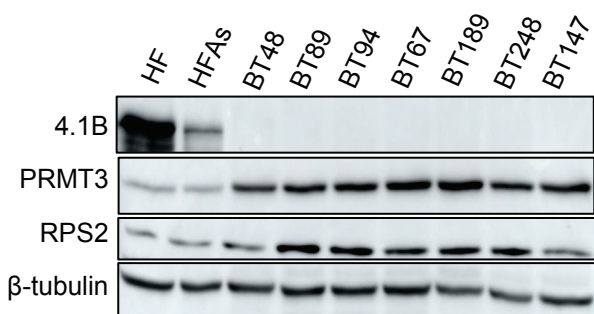
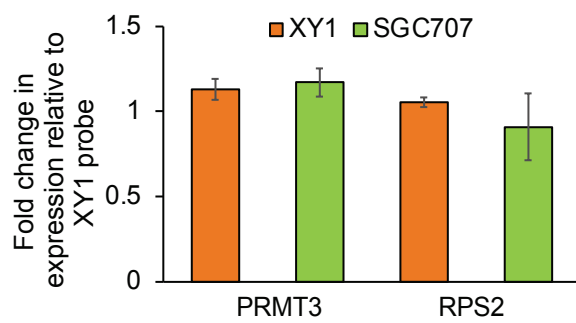


Supplementary Material

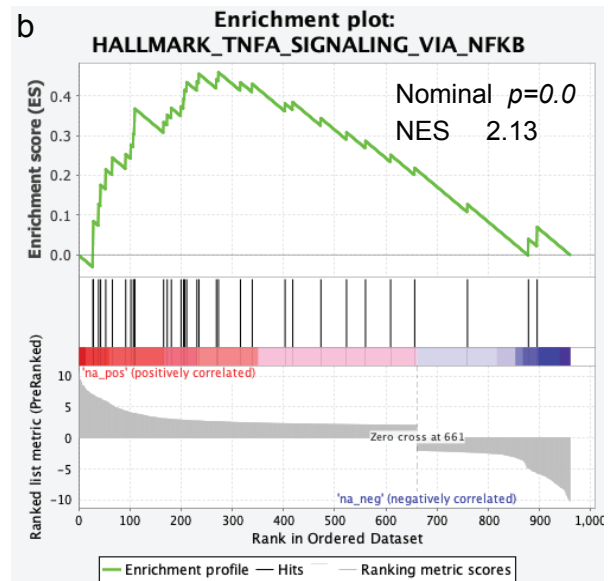
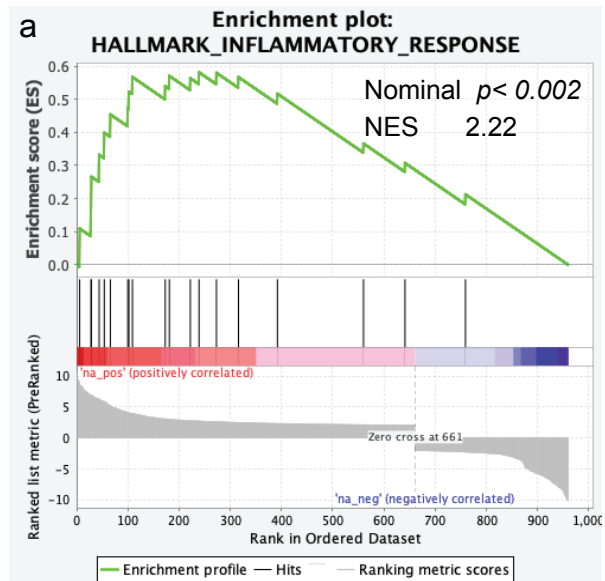
a



b

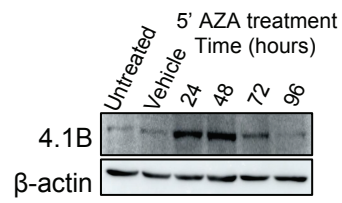


Supplementary Figure 1: **a** Protein levels of 4.1B, PRMT3 and RPS2 in BTSC cell lines relative to HF and HFAs (n=3). **b** qPCR showing the fold change in expression of PRMT3 and RPS2 following treatment with SGC707 relative to XY1 negative probe (n=3). human fetal stem cells (HFs), human fetal astrocytes (HFAs).

