

## **Supplementary material files**

### **Supplementary Figure 1: Analysis of miR-34a-5p over-expression by qRT-PCR.**

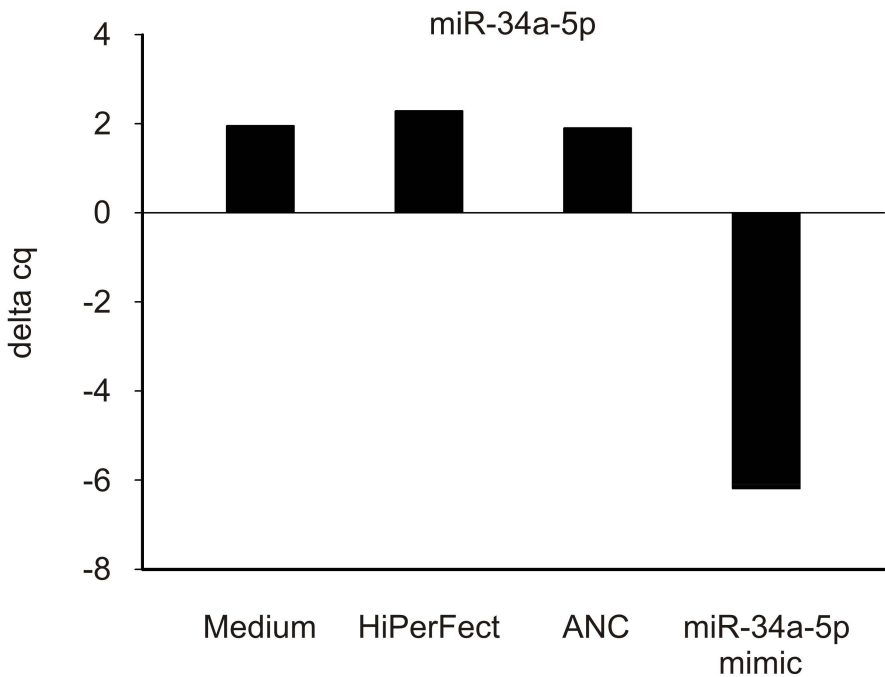
Primary CD4<sup>+</sup> T cells were transfected either with allstars negative control (ANC) or miR-34a-5p mimic. 48 h post transfection the total RNA was isolated and analyzed by qRT-PCR using a specific hsa-miR-34a-5p primer.

### **Supplementary Figure 2: FACS Controls**

CD4<sup>+</sup> T cells were stained for CD4 and co-stained for CD11A or the respective isotype controls for 30 min at 4°C. Cells were analyzed by flow cytometry. Gated CD4<sup>+</sup> T cells (A) were analyzed for CD11A expression (B, dark grey) in comparison to isotype controls (light grey).

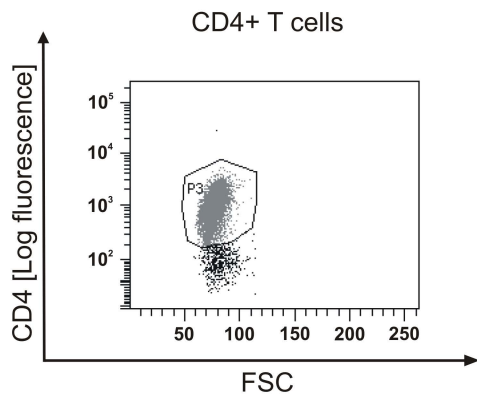
CD8<sup>+</sup> T cells were stained for CD8 and co-stained for CD11A or the respective isotype controls for 30 min at 4°C. Cells were analyzed by flow cytometry. Gated CD8<sup>+</sup> T cells (C) were analyzed for CD11A expression (D, dark grey) in comparison to isotype controls (light grey).

