

Supplementary table 1:

Primers for mature miR-124a and pre-miR-124a quantification

Name	sequence
mature miR-124a	GTCGTATCCAGTGCGTGTTCGTGGAGTCGGCAATT
reverse-transcription primer	GCACTGGATACGACGGCATTC
mmu/Rno-miR-124a-Forward	TTGGTAAGGCACGCGGT
mmu/Rno-miR-124a-Reverse	CAGTGC GTGTTCGTGGAGT
mmu/Rno-RnU6-Forward	CTCGCTTCGGCAGCACA
mmu/Rno-RnU6-Reverse	AACGCTTCACGAATTTGCGT
mmu-pre-mir124-all-Forward	TCCGTGTTACAGCGGAC
mmu-pre-mir124-all-Reverse	CATTCACCGCGTGCCTTA

Supplementary table 2:

Primers for Real-time quantitative PCR

Name	sequence
mmu-ETS2-Forward	GAAAACTCTCACCTCAACGC
mmu-ETS2-Reverse	ACATGCTGTCCAGGAGATTG
mmu-ACTB-Forward	CAAGCAGGAGTACGATGAGTC
mmu-ACTB-Reverse	AACGCAGCTCAGTAACAGTC
mmu-FOXA2-Forward	GCAGACACTTCTACTACCAAG
mmu-FOXA2-Reverse	TTCCTCAAAGCTCTCCCAAAG
mmu-neurod1-Forward	CTCCAGGGTTATGAGATCGTC
mmu-neurod1-Reverse	GTCCTGAGAACTGAGACTC
mmu-PDX1-Forward	CCCTTTCCCGTGGATGAAATC
mmu-PDX1-Reverse	GAATTCCTTCTCCAGCTCCAG
mmu-INS1-Forward	ATCAGAGACCATCAGCAAGC
mmu-INS1-Reverse	GTTTGACAAAAGCCTGGGTG
mmu-INS2-Forward	GGCTTCTTCTACACCCCATG
mmu-INS2-Reverse	TGATCTACAATGCCACGCTTC
Rno-FOXA2-Forward	CTGGGACTTAACTGTAACGGG
Rno-FOXA2-Reverse	ATGTTGCTCACGGAAGAGTAG
Rno-neurod1-Forward	TCATGAGTGCCAGCTTAATG
Rno-neurod1-Reverse	ACAGTGGATTCGTTTCCCG
Rno-PDX1-Forward	GGCTTAACCTAAACGCCACA
Rno-PDX1-Reverse	AGAGTCCCAGAGGCAGACCT
Rno-INS1-Forward	ATCTTCAGACCTTGGCACTG
Rno-INS1-Reverse	GGCTTTATTTCATTGCAGAGGG
Rno-INS2-Forward	CCCAGGCTTTTGTCAAACAG
Rno-INS2-Reverse	CACCCAGCTCCAGTTGTG
Rno-ACTB-Forward	CAAGCAGGAGTACGATGAGTC
Rno-ACTB-Reverse	AACGCAGCTCAGTAACAGTC

Supplementary table 3:

