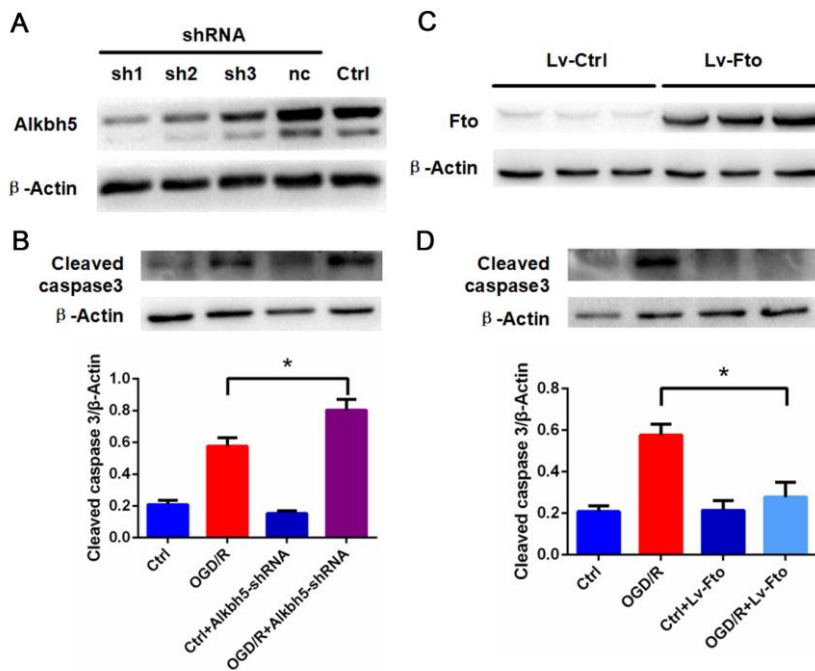


Supplementary Figure 1 The levels of other demethylases and methyltransferases in rat cerebral cortex after MCAO. (A) Representative images of Western blots of OGD/R treated primary neurons. Alkhh5 levels were determined by Western blot (mean \pm SEM; $n \geq 3$; *** $P < 0.001$ vs. Ctrl). (B) qRT-PCR images of MCAO treated rat cerebral cortex. Alkhh5 levels were analyzed by qRT-PCR (mean \pm SEM; $n = 3$; * $P < 0.05$ vs. sham). (C) qRT-PCR images of OGD/R treated primary neurons. Alkhh5 levels were analyzed by qRT-PCR (mean \pm SEM; $n \geq 3$; * $P < 0.05$ vs. Ctrl). (D) Immunohistochemical results of Mettl3 in rat cerebral cortex in two indicator groups: tawny staining for Mettl3 protein and light blue staining for hematoxylin. Scale bar = 100 μ m, and the small picture scale bar = 2000 μ m. Quantification of Mettl3 was shown (mean \pm SEM; $n = 3$; ns $P > 0.05$ vs. Sham).



Supplementary Figure 2. Alkhh5 knockdown enhanced OGD/R treated primary neuronal apoptosis and Fto overexpression attenuated OGD/R treated primary neuronal apoptosis. (A) Representative images of Western blots of primary neurons infected with Alkhh5-shRNA. Alkhh5 levels were determined by Western blot. Quantification of Alkhh5 protein levels showed a knockdown efficiency of over 70%. (B) Representative

images of Western blots of primary neuron infected with Alkbh5-shRNA. Cleaved-caspase3 levels were determined by Western blot (mean \pm SEM; n = 3; * P < 0.05 vs. OGD/R). (C) Representative images of Western blots of primary neurons infected with Lv-Fto. Fto levels were determined by Western blot. (D) Representative images of Western blots of primary neuron infected with Lv-Fto. Cleaved-caspase3 levels were determined by Western blot (mean \pm SEM; n = 3; * P < 0.05 vs. OGD/R).

Supplementary Table 1. The primers used in this study.