# Figure S1

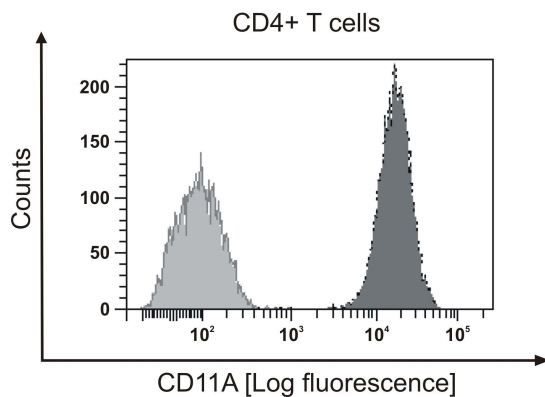


# Figure S2

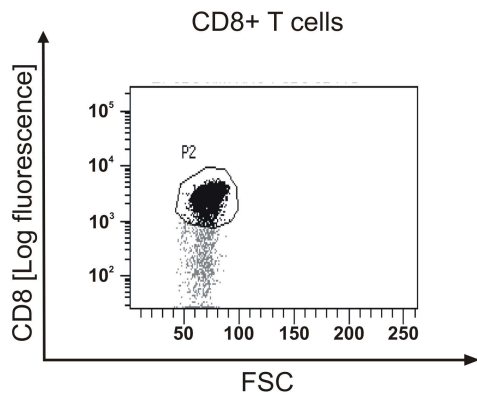
## A



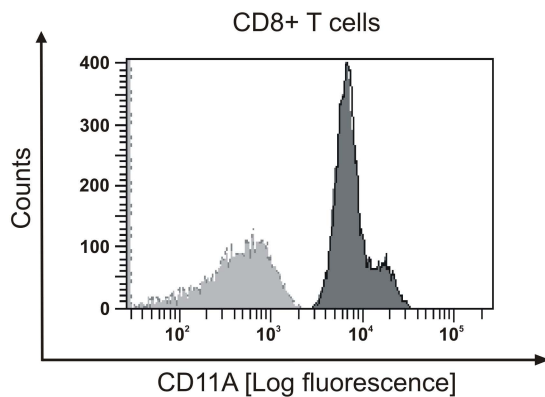
## B



## C



## D



# Supplementary Table 1

target gene	ID	cloning primers	sequence (restriction sites are underlined)
VAMP2	NM_014232.2	5'-VAMP2-SpeI 3'-VAMP2-NaeI	<u>ggactag</u> tccatcatcctcatcatcatc gccggcctcaatcagttcacccaatgag
IKBKE	NM_014002.3	5'-IKBKE-SpeI 3'-IKBKE-SacI	<u>ggactag</u> tcacatgagggcatcctgaag cgagctcgcatagaagaacaggaggctc
MYH9	NM_002473.5	5'-MYH9-SpeI 3'-MYH9-SacI	<u>ggactag</u> tcgaagaggtagatggcaaagc cgagctccctttgtgacagcaactggg
MARCH8	NM_001282866.1	5'-MARCH8-SpeI 3'-MARCH8-SacI	<u>ggactag</u> tgtgtgcggtgtgcatcttc cgagctccagaatgcactgagagtggg
KLRK1	NM_007360.3	5'-KLRK1-SpeI 3'-KLRK1-SacI	<u>ggactag</u> tgagactgtgcactctatgcctc cgagctcccttcttaactgtgaacctgtg
CD11A	NM_002209.2	5'-CD11A-SpeI 3'-CD11A-SacI	<u>ggactag</u> tgagaaggactctgagagtgg cgagctcctctaactcctgacctcagggtg
TRAFD1	NM_001143906.1	5'-TRAFD1-SpeI 3'-TRAFD1-SacI	<u>ggactag</u> tcacatcggttccctgtctctgtg cgagctcctgacacttggtttcagagc
CCR1	NM_001295.2	5'-CCR1-SpeI 3'-CCR1-NaeI	<u>ggactag</u> tctgactcagaccataggagg gccggcctcctacatcaacacagaatc
PYDC1	NM_152901.3	5'-PYDC1-SpeI 3'-PYDC1-SacI	<u>ggactag</u> tgacatgcatgctgttgag cgagctcccataaatatttatgggcagtgaagaataaatgacag
PRF1	NM_001083116.1	5'-PRF1-SpeI 3'-PRF1-SacI	<u>ggactag</u> tgaacagtgagcttgaaaagg cgagctccaaagaagacagagcagctg
PIK3R2	NM_005027.3	5'-PIK3R2-SpeI 3'-PIK3R2-SacI	<u>ggactag</u> tctgtctctcctccatggtggg cgagctccaacgtaccgtacaaaacctg
