

Nervous bioprocess/disease	Methyltransferase/ demethylases	Expression	Target RNAs	Mechanism(Refs)
Cerebellar Development	Mettl3	Downregulated	<i>Dapk1, Fadd, Ngfr</i>	Controlling mRNA stability of genes related to cerebellar development and apoptosis(1).
	Alkbh5	Downregulated	<i>Ddx11, Ccnb1, Cbx1</i>	Affecting RNA nuclear export(2).
Cortical Neurogenesis	Mettl14	Downregulated	<i>CBP, p300</i>	destabilizing transcripts encoding histone modifiers(3).
	FTO	Downregulated	<i>Pdgfra, Socs5-Stat3, BDNF</i>	Decreasing the expression of BDNF protein(4).
Proliferation and Differentiation of Neural Stem Cells	FTO	Downregulated	<i>Pdgfra, Socs5, Stat3</i>	regulating aNSCs through modulating Pdgfra/Socs5-Stat3 pathway.(5).
	YTHDF2	Downregulated	<i>Nrp2, Nrnx3</i>	delayed mRNA clearance, contribute to the defects in neurogenesis(6).
Oligodendroglial Specification and Myelination	Prrc2a		Olig2	stabilizing Olig2 mRNA through binding to a consensus GGACU motif in the Olig2 CDS(7).
Ischemic Stroke	FTO	Downregulated	--	Reducing Fto immunoreactive structures in the hippocampus may be associated with impairments in Fto-related hippocampal function(8).
	YTHDC1	Upregulated	<i>Pten</i>	Regulating of <i>PTEN</i> mRNA stability(9).
Ischemia-Reperfusion Injury	FTO	Downregulated	<i>Bcl2</i>	preventing Bcl2 transcript degradation and enhancing Bcl2 protein expression(10).
Traumatic Brain Injury	FTO/Mettl14	Downregulated		Altering transcripts related to metabolic processes(11).
Alzheimer's Disease	FTO	Downregulated	A β /Synaptophysin	Enhancing A β protein expression and reducing synaptophysin protein expression(12).

	Mettl3	Downregulated	<i>tau</i>	level of METTL3 positively correlated with that of Tau in the insoluble fraction of these hippocampal lysates(13).
Septic Encephalopathy	YTHDF1	Upregulated	<i>JAK/STAT</i>	reducing the entry of macrophages into the brain to cause endothelial damage(14).
Spinal Cord Injury	Mettl14	Upregulated	EEF1A2	METTL14 inhibited neuronal apoptosis in the spinal cord through the mediation of EEF1A2 m6A methylation(15).
Depression	FTO	downregulated	<i>Adrb2</i>	ADRB2 stimulation improve the depression-like behaviors and spine loss induced by hippocampal Fto deficiency(16).

Table1. Methyltransferases/demethylases and corresponding target RNAs in brain disease and nervous bioprocess.

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