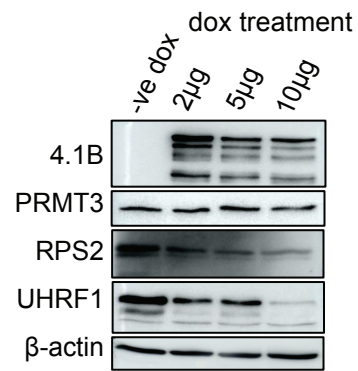


Supplementary Figure 2: a, b Gene set enrichment analysis showing the enrichment plots for gene sets enriched for inflammatory response (a) TNF- α and NFK- β signaling pathways (b) in response to 72 hours treatment with SGC707 relative to the XY1 negative probe (n=3).

a BT248^{4.1Blow}

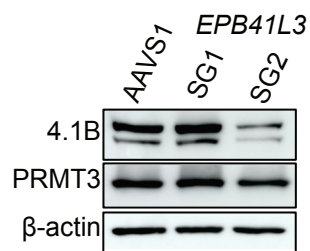


b BT248^{4.1Blow}



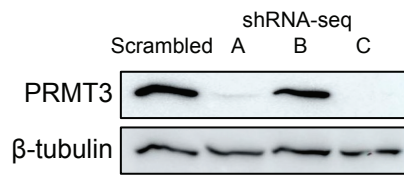
Supplementary Figure 3: a Western blot analysis of induction of protein level of 4.1B following time course treatment of BT248^{4.1B^{low}} with 5'-Aza relative to the vehicle control. (n=3). **b** Testing of different doses of doxycycline for inducing the expression of 4.1B and its effect on PRMT3, RPS2 and UHRF1 proteins in BT248^{EPB4.1L3^{low}} cells relative to the negative control cells.

BT143^{4.1Bhigh}

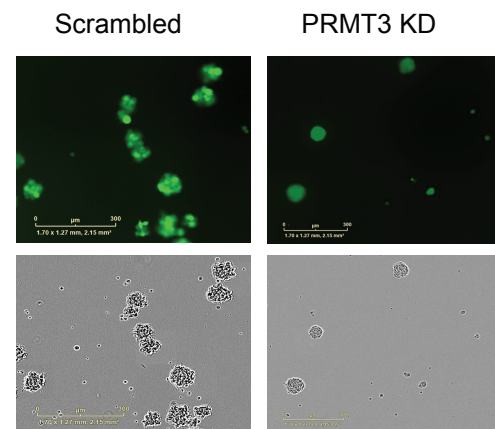


Supplementary Figure 4: Western blot validation of *EPB4.1L3* KO in BT143^{EPB4.1L3high} cells relative to the AAVS1 control cells.