PIK3CD	NM_001350234.1	5'-PIK3CD-SpeI 3'-PIK3CD-SacI	<u>ggactag</u> tgaccaagcacattgggtcc cgagctcgggtttcacagagtgtgggtc
AP1B1	NM_001127.3	5'-AP1B1-SpeI 3'-AP1B1-SacI	<u>ggactag</u> tcacctcaagaactgagacc cgagctcgatctagtaccgtagggtc
ADAM10	NM_001110.3	5'-ADAM10-SpeI 3'-ADAM10-SacI	<u>ggactag</u> tgtgttccctgttcttctgtg cgagctcccacatcttgattcgcagtgg
PVR	NM_006505.4	5'-PVR-SpeI 3'-PVR-SacI	<u>ggactag</u> tgaccccaatggatgaagac cgagctcgtgggttatttccctgccagtc
AP2S1	NM_001301076.1	5'-AP1B1-SpeI 3'-AP1B1-SacI	<u>ggactag</u> tgaacagctgctgatgtctac cgagctcgacggcaaggccaggaccaggtttattgg
BAD	NM_004322.3	5'-BAD-SpeI 3'-BAD-SacI	<u>gactagt</u> cagctggacgcgagtcttcc cgagctccatttggtagtgacagc
ICOS	NM_012092.3	5'-ICOS-SpeI 3'-ICOS-SacI	<u>ggactag</u> tcatgagagcagtgaaacacag cgagctccgggtatagctgacagcaacc
CD247	NM_198053.2	5'-CD247-SpeI 3'-CD247-NaeI	<u>ggactag</u> tctacctgctggatggaatcc gccggcggtcagctctgttcatcttctgg
ZPF36	NM_003407.3	5'-ZPF36-SpeI 3'-ZPF36-SacI	<u>ggactag</u> tcgcatctctgttctctgagtg cgagctcccagcttaactcagattg
STX8	NM_004853.2	5'-STX8-SpeI 3'-STX8-SacI	<u>ggactag</u> tcagaaagtcagcctcttctg cgagctccagagcttgggggaatttattgagag
SPN	NM_001030288.2	5'-SPN-SpeI 3'-SPN-SacI	<u>ggactag</u> tgtgtcggatgaatagtgaggc cgagctcctccagactctggccaac

## Supplementary Table 2: predicted miR-34a target genes

predicted targets in immune system process
DLL1
PRKCQ
CACNB3
ARIH2
EFNB1
ESRRA
KLRK1
HOXB4
MYH9
SERPINE1
CALCR
ADAM10
CDK6
CALCOCO2
NDRG1
LYST
CRHR1
PVR
DPP4
SWAP70
CXCL10
KIT
KITLG
NFKBIA
NUB1
PKNOX1
PAG1
PURB
PVRL1
CCL22
SNCA
VCAM1
ZFP36
CAV1
TOB2
FSTL3
CEACAM8
TRAFD1
GPR44
CHRN2
RASGRP4
CCR1
ANKRD54
CRP
CX3CR1
VAMP2
CYP11B1

