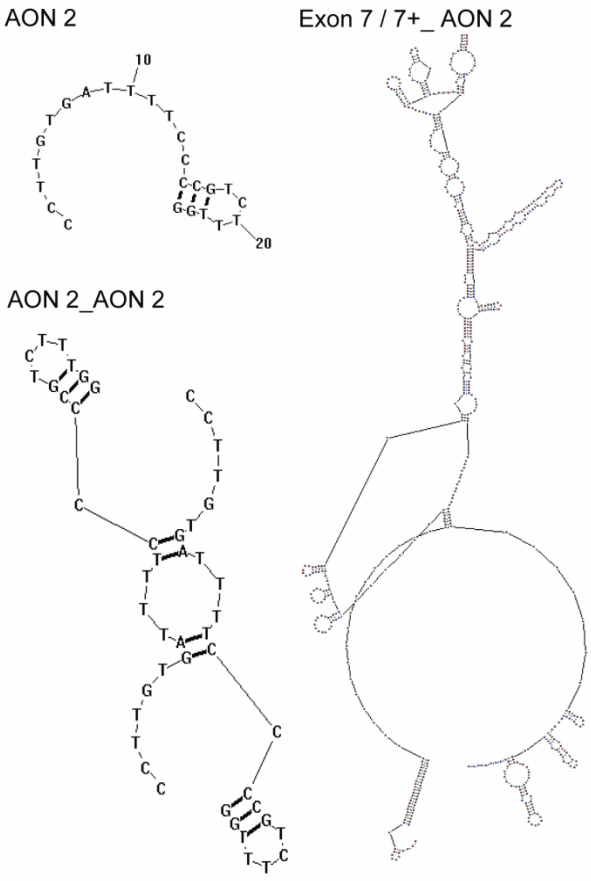


Supplementary Figure 3: Downregulation of SR7 does not affect the GFAP isoform usage. qPCR analysis of SR7 and the GFAP transcripts α and δ upon lentiviral transduction of U343 cells with a non targeting control shRNA (NTC) or a shRNA targeting SR7 (shSR7) for 72 hours (n=3). Expression of the GFAP transcripts α and δ and the GFAPδ/α ratio is depicted as fold over control. Data are presented as mean + SEM. * $p<0.05$.

A


Splicing Enhancer Matrices
SF2/ASF motif
SRp40 motif
SC35 motif
SRp55 motif
ESE-Finder
ESE - hexamers
RESCUE-ESE

B


AON 2
Exon 7 / 7+_ AON 2
AON 2_AON 2

Supplementary Figure 4. Design of AONs targeting SR binding sites in exon 7+ of the GFAPδ transcript. A) Identification of SR binding sites in exon 7+ of the *GFAP* gene. Human splicing finder software output (version 2.4.1) showing putative splice enhancer motives. Selected SR binding sites are underlined in red. The output is based on the presence of multiple RESCUE-ESE or PESE sites and/or overlapping ESE finder sites. B) Secondary structure formation of AON and AON-target complexes**.** Single strand folding of the AON used to induce exon skipping. B) Dimer formation of the same AON.C) Structure of the AON-exon 7+ complex. The sequence of exon 7 and exon 7+ was used as input sequence. Structures are generated with the RNA structure 4.6 software using the fold RNA single strand (A) and fold RNA bimolecular (B, C) options.

Supplementary table 1. Primers used in this study.

Primer	Forward sequence	Reverse sequence
Actin	GCTCCTCCTGAGCGCAAG	CATCTGCTGGAAGGTGGACA
18s	TTCGTATTGCGCCGCTAGA	TGGCAAATGCTTTCGCTCT
GAPDH	TGCACCACCAACTGCTTAGC	GGCATGGACTGTGGTCATGA
GFAPα	CCCACTCTGCTTTGACTGAGC	CCTTCTTCGGCCTTAGAGGG
GFAPδ	TCCAACCTGCAGATTCGAGG	GGGAATGGTGATCCGGTTCT
GFAPκ	GTCAGTACAGCAGGGCCTCG	AGGAGCGCTGCAGTGTCACG
Vimentin	CGTACGTCAGCAATATGAAAGTGTG	TCAGAGAGGTCAGCAAACTTGGA
Nestin	GATCTAAACAGGAAGGAAATCCAGG	TCTAGTGTCTCATGGCTCTGGTTTT
HDAC3	CACCATGCCAAGAAGTTTGA	CCCGAGGGTGGTACTTGAG
HDAC6	GCTGACTACCTAGCTGCCTG	TCAAAGCCAGCTGAGACCAG
Jun	TGTGCGCGCAGCCCAAACTA	CGAGGCGTTGAGGGCATCGT
SR 1	GCGGTCTGAAAACAGAGTGG	CTTCACGCATGTGATCCT
SR 2	AGGTCGCGATCGAAGAGTC	CACTGCTTGCCGATACATCA
SR 6	AGCCGCAGTAGATCTCGAAG	AACGTGATCGACCTTTGCTC
SR 7	AAAAGGATCGAGGTATTTCCAAT	GCTGCTTCTTGGTCGTGAA
U2AF2	CAGGCCTCACGACTACCAG	GGGACCACAGTGGACACAA
GFAP TSS+500	CATCCCCTCCTCACTTCTGC	GCTGGAGGTTGAGAGGGACA
GD1	CAGCTGCTTGATGTACTAGCCG	AGGGTGAAAAATCCTTGACAAAGGG

Supplementary table 2. Antibodies used for immunocytochemistry

Antibody	Species	Company, Cat #	Concentration
Cleaved caspase 3	Rabbit	Cell Signalling, # 9661	1:500
GFAPδ	Rabbit	Manufactured in house (10-05-2001 Bleed)	1:250
GFAP-pan	Rabbit	Dako, Z0334	1:2000
GFAP-pan	Mouse	Sigma, G3893	1:2000
GFAPα	Goat	Santa Cruz biotechnology inc., sc-6170	1:1300
H3K27 ac	Rabbit	Abcam, ab4729	1:2000
GAPDH	Chicken	Abcam, ab14247	1:10000
Nestin	Mouse	Chemicon, Mab353	1:1500
Vimentin	Chicken	Chemicon, AB5733	1:2000