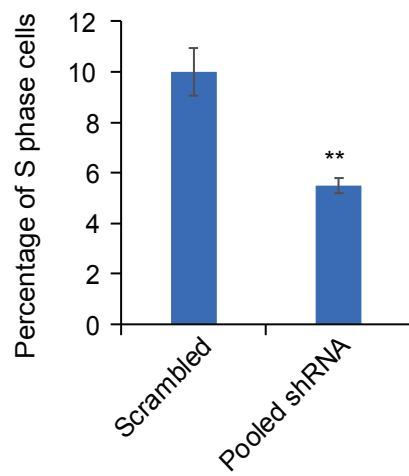
a BT248^{4.1Blow}



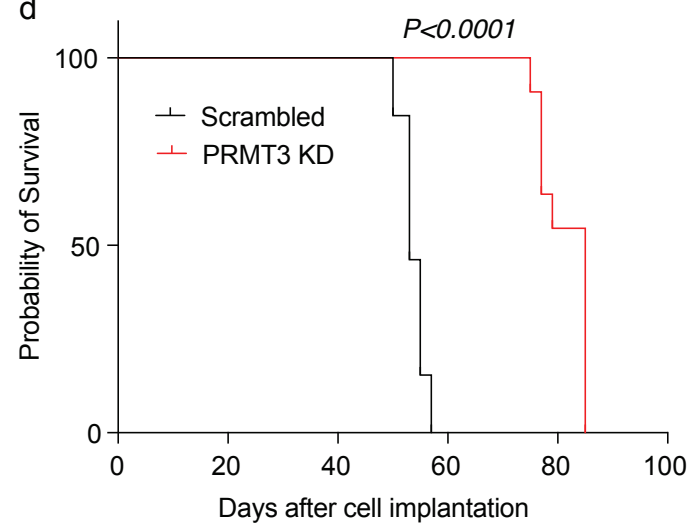
b



c

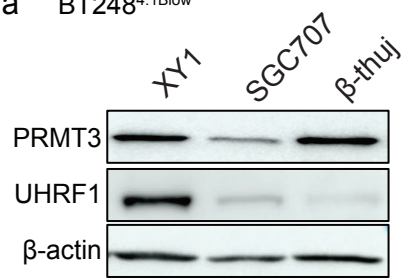


d

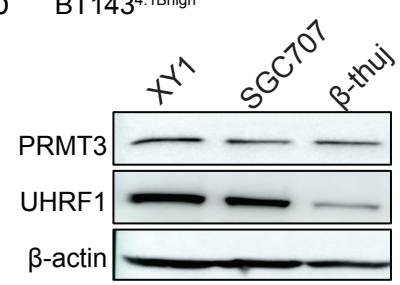


Supplementary Figure 5: a Validation of shRNA mediated KD of PRMT3 in BT248 cells relative to the Scrambled control cells. **b** Representative fluorescent and brightfield images showing PRMT3 KD in BT248 cells along with scrambled control images. (Reporter gene; GFP). Scale bar: 300 μ m. (n=3). **c** EdU cell cycle analysis of PRMT KD BT248 cells relative to the Scrambled control cells. Significance was determined using unpaired two-tailed t-test at 95% confidence intervals, ** p <0.01; data are represented as mean $\pm$ SEM; n=3. **d** Kaplan-Meier survival curves for mice orthotopically xenografted with PRMT3 KD BT248 cells compared to mice xenografted with scrambled control cells (Log-rank (Mantel-Cox) method, **** p <0.0001, n=10).

a BT248^{4.1Blow}



b BT143^{4.1Bhigh}



Supplementary Figure 6: a, b Validating the on-target effect of β -thujaplicin in parallel with SGC707 treatment on the protein levels of PRMT3 and UHRF1 in (a) BT248^{EPB4.1L3low} and (b) BT143^{EPB4.1L3high} cells relative to their respective XY1 treated control cells.

Supplementary Tables

Supplementary Table 1: gRNA used in this study.

gRNA	Sequence
PRMT3-1	CCTGTTACAGAACAGGCAGG
PRMT3-2	TGTCATTGCGGACCTCCAGG
UHRF1-1	CGCCGACACCATGTGGATCC
UHRF1-2	ACACCATGTGGATCCAGGTT
EPB4.1L3-1	AGCGGCGGCGAACTGCTCCA
EPB4.1L3-2	TGCAAAGTGATACTTCTCGA
AAVS1	ATCCTGTCCCTAGTGGCCC

Supplementary Table 2: qPCR primers used in this study.