predicted targets in immune system process
CFD
EDN2
RTKN2
ICOSLG
DDX58
PYDC1
GBP2
GCH1
B4GALT1
POLL
HLA-DQA1
HLX
HMGB1
TLX1
TMEM173
AP1B1
IFI35
IKBKB
IL1R1
AQP3
IRAK2
ITPKB
KCNJ8
ARHGDIB
MARCH8
LTF
MITF
ATM
OAS3
GLRX5
PDGFB
PML
STX8
TOLLIP
PRKCA
CXCL16
RFX1
BCL6
SMAP1
ROCK1
CXCL11
CXCL5
PRDM16
SELPLG
SPN
TAL1
TGFBR2
TGFBR3
TLR4

predicted targets in immune system process
WNT2B
TFEB
ROGDI
ICOS
NLRC5
TN-
FRSF14
BCL10
CCND3
MAP3K14
RSAD2
IL1RL1
CD247
GPR55
CD28
CXCL14
GTPBP1
CD47
CD97
P2RY14
RC3H1
PIK3CD
SARM1
IRF1
JARID2
SP2
TACR1
WNT1
BCL2
TRIM10
CPLX2
AP2S1
ADD2
ADK
CR2
NFAM1
IL28RA
POLR3H
FKBP1B
JMJD6
IL1RN
PIK3R2
IL6R
INPP5D
KIR2DL1
KIR3DL1
CD46
NOTCH4
FOXP3

predicted targets in immune system process
ENPP1
PLCG1
SOX6
CTNNBIP1
<b>BAD</b>
SATB1
TCF7
THRA
C1QC
UNG
VEGFA
XBP1
<b>PRF1</b>
CBFA2T3
ACVR1B
CD3E
CD86
CD44
ABCC9
SEMA4D
MS4A2
SIT1
IRF4
<b>ITGAL</b>
JAK2
LY9
LY75
SMAD3
MLL
OSM
MASP1
ST6GAL1
BMP6
TCF12
TPD52
CALCA
ULBP2
<b>IKBKE</b>
SH2B3
PATZ1
MAPK1
NOTCH2
PODXL
ITCH
JAG1
NOTCH1
BCL11B
SOX4



**Supplementary Table 3: validated miR-34a target genes**

<b>miRTarBase ID</b>	<b>miRNA</b>	<b>validated Target Gene</b>	<b>Experiments</b>	<b>Support Type</b>	<b>References (PMID)</b>
MIRT000074	hsa-miR-34a-5p	JAG1	Luciferase reporter assay//qRT-PCR//Western blot	Functional MTI	20351093
MIRT000074	hsa-miR-34a-5p	JAG1	Flow//Immunoblot//Luciferase reporter assay//Microarray//qRT-PCR	Functional MTI	19398721
MIRT000074	hsa-miR-34a-5p	JAG1	Flow//In situ hybridization//Luciferase reporter assay//Microarray//qRT-PCR//Western blot	Functional MTI	24307639
MIRT001010	hsa-miR-34a-5p	CCND3	Western blot	Non-Functional MTI	18406353
MIRT001012	hsa-miR-34a-5p	CDK6	qRT-PCR//Luciferase reporter assay//Western blot//Reporter assay	Functional MTI	18406353
MIRT001012	hsa-miR-34a-5p	CDK6	Luciferase reporter assay	Functional MTI	19461653
MIRT001012	hsa-miR-34a-5p	CDK6	qRT-PCR//Western blot//Luciferase reporter assay	Functional MTI	19584398

