Figure S1

Protein sequence

```
ORIGIN
1 mafmkkyllp ilglfmayyy ysaneefrpe mlqgkkvivt gaskgigrem ayhlakmgah
61 vvvtarsket lqkvvshcle lgaasahyia gtmedmtfae qfvaqagklm ggldmlilnh
121 itntslnlfh ddihhvrksm evnflsyvvl tvaalpmlkq sngsivvvss lagkvaypmv
181 aaysaskfal dgffssirke ysvsrvnvsi tlcvlglidt etamkavsgi vhmqaapkee
241 caleiikgga lrqeevyyds slwttllirn pcrkilefly stsynmdrfi nk
```

HSD11B1 DNA sequence

```
ORIGIN
1    acaattcaga ggctgctgcc tgcttaggag gttgtagaaa gctctgtagg ttctctctgt
61   gtgtcctaca ggagtcttca ggccagctcc ctgtcggatg gcttttatga aaaaatatct
121  cctccccatt ctggggctct tcatggccta ctactactat tctgcaaacg aggaattcag
181  accagagatg ctccaaggaa agaaagtgat tgtcacaggg gccagcaaag ggatcggaag
241  agagatggct tatcatctgg cgaagatggg agcccatgtg gtggtgacag cgaggtcaaa
301  agaaactcta cagaaggtgg tatcccactg cctggagctt ggagcagcct cagcacacta
361  cattgctggc accatggaag acatgacctt cgcagagcaa tttgttgccc aagcaggaaa
421  gctcatggga ggactagaca tgctcattct caaccacatc accaacactt ctttgaatct
481  ttttcatgat gatattcacc atgtgcgcaa aagcatggaa gtcaacttcc tcagttacgt
541  ggtcctgact gtagctgcct tgcccatgct gaagcagagc aatggaagca ttgttgtcgt
601  ctcctctctg gctgggaaag tggcttatcc aatggttgct gcctattctg caagcaagtt
661  tgctttggat gggttcttct cctccatcag aaaggaatat tcagtgtcca gggtcaatgt
721  atcaatcact ctctgtgttc ttggcctcat agacacagaa acagccatga aggcagtttc
781  tgggatagtc catatgcaag cagctccaaa ggaggaatgt gccctggaga tcatcaaagg
841  gggagctctg cgccaagaag aagtgtatta tgacagctca ctctggacca ctcttctgat
901  cagaaatcca tgcaggaaga tcctggaatt tctctactca acgagctata atatggacag
961  attcataaac aagtaggaac tccctgaggg ctgggcatgc tgagggattt tgggactgtt
1021 ctgtctcatg tttatctgag ctcttatcta tgaagacatc ttcccagagt gtccccagag
1081 acatgcaagt catgggtcac acctgacaaa tggaaggagt tcctctaaca tttgcaaaat
1141 ggaaatgtaa taataatgaa tgtcatgcac cgctgcagcc agcagttgta aaattgttag
1201 taaacatagg tataattacc agatagttat attaaattta tatcttatat ataataatat
1261 gtgatgatta atacaatatt aattataata aaggtcacat aaactttata aattcataac
1321 tggtagctat aacttgagct tattcaggat ggtttcttta aaaccataaa ctgtacaaat
1381 gaaa
```

Fusion Protein design

NheI Kozak

5′GCTAGC**GCCACCATGGCG**AGC**ATG**GATAGCACTGAGAACGTCATCAAGCCCTTCATGCGCTTCAAGGT
GCACATGGAGGGCTCCGTGAACGGCCACGAGTTCGAGATCGAGGGCGTGGGCGAGGGCAAGCCCTACGAG
GGCACCCAGACCGCCAAGCTGCAAGTGACCAAGGGCGGCCCCCTGCCCTTCGCCTGGGACATCCTGTCCC
CCCAGTTCTTCTACGGCTCCAAGGCGTACATCAAGCACCCCGCCGACATCCCCGACTACCTCAAGCAGTC
CTTCCCCGAGGGCTTCAAGTGGGAGCGCGTGATGAACTTCGAGGACGGCGGCGTGGTGACCGTGACCCAG
GACTCCTCCCTGCAGGACGGCACCCTCATCTACCACGTGAAGTTCATCGGCGTGAACTTCCCCTCCGACG
GCCCCGTAATGCAGAAGAAGACTCTGGGCTGGGAGCCCTCCACTGAGCGCAACTACCCCCGCGACGGCGT
GCTGAAGGGCGAGAACCACATGGCGCTGAAGCTGAAGGGCGGCGGCCACTACCTGTGTGAGTTCAAGTCC
ATCTACATGGCCAAGAAGCCCGTGAAGCTGCCCGGCTACCACTACGTGGACTACAAGCTCGACATCACCT
CCCACAACGAGGACTACACCGTGGTGGAGCAGTACGAGCGCGCCGAGGCCCGCCACCACCTGTTCCAGGA
TGACGATGACAAG**ATG**GCTTTTATGAAAAAATATCTCCTCCCCATTCTGGGGCTCTTCATGGCCTACTAC
TACTATTCTGCAAACGAGGAATTCAGACCAGAGATGCTCCAAGGAAAGAAAGTGATTGTCACAGGGGCCA
GCAAAGGGATCGGAAGAGAGATGGCTTATCATCTGGCGAAGATGGGAGCCCATGTGGTGGTGACAGCGAG
GTCAAAAGAAACTCTACAGAAGGTGGTATCCCACTGCCTGGAGCTTGGAGCAGCCTCAGCACACTACATT
GCTGGCACCATGGAAGACATGACCTTCGCAGAGCAATTTGTTGCCCAAGCAGGAAAGCTCATGGGAGGAC
TAGACATGCTCATTCTCAACCACATCACCAACACTTCTTTGAATCTTTTTCATGATGATATTCACCATGT
GCGCAAAAGCATGGAAGTCAACTTCCTCAGTTACGTGGTCCTGACTGTAGCTGCCTTGCCCATGCTGAAG