Primers for plasmid construction		
Vector name	Direction	Sequence
pCDNA3.1-ETS2	Forward	gtgccgattacgtggatccGCCACCATGAATGACTTTGGAATCA AGAACA
	Reverse	tgctggatatctgcagaattcGTCTTCTGTATCAGGCTGGACGC
pCDNA3.1-ETS2 -T72A	Forward	gtgccgattacgtggatccGCCACCATGAATGACTTTGGAATCA AGAACA
	Reverse	tgctgcaggAGcGAGCAAAGGCAGCTCGC
	Forward	ttgtctcctCCCTGCAGCAAGGCAGTG
	Reverse	tgctggatatctgcagaattcGTCTTCTGTATCAGGCTGGACGC
pGL3-miR124a1 -promoter	Forward	atctgcgatctaagtaagcttGGAAGCACTTGGGGCTTGG
	Reverse	cagtaccggaatgccaagcttTTCTCCTGAGGAAGGAAGAAGGA
pGL3-miR124a2 -promoter	Forward	atctgcgatctaagtaagcttTAGGTAGTTGTATTGGGGCCAGTG
	Reverse	cagtaccggaatgccaagcttCTAGAAGCAAGTGACTCATTGCAAC
pGL3-miR124a3 -promoter	Forward	atctgcgatctaagtaagcttGACTGGCACCTGCAAAGGG
	Reverse	cagtaccggaatgccaagcttGGGCCCTCAGGGCTGCGG
pGL3-mut-miR124 a1 -promoter	Forward	atctgcgatctaagtaagcttGGAAGCACTTGGGGCTTGG
	Reverse	ttccaagcttGCAAAGGGGAGGGGGGTG
	Forward	tccctttgcAAGCTTGAAACGAAAGGATGC
	Reverse	cagtaccggaatgccaagcttTTCTCCTGAGGAAGGAAGAAGGA
pGL3-mut-miR124 a2 -promoter	Forward	atctgcgatctaagtaagcttTAGGTAGTTGTATTGGGGCCAGTG
	Reverse	caggacgagagaatgtGAGATGGAGTCTTGAAAGCGAGTC
	Forward	ctcACATTTCTCTCGTCCTGACTGCA
	Reverse	cagtaccggaatgccaagcttCTAGAAGCAAGTGACTCATTGCAAC
pGL3-mut-miR124 a3 -promoter	Forward	atctgcgatctaagtaagcttGACTGGCACCTGCAAAGGG
	Reverse	ttgGCAGACTGGAAGAACCACACAGA
	Forward	tggttcttcagctctgcCAAGGCCCGCTGGGAAGG
	Reverse	aaggaagccgggcaaGAGGGCCGGGTGGGAGCC
	Forward	ccctcTTGCCCGCTTCCTTGGC
	Reverse	aactccgaggagccagtTCCCCTCCCCGAGGTAGAG
	Forward	ggaACTGGCTCCTCGGAGTTGGG
	Reverse	cagtaccggaatgccaagcttGGGCCCTCAGGGCTGCGG
pLKO.1-EGFP- Puro-shETS2-3153	Forward	CCGGCATTGATAAAGAGCCGTTATACTCGAGTATAACGG CTCTTTATCAATGTTTTTG
	Reverse	AATTCAAAAACATTGATAAAGAGCCGTTATACTCGAGTA TAACGGCTCTTTATCAATG

Supplementary table 4:

Sequences of siRNA and miRNA mimics	
Name	sequence

MiR-124a mimics sense	UAAGGCACGCGGUGAAUGCC
MiR-124a mimics antisense	AUUCCGUGCGCCACUUACGG
SiETS2-1-987 sense	CAACACCGUCA AUGUCAAUUA
SiETS2-1 antisense	UAAUUGACAUUGACGGUGUUG
SiETS2-2-3153 sense	CAUUGAUAAAGAGCCGUUAUA
SiETS2-2 antisense	UAU AACGGCUCUUUAUCA AUG
NC /siNC sense	UUCUCCGAACGUGUCACGU
NC /siNC antisense	ACGUGACACGUUCGGAGAA

Supplementary figure 1

Figure S1

(A) Primers used for detecting miR-124a isoforms simultaneously are indicated. The sequences of the mouse *miR-124a* precursors are shown. Conserved nucleotides among isoforms are shaded.

(B) Conserved ETS2 binding sites (EBS) on miR-124a promoters between mouse and rat are represented. Promoters (-2000 ~ +1) from the mouse and rat miR-124a genomic regions at indicated location, are aligned, and the conserved EBS sequences and location on corresponding promoters are indicated.

(C) Expression of FOXA2, NEUROD1, PDX1, INS1 and INS2 was determined by qRT-PCR and western blots in INS-1 cells transfected with control, ETS2-WT or ETS2-T72A overexpression plasmids. Values are means \pm SE of three independent experiments (each n = 3). * P < 0.05, ** P < 0.01, *** P < 0.001, **** P < 0.0001. ns, not significant.

(D) ELISA was used to monitor the released insulin levels (normalized to protein level) in ETS2 silencing or overexpression MIN6 cells.

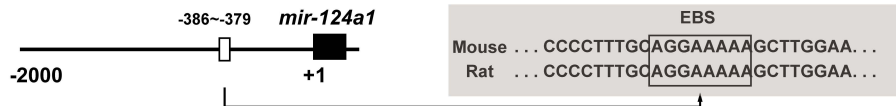
(E), the same with (D), but in ETS2-knockdown or control islets.