<b>miRTarBase ID</b>	<b>miRNA</b>	<b>validated Target Gene</b>	<b>Experiments</b>	<b>Support Type</b>	<b>References (PMID)</b>
MIRT001012	hsa-miR-34a-5p	CDK6	Luciferase reporter assay//Western blot//Microarray	Functional MTI	17914404
MIRT001012	hsa-miR-34a-5p	CDK6	Luciferase reporter assay//qRT-PCR//Western blot	Functional MTI	19773441
MIRT001012	hsa-miR-34a-5p	CDK6	Western blot;Other	Functional MTI	21240262
MIRT001012	hsa-miR-34a-5p	CDK6	qRT-PCR//Western blot	Functional MTI	23035210
MIRT001012	hsa-miR-34a-5p	CDK6	PAR-CLIP	Functional MTI (Weak)	23592263
MIRT001231	hsa-miR-34a-5p	WNT1	Luciferase reporter assay	Functional MTI	19336450
MIRT001231	hsa-miR-34a-5p	WNT1	Flow//Immunoblot//Luciferase reporter assay//Microarray//qRT-PCR	Functional MTI	19398721
MIRT001231	hsa-miR-34a-5p	WNT1	Luciferase reporter assay//qRT-PCR//Western blot	Functional MTI	28199987
MIRT001757	hsa-miR-34a-5p	DLL1	Luciferase reporter assay	Functional MTI	14697198
MIRT001757	hsa-miR-34a-5p	DLL1	Luciferase reporter assay	Functional MTI	19461653
MIRT001757	hsa-miR-34a-5p	DLL1	Luciferase reporter assay	Functional MTI	20144220
MIRT001757	hsa-miR-34a-5p	DLL1	Luciferase reporter assay//qRT-PCR//Western blot	Functional MTI	23327670

<b>miRTarBase ID</b>	<b>miRNA</b>	<b>validated Target Gene</b>	<b>Experiments</b>	<b>Support Type</b>	<b>References (PMID)</b>
MIRT002298	hsa-miR-34a-5p	BCL2	Luciferase reporter assay//qRT-PCR//Western blot	Functional MTI	18803879
MIRT002298	hsa-miR-34a-5p	BCL2	Luciferase reporter assay//qRT-PCR//Western blot//Reporter assay;Western blot;qRT-PCR;Other	Functional MTI	19683563
MIRT002298	hsa-miR-34a-5p	BCL2	qRT-PCR//Western blot//Luciferase reporter assay	Functional MTI	18505919
MIRT002298	hsa-miR-34a-5p	BCL2	Luciferase reporter assay	Functional MTI	19461653
MIRT002298	hsa-miR-34a-5p	BCL2	Luciferase reporter assay//Western blot//Microarray	Functional MTI	17914404
MIRT002298	hsa-miR-34a-5p	BCL2	Luciferase reporter assay//Microarray//Western blot	Functional MTI	17656095
MIRT002298	hsa-miR-34a-5p	BCL2	Flow//Immunoblot//Luciferase reporter assay//Reporter assay	Functional MTI	20598588
MIRT002298	hsa-miR-34a-5p	BCL2	Reporter assay;Other	Functional MTI	21399894
MIRT002298	hsa-miR-34a-5p	BCL2	Proteomics	Functional MTI (Weak)	21566225
MIRT002298	hsa-miR-34a-5p	BCL2	qRT-PCR//Western blot	Functional MTI	24565525
MIRT002298	hsa-miR-34a-5p	BCL2	Luciferase reporter assay	Functional MTI	23862748

<b>miRTarBase ID</b>	<b>miRNA</b>	<b>validated Target Gene</b>	<b>Experiments</b>	<b>Support Type</b>	<b>References (PMID)</b>
MIRT002298	hsa-miR-34a-5p	BCL2	qRT-PCR	Functional MTI (Weak)	23292172
MIRT002298	hsa-miR-34a-5p	BCL2	qRT-PCR	Functional MTI (Weak)	26802970
MIRT002298	hsa-miR-34a-5p	BCL2	qRT-PCR//Western blot	Functional MTI	27939626
MIRT002298	hsa-miR-34a-5p	BCL2	Flow//QRTPCR//Western blot	Functional MTI	26406332
MIRT002298	hsa-miR-34a-5p	BCL2	Luciferase reporter assay//qRT-PCR//Western blot	Functional MTI	25910896
MIRT002875	hsa-miR-34a-5p	NOTCH1	Luciferase reporter assay	Functional MTI	14697198
MIRT002875	hsa-miR-34a-5p	NOTCH1	Microarray	Functional MTI (Weak)	19461653
MIRT002875	hsa-miR-34a-5p	NOTCH1	Luciferase reporter assay//qRT-PCR//Western blot	Functional MTI	20351093
MIRT002875	hsa-miR-34a-5p	NOTCH1	Luciferase reporter assay//qRT-PCR//Western blot	Functional MTI	19773441
MIRT002875	hsa-miR-34a-5p	NOTCH1	Luciferase reporter assay//Microarray	Functional MTI	17150773
MIRT002875	hsa-miR-34a-5p	NOTCH1	Immunofluorescence//Immunohistochemistry//Luciferase reporter assay//Microarray//qRT-PCR//Western blot	Functional MTI	22363487

