

KEY RESOURCES TABLE

REAGENT or RESOURCE	SOURCE	IDENTIFIER
Antibodies		
Mouse monoclonal anti-m ¹ A antibody	Medical and Biological Laboratories Co., Ltd.	Cat# D345-3
Rabbit polyclonal anti-TRMT61 antibody	Sigma	Cat#SAB2700607
Rabbit monoclonal anti-eEF1 α antibody	Abcam	Cat#ab157455
Rabbit polyclonal anti-TRMT6 antibody	Sigma	Cat#SAB2107213
Chemicals, Peptides, and Recombinant Proteins		
DMEM	Gibco	Cat#11965
FBS	Gibco	Cat#10438-026
Pen/Strep	Gibco	Cat#15140
Dynabeads® Protein A for Immunoprecipitation	ThermoFisher	Cat#10001D
Anti-FLAG® M2 Magnetic Beads	Sigma	Cat#M8823
Lactimidomycin	EMD Millipore	5.06291.0001
L-Homopropargylglycine	ThermoFisher	C10186
SUPERNase In	ThermoFisher	AM2694
Critical Commercial Assays		
Dual-Luciferase® Reporter Assay System	Promega	E1910
NEB Next® Multiplex Small RNA Library Prep Set for Illumina®	NEB	E7300S
Deposited Data		
Raw data files for RNA sequencing	Gene Expression Omnibus (GEO)	GSE65299
Experimental Models: Cell Lines		
Mouse embryonic fibroblast wild type	Nordstrand et al., 2010	N/A
<i>Alkbh1</i> ^{-/-} mouse embryonic fibroblast	Nordstrand et al., 2010	N/A
HeLa	ATCC (CCL-2)	N/A
<i>Alkbh1</i> ^{-/-} mouse embryonic stem cell	Ougland et al., 2012	N/A
Wild-type mouse embryonic stem cell	Ougland et al., 2012	N/A
Recombinant DNA		
pMCSG19-His- <i>ALKBH1</i>	This paper	N/A

pcDNA-ALKBH1 wild-type	This paper	N/A
pcDNA-ALKBH1-H231AD233A mutant	This paper	N/A
pMSCV-FLAG-HA-ALKBH1	This paper	N/A
Sequence-Based Reagents		
See method details for reporter mutant and RNAi oligoes	This paper	N/A
See method details for biotinylated single-stranded DNA probes	This paper	N/A
See method details for probes for biochemistry experiments	This paper	N/A
See method details for Northern blot probes	This paper	N/A
Software and Algorithms		
Trimmomatic	Bolger et al., 2014	N/A
Other		
See summary of the high-throughput sequencing reads in SI Table S1	This paper	N/A
See Summary of tRNA m ¹ A58 methylation in human tRNAs in SI Table S2	Machnicka et al., 2013 Cozen et al., 2015	N/A