

**Supplementary Table S1.** The sequences of microRNA mimics

Name	Company	Sequence (5'-3')
Negative control	Bioneer	AccuTarget™ miRNA Negative Control, mimic #1 (Cat. SMC-2002)
miR-21	Bioneer	UAGCUUAUCAGACUGAUGUUGA
miR-124	Bioneer	CGUGUUCACAGCGGACCUUGAU

**Supplementary Table S2.** The sequences of SiRNAs

Name	Company	Sequence (5'-3')
Negative control	Bioneer	AccuTarget™ Negative Control siRNA (Cat. SN-1002)
SiNR4A1(Rat)	Bioneer	Sense: GAACCGCAUUGCUAGCUGUtt Antisense: ACAGCUAGCAAUGCGGUUCtg

**Supplementary Table S3.** Primer sequences for qRT-PCR

Name	Sequence (5'-3')
Fosb (Rat)	F: GATCCCTTACGAAGAGGGGC R: CGTCTTCCTTAGCGGATGTTG
Nab2 (Rat)	F: CAGCGCATGGGCTATGGA R: CCCACACGATCATGGGAGAC
EGR1 (Rat)	F: AACACTTTGTGGCCTGAACC R: GAGGCAGAGGAAGACGATGA
NR4A1 (Mouse)	F: GCGTCGGCTTCCTTTAAGTT R: AATCAGAGCCACTGGAGGAC
NR4A1 (Rat)	F: GCCCATTAGACGAGACCCTG R: TGAACCATCCCAAGGGGAGA
NR4A2 (Rat)	F: GTCTGTGGAGACAACGCTTC R: AGGCAGATGTACTTGGCACT

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NR4A3  
(Rat)