A

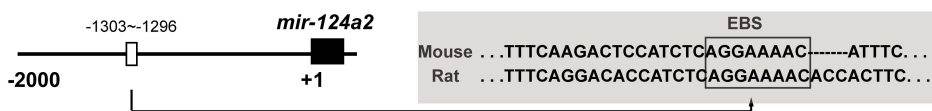
pre-1: AGGCCTCTCTCCGTGTTACAGCGGACCTTGATTAAATGTCATACAATTAAGGCACGCGGTGAATGCCAAGAATGGGGCTG
 pre-2: ATCAAGATCAGAGACTCTGCTCTCCGTGTTACAGCGGACCTTGATT—AATGTC—ATACAATTAAGGCACGCGGTGAATGCCAAGAGCGGACCTACGGCTGCACTTGA
 pre-3: CTCTCGTGTTCACAGCGGACCTTGATT—AATGTCATACAATTAAGGCACGCGGTGAATGCCAAGAG

B

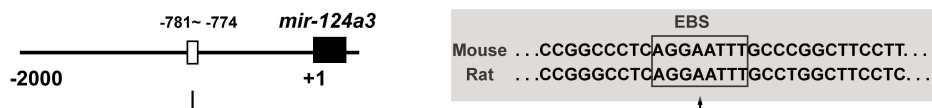
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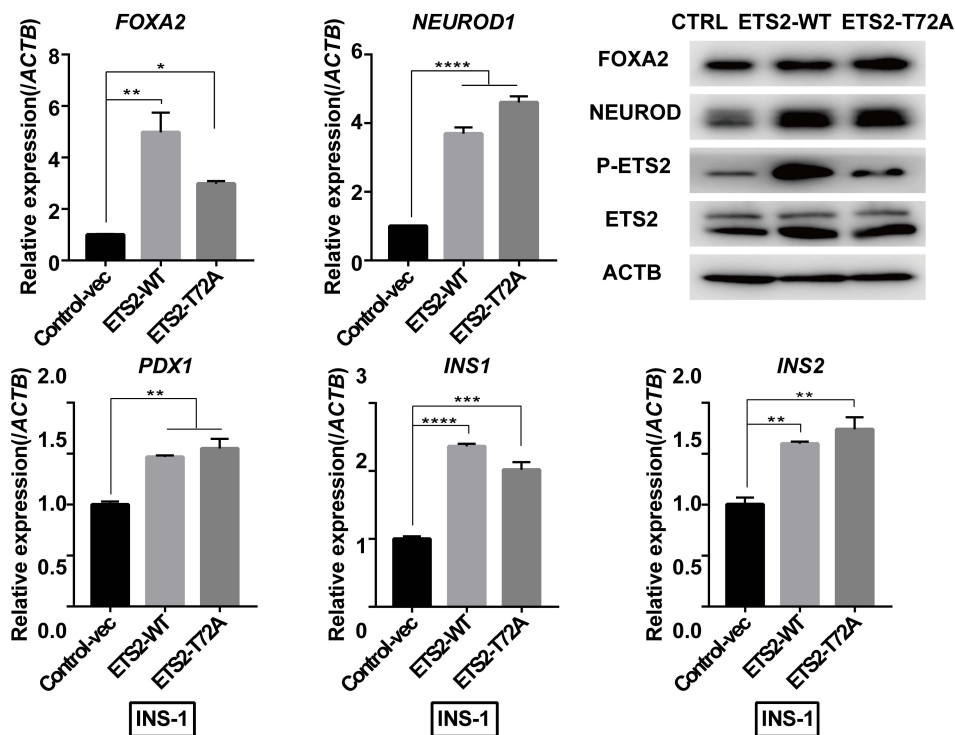
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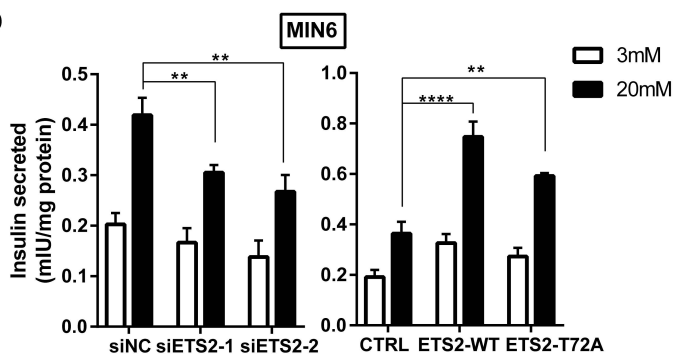
Location: Mouse Chr2: 180892040-180894107 or Rat Chr3: 176404205..176406291



C



D



E