Gene	Forward	Reverse
PRMT3	TCAGAGCACCAAAACACACTG	TTCAAGGCTTCACCTGCTTTA
RPS2	GGAAAAGCGACAAGAAGGAAC	AGCTGCTTCCCAGTAGGTCTC

Supplementary Table 3: MS-PCR primers targeting CpG sites within 5' regulatory regions of *EPB4.1L3* gene.

Forward	Reverse
M-AGTCGTAGTTTAGGGTTGTTGTC	M-GAAATTAACTTTCCTCGCACG
UM-GAAGTTGTAGTTTAGGGTTGTTGTT	UM-ACAAAATTAACTTTCCTCACACAAT
M-AGAGTCGTTTTCGTAGATATTTTTC	M-GCCTAAATCGACCTACCGTA
UM-AGTTGTTTTGTAGATATTTTGA	UM-CACCTAAATCAACCTACCAT
M-GAGGTTTAGTAGTTTTAGCGTCGT	M-GTTACATCTTCCCGTAACTCGAC
UM-TGGGAGGTTTAGTAGTTTTAGTGTT	UM-ACATTACATCTTCCCATAACTCAAC
M-TAGTCGAGTTACGGGAAGATGTAAC	M-AAAATACGAATAAAAAATCGAAACGT
UM-TTTATAGTTGAGTTATGGGAAGATGTAAT	UM-AATACAAATAAAAAATCAAAACATT
M-ATTTTTTAAGGTTATTTAAGAATCGA	M-TCTATATAAAATCTCCTATATCGCA
UM-ATTTTTTAAGGTTATTTAAGAATTGA	UM-ATCTATATAAAATCTCCTATATCACA

M- Methylation, UM-Unmethylation

Supplementary Table 4: List of primary and secondary antibodies used in this study.

Antibodies	Source	Catalog number
Rabbit monoclonal to PRMT3 (EPR13279)	Abcam	Cat# ab191562
Mouse monoclonal to PRMT3	Invitrogen	Cat# 730020
Mouse monoclonal to EPB4.1L3	Sigma-Aldrich	Cat# SAB1404955
Rabbit Polyclonal to EPB4.1L3	Invitrogen	Cat# PA5-83023
Rabbit monoclonal to RPS2 (EPR10834(B))	Abcam	Cat# ab155961
Mouse monoclonal to DNMT1	Active Motif	Cat# ab39204
Mouse monoclonal to UHRF1	Santa Cruz	Cat# sc-373750
Rabbit polyclonal to DNMT3A	Santa Cruz	Cat# sc-20703
Rabbit monoclonal to ADMA	Cell signaling	Cat# 13522
Rabbit monoclonal to p21	Cell signaling	Cat# 2947
Rabbit monoclonal to CD133	Cell signaling	Cat# 5860
Rabbit monoclonal to p53	Cell signaling	Cat# 2527
Rabbit monoclonal to BNIP3 (EPR4034)	Abcam	Cat# ab109362
Mouse monoclonal to GLUT1	Abcam	Cat# ab238050
Normal mouse IgG	Millipore Sigma	Cat# 12-371
Normal rabbit IgG	Millipore Sigma	Cat# 12-370
Rabbit polyclonal to Beta tubulin	Cell signaling	Cat# 2146
Mouse monoclonal to Beta actin	Abcam	Cat# ab195475
Rabbit polyclonal to H3 nuclear marker	Abcam	Cat# ab1791
Rabbit monoclonal to H4 (EPR16599)	Abcam	Cat# 177840
Mouse monoclonal anti-rabbit IgG light chain (HRP)	Abcam	Cat# ab99697
Rat monoclonal anti-mouse kappa light chain (HRP)	Abcam	Cat# ab99632
Goat anti-rabbit IgG (H+L) Alexa Fluor™ 488+	Invitrogen	Cat# A32731
Goat anti-mouse IgG (H+L) Alexa Fluor™ 555+	Invitrogen	Cat# A32727