F: TCCGCCTTCTACACCGA  
R: GCCTTCATCTGCGGGTC

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Raw Data

# Immunoblot

Figure 3A

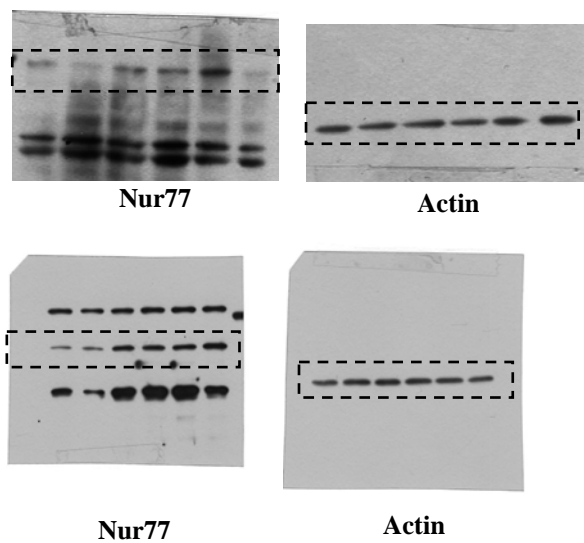


Figure 3C

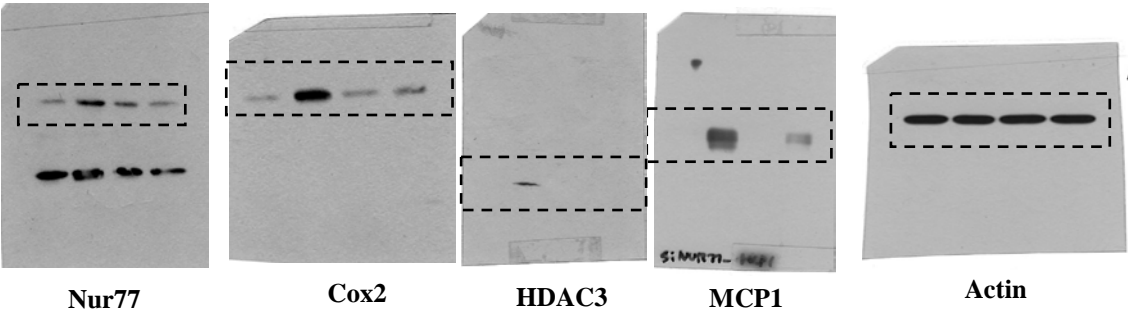
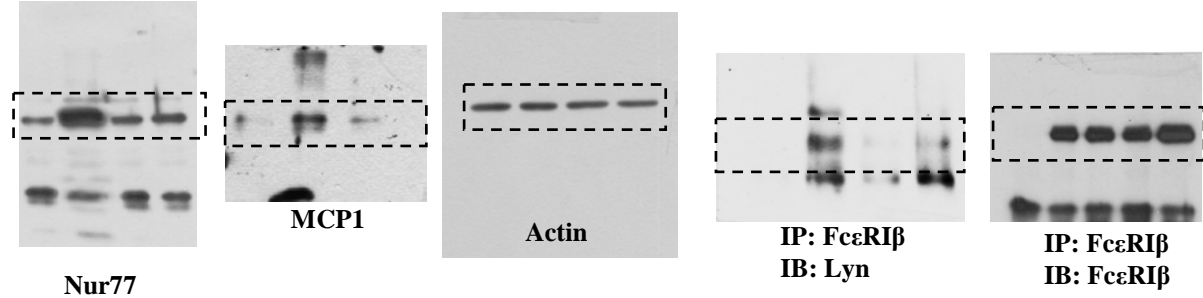
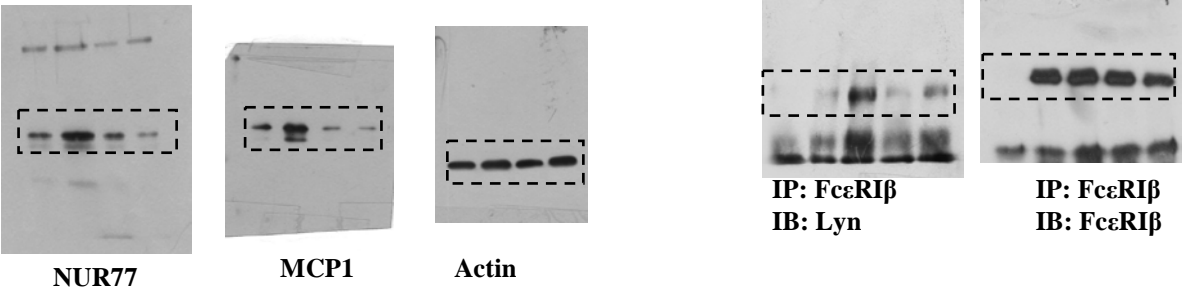