<b>miRTarBase ID</b>	<b>miRNA</b>	<b>validated Target Gene</b>	<b>Experiments</b>	<b>Support Type</b>	<b>References (PMID)</b>
MIRT002875	hsa-miR-34a-5p	NOTCH1	Luciferase reporter assay//qRT-PCR//Western blot	Functional MTI	22684561
MIRT002875	hsa-miR-34a-5p	NOTCH1	Luciferase reporter assay	Functional MTI	23085450
MIRT002875	hsa-miR-34a-5p	NOTCH1	Western blot	Functional MTI	23226240
MIRT002875	hsa-miR-34a-5p	NOTCH1	Microarray//Western blot	Functional MTI	22438124
MIRT002875	hsa-miR-34a-5p	NOTCH1	qRT-PCR//Western blot	Functional MTI	23035210
MIRT002875	hsa-miR-34a-5p	NOTCH1	qRT-PCR//Western blot	Functional MTI	23430952
MIRT002875	hsa-miR-34a-5p	NOTCH1	Luciferase reporter assay//Western blot	Functional MTI	28145431
MIRT002875	hsa-miR-34a-5p	NOTCH1	Luciferase reporter assay//qRT-PCR//Western blot	Functional MTI	26493107
MIRT002875	hsa-miR-34a-5p	NOTCH1	ELISA//Flow//Luciferase reporter assay//qRT-PCR//Western blot	Functional MTI	28129650
MIRT004513	hsa-miR-34a-5p	VEGFA	ELISA//Luciferase reporter assay	Non-Functional MTI	18320040
MIRT005029	hsa-miR-34a-5p	NOTCH2	Luciferase reporter assay//qRT-PCR//Western blot	Functional MTI	19773441

<b>miRTarBase ID</b>	<b>miRNA</b>	<b>validated Target Gene</b>	<b>Experiments</b>	<b>Support Type</b>	<b>References (PMID)</b>
MIRT005029	hsa-miR-34a-5p	NOTCH2	Immunoblot//Immunocytochemistry//Luciferase reporter assay//Microarray//qRT-PCR//Western blot	Functional MTI	22363487
MIRT005480	hsa-miR-34a-5p	CD44	Immunohistochemistry//qRT-PCR//Western blot//Reporter assay;Other	Functional MTI	21240262
MIRT005480	hsa-miR-34a-5p	CD44	Luciferase reporter assay//qRT-PCR//Western blot	Functional MTI	24423412
MIRT005480	hsa-miR-34a-5p	CD44	qRT-PCR//Western blot	Functional MTI	25572695
MIRT005480	hsa-miR-34a-5p	CD44	Flow//qRT-PCR//Western blot	Functional MTI	27497057
MIRT005480	hsa-miR-34a-5p	CD44	qRT-PCR//Western blot	Functional MTI	26231042
MIRT005480	hsa-miR-34a-5p	CD44	Luciferase reporter assay//qRT-PCR//Western blot	Functional MTI	25551284
MIRT006286	hsa-miR-34a-5p	ULBP2	Flow//Luciferase reporter assay//Western blot	Functional MTI	22102694
MIRT006286	hsa-miR-34a-5p	ULBP2	PAR-CLIP	Functional MTI (Weak)	26701625
MIRT006869	hsa-miR-34a-5p	CCL22	Luciferase reporter assay	Functional MTI	22975373
MIRT025289	hsa-miR-34a-5p	EFNB1	Proteomics	Functional MTI (Weak)	21566225