CAGAGCAATGGAAGCATTGTTGTCGTCTCCTCTCTGGCTGGGAAAGTGGCTTATCCAATGGTTGCTGCCT
ATTCTGCAAGCAAGTTTGCTTTGGATGGGTTCTTCTCCTCCATCAGAAAGGAATATTCAGTGTCCAGGGT
CAATGTATCAATCACTCTCTGTGTTCTTGGCCTCATAGACACAGAAACAGCCATGAAGGCAGTTTCTGGG
ATAGTCCATATGCAAGCAGCTCCAAAGGAGGAATGTGCCCTGGAGATCATCAAAGGGGGAGCTCTGCGCC
AAGAAGAAGTGTATTATGACAGCTCACTCTGGACCACTCTTCTGATCAGAAATCCATGCAGGAAGATCCT
GGAATTTCTCTACTCAACGAGCTATAATATGGACAGATTCATAAACAAG**TAG**GCGGCCGC**3′**
Not1

Table S1. Antibodies used in Western blot studies.

Antibody	Host	Source/Catalog	WB dilution
Acetyl H4K12	Sheep	R&D Systems/AF5215	1:1000
H4	Rabbit	Cell Signaling/#2592	1:1000
Acetyl H3K9	Rabbit	Millipore/06-599	1:1000
H3	Rabbit	Cell Signaling/#9715	1:1000
H3K9me2	Rabbit	Cell Signaling/#4658	1:1000
NF-κβ	Rabbit	Cell Signaling/DE14E12	1:1000
NRF2	Rabbit	Santa Cruz/sc-722	1:500
Beclin 1	Rabbit	Abcam/ab62557	1:1000
p-TORC1 S151	Rabbit	Cell Signaling/#3359	1:1000
TORC1	Rabbit	Cell Signaling/#2501	1:1000
LC3B	Rabbit	Cell Signaling/#2775	1:1000
p-CREB S133	Rabbit	Cell Signaling/#9198	1:1000
CREB	Rabbit	Cell Signaling/#4820	1:1000
BDNF	Rabbit	Santa Cruz/N-20	1:500
PSD95	Rabbit	Abcam/ab12093	1:2000
Synaptophysin	Mouse	Millipore/MAB5258	1:1000
SNAP25	Mouse	Santa Cruz/ SP-12	1:500
GAPDH	Mouse	Millipore/MAB374	1:2000
β-Tubulin	Mouse	Millipore/Clone AA2	1:2000
TBP	Mouse	Abcam/ab818	1:2000
Goat-anti-mouse HRP conjugated		Biorad/170-5047	1:2000
Goat-anti-rabbit HRP conjugated		Biorad/170-6515	1:2000
Donkey-anti-goat HRP conjugated		Santa Cruz/sc-2020	1:2000

Table S2. Primers and probes used in qPCR studies.

SYBR-Green primers

Target	Product size (bp)	Forward primer (5'-3')	Reverse primer (5'-3')
Tet2	113	CCATCATGTTGTGGGACGGA	ATTCTGAGAACAGCGACGGT
Hdac2	280	CTATCCCGCTCTGTGCCCT	GAGGCTTCATGGGATGACCC
Il-1β	179	ACAGAATATCAACCAACAAGTTG ATATTCTC	GATTCTTTCCTTTGAGGCCCA
Cxcl2	100	AGCCACACTTCAGCCTAGCG	TGTAGCCTGGTGGTTGGTGG
Tnf-α	157	TCGGGGTGATCGGTCCCCAA	TGGTTTGCTACGACGTGGGCT
Gfap	125	CCTTCTGACACGGATTTGGT	ACATCGAGATCGCCACCTAC
Aox1	286	CATAGGCGGCCAGGAACATT	TCCTCGTTCCAGAATGCAGC
iNOS	101	GGCAGCCTGTGAGACCTTTG	GAAGCGTTTCGGGATCTGAA
Adam10	125	CCTTCTGACACGGATTTGGT	CTGTACAGCAGGGTCCTTGAC
Bace1	67	ACAAGCCTTTCCGCCTCC	TCAGGCCACCATAATCCAGC
Aβ-precursor	99	TCGGGGTGATCGGTCCCCAA	GTCACGTTCACCCTCCCCAG
Neprilisin12	196	TTGGGAGACCTGGCGGAAAC	CATTCCTTGGACCCTCACCCC
Creb	86	GGCTGCTGCTGCCTGT	ACACACCGCGTCAAACTACA
β-actin	218	CTGTCCCTGTATGCCTCTG	ATGTCACGCACGATTTCC

Taqman probes

Target	Product size (bp)	Reference
Dnmt1	58	Mm01151063_m1
Gapdh	107	Mm99999915_g1