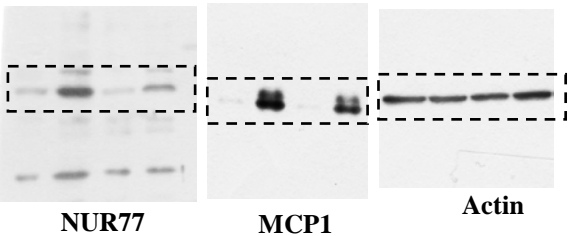
Figure 4C



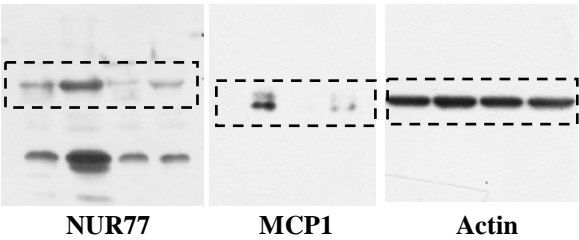
**Figure 5C**



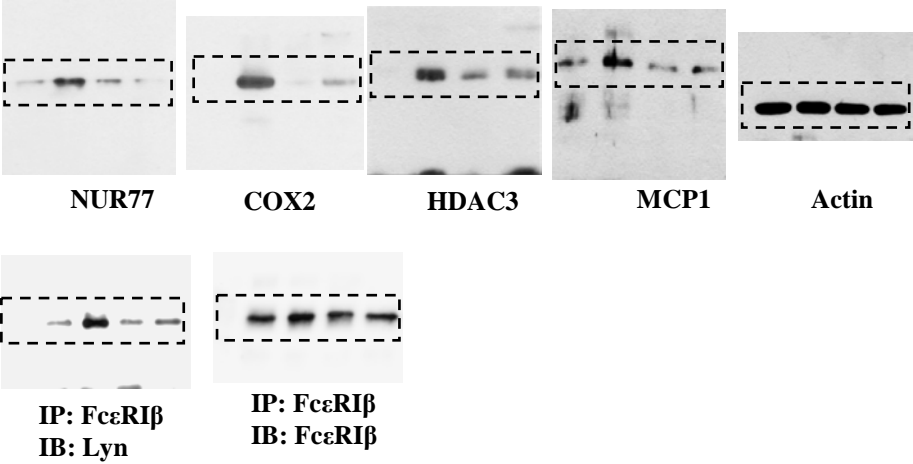
**Figure 7C**



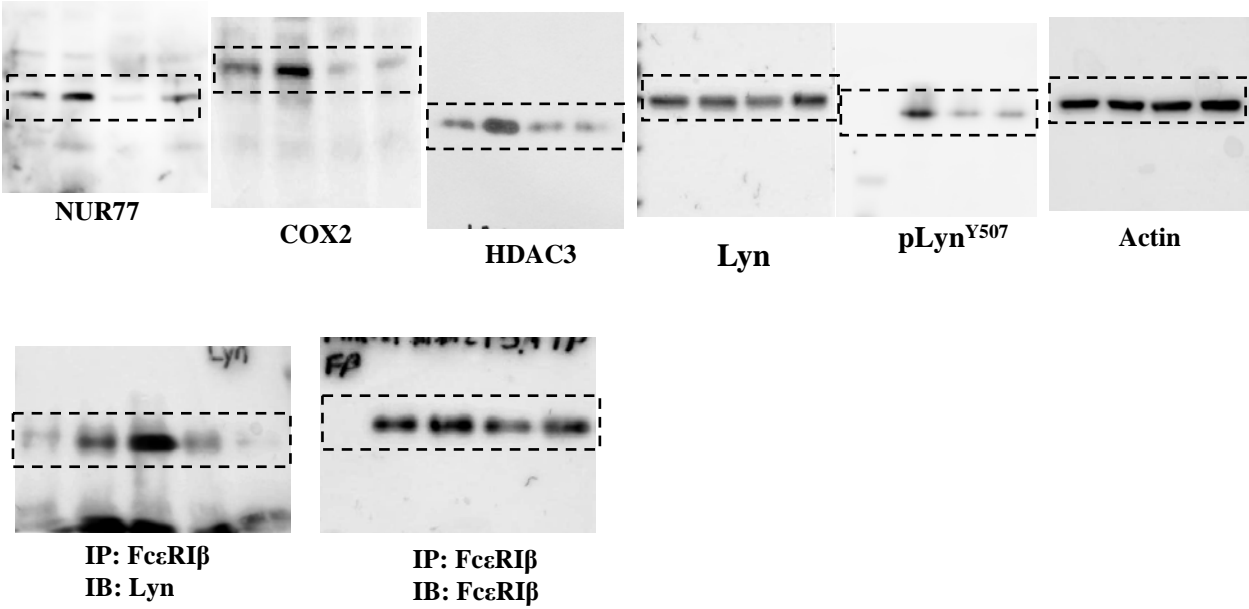
**Figure 7E**



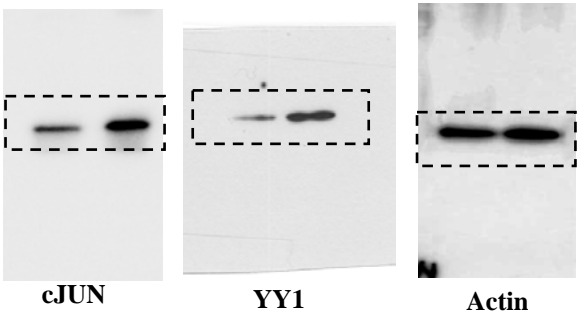
**Figure 8C**



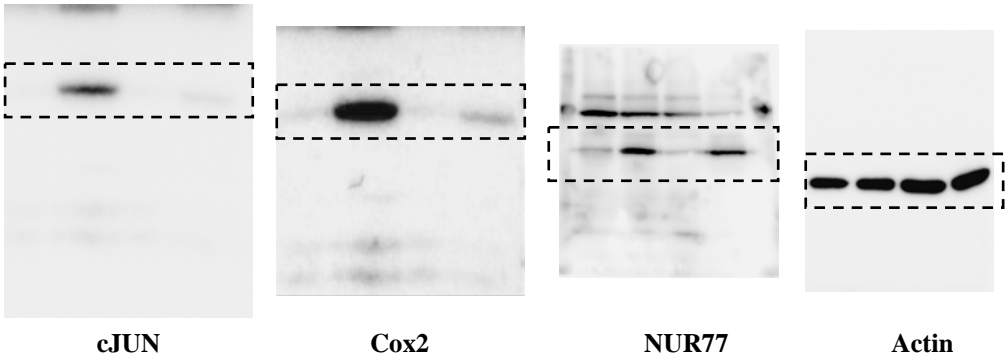
**Figure 9B**



**Figure 10C**



**Figure 10E**



PCA

Figure 4A