<b>miRTarBase ID</b>	<b>miRNA</b>	<b>validated Target Gene</b>	<b>Experiments</b>	<b>Support Type</b>	<b>References (PMID)</b>
MIRT025289	hsa-miR-34a-5p	EFNB1	PAR-CLIP	Functional MTI (Weak)	23592263
MIRT025369	hsa-miR-34a-5p	PLCG1	Proteomics	Functional MTI (Weak)	21566225
MIRT025409	hsa-miR-34a-5p	NDRG1	Proteomics	Functional MTI (Weak)	21566225
MIRT025584	hsa-miR-34a-5p	TPD52	Sequencing	Functional MTI (Weak)	20371350
MIRT025584	hsa-miR-34a-5p	TPD52	Proteomics	Functional MTI (Weak)	21566225
MIRT307050	hsa-miR-34a-5p	TGFBR2	PAR-CLIP	Functional MTI (Weak)	22012620
MIRT437939	hsa-miR-34a-5p	ARHGDI3	Western blot//Luciferase reporter assay//	Functional MTI	23349340
MIRT438239	hsa-miR-34a-5p	KIT	Luciferase reporter assay//Western blot	Functional MTI	24009080
MIRT438239	hsa-miR-34a-5p	KIT	Luciferase reporter assay	Functional MTI	27056900
MIRT438704	hsa-miR-34a-5p	IL6R	ChIP-seq//Immunofluorescence//qRT-PCR//Western blot	Functional MTI	24642471
MIRT438704	hsa-miR-34a-5p	IL6R	Luciferase reporter assay//qRT-PCR//Western blot	Functional MTI	25973020
MIRT438704	hsa-miR-34a-5p	IL6R	Luciferase reporter assay	Functional MTI	26091352
MIRT535098	hsa-miR-34a-5p	PODXL	PAR-CLIP	Functional MTI (Weak)	22012620

miRTarBase ID	miRNA	validated Target Gene	Experiments	Support Type	References (PMID)
MIRT702573	hsa-miR-34a-5p	JARID2	HITS-CLIP	Functional MTI (Weak)	23313552
MIRT731117	hsa-miR-34a-5p	TCF7	qRT-PCR//Luciferase reporter assay//Immunohistochemistry//Western blot	Functional MTI	25436980
MIRT732534	hsa-miR-34a-5p	CACNB3	Immunocytochemistry//Luciferase reporter assay//Western blot	Functional MTI	25623948
MIRT732593	hsa-miR-34a-5p	MAP3K14	qRT-PCR	Functional MTI (Weak)	25864118
MIRT733801	hsa-miR-34a-5p	NLRC5	Luciferase reporter assay//qRT-PCR//Western blot	Functional MTI	27423514
MIRT733971	hsa-miR-34a-5p	BCL10	PCR array	Functional MTI (Weak)	28097098
MIRT734565	hsa-miR-34a-5p	FKBP1B	Luciferase reporter assay	Functional MTI	26471303
MIRT741440	hsa-miR-34a-5p	POLL	PAR-CLIP	Functional MTI (Weak)	26701625
miR-34a target genes validated by Hart et al.					
n.a.	hsa-miR-34a-5p	PRKCQ	Luciferase reporter assay//Western blot	Functional MTI	27144431
n.a.	hsa-miR-34a-5p	PRKCA	Luciferase reporter assay//Western blot	Functional MTI	27144431
n.a.	hsa-miR-34a-5p	NFKBIA	Luciferase reporter assay//Western blot	Functional MTI	30718475
n.a.	hsa-miR-34a-5p	CD3E	Luciferase reporter assay//FACS	Functional MTI	30718475