Primer name		Sequence
Alkbh5	Alkbh5 F	CGGAAGTACCAGGAGGACTCAGAC
	Alkbh5 R	GGATGCCGCTCTTCACCTTGC
Fto	Fto F	GACCGTCCTGCGATGATGAAGTG
	Fto R	CCTGTCCACCAAGTTCTCGTCATG
Mettl3	Mettl3 F	CACGCTGCCTCAGATGTTGACC
	Mettl3 R	CTGACCTTCTTGCTCTGCTGTTCC
Mettl14	Mettl14 F	TGAGAGGCTTAGACCGAAGTCACC
	Mettl14 R	GACCACGGCCAGCAGATGTTC
Bcl2	Bcl2 F	CACGGTGGTGGAGGAAGTCT
	Bcl2 R	TCCACAGAGCGATGTTGTCC
WTAP	WTAP F	AGAACATCCTTGTCATGCGGCTAG
	WTAP R	TCGGCTGCTGAACTTGCTTGAG
VIRMA	VIRMA F	GGTGCTAAGAGGCTGGTACAAGTCTG
	VIRMA R	TGGAGGAGGAGGTGGAGGAGAG
RBM15	RBM15 F	AGGTTCTGGCAGCGGGGATG
	RBM15 R	CGGCTCACATACACGGCTTCTATC

Supplementary Table 2. The reagents used in this study.

Reagents	Company	Catalogue Number
Neurobasal medium	Thermo fisher scientific	21103-049
B-27 Supplement (50X), serum free	Thermo fisher scientific	17504-044
L-Glutamine	Thermo fisher scientific	25030-081
Hanks' Balanced Salt Solution (HBSS)	Thermo fisher scientific	14170-112
Trypsin-EDTA (0.25%)	Thermo fisher scientific	25200-072
DMEM, no Glucose	Thermo fisher scientific	11966-025
Fetal bovine serum (FBS)	Thermo fisher scientific	10099-141
0.25% Trypsin	Thermo fisher scientific	15050-057
PBS	Thermo fisher scientific	C20012500BT
DMEM, High Glucose	Thermo fisher scientific	C11995500BT
Penicillin-Streptomycin	Thermo fisher scientific	15140-122
BCA Protein Assay Kit	Thermo fisher scientific	23227
West Femto	Thermo fisher scientific	34094
Gold Antifade Mountant with DAPI	Thermo fisher scientific	P-36931
Polyethylenimine	Polysciences	23966-1
TEMED	Sigma-Aldrich	T9281

1-Bromo-3-chloropropane	Sigma-Aldrich	B9673
Glycerol	Solarbio life sciences	G8190
Tween-20	Solarbio life sciences	T8220
DMSO	Solarbio life sciences	D8370
RIPA buffer	Solarbio life sciences	R0010
Hoechst 33342/PI Double Stain Kit	Solarbio life sciences	CA1120
Protein Phosphatase Inhibitor	Solarbio life sciences	P1260
0.01M PBS	Solarbio life sciences	P1010
Sodium dodecylsulfate (SDS)	Solarbio life sciences	S8010
1.5M Tris-HCl	Solarbio life sciences	T1010
1M Tris-HCl	Solarbio life sciences	T1020
Acrylamide	Solarbio life sciences	A1010
Poly-L-lysine Solution	Solarbio life sciences	P2100
Sodium acetate	Solarbio life sciences	A1070
Ammonium persulfate substitute	Beyotime Biotechnology	ST005
SDS-PAGE Sample Loading Buffer	Beyotime Biotechnology	P0015
Stripping buffer	Beyotime Biotechnology	P0025
Skim milk	BD	232100
Albumin bovine	Generay Biotechnology	0332
Paraformaldehyde	Macklin	P804536
Isoflurane	RWD life science	R510-22
Chloral hydrate	Meilunbio	MB4202
WesternBright ECL	Advansta	K-12045-D10
Cell Counting Kit-8 assay kit	Dojindo	CK04-500
<i>Eco</i> R I	Takara	1611
<i>Xba</i> I	Takara	1634
T4 DNA Ligase	Takara	2011A
<i>E. coli</i> DH5 α	Takara	9057
Ampicillin	Solarbio life sciences	A8180
Plasmid Mini Kit	Qiagen	12123
EndoFree Plasmid Maxi Kit	Qiagen	12362
Agarose	Meilunbio	MB2555
Tryptone	Oxoid	LP0042
Yeast extract	Oxoid	LP0021
actinomycin D	MedChemExpress	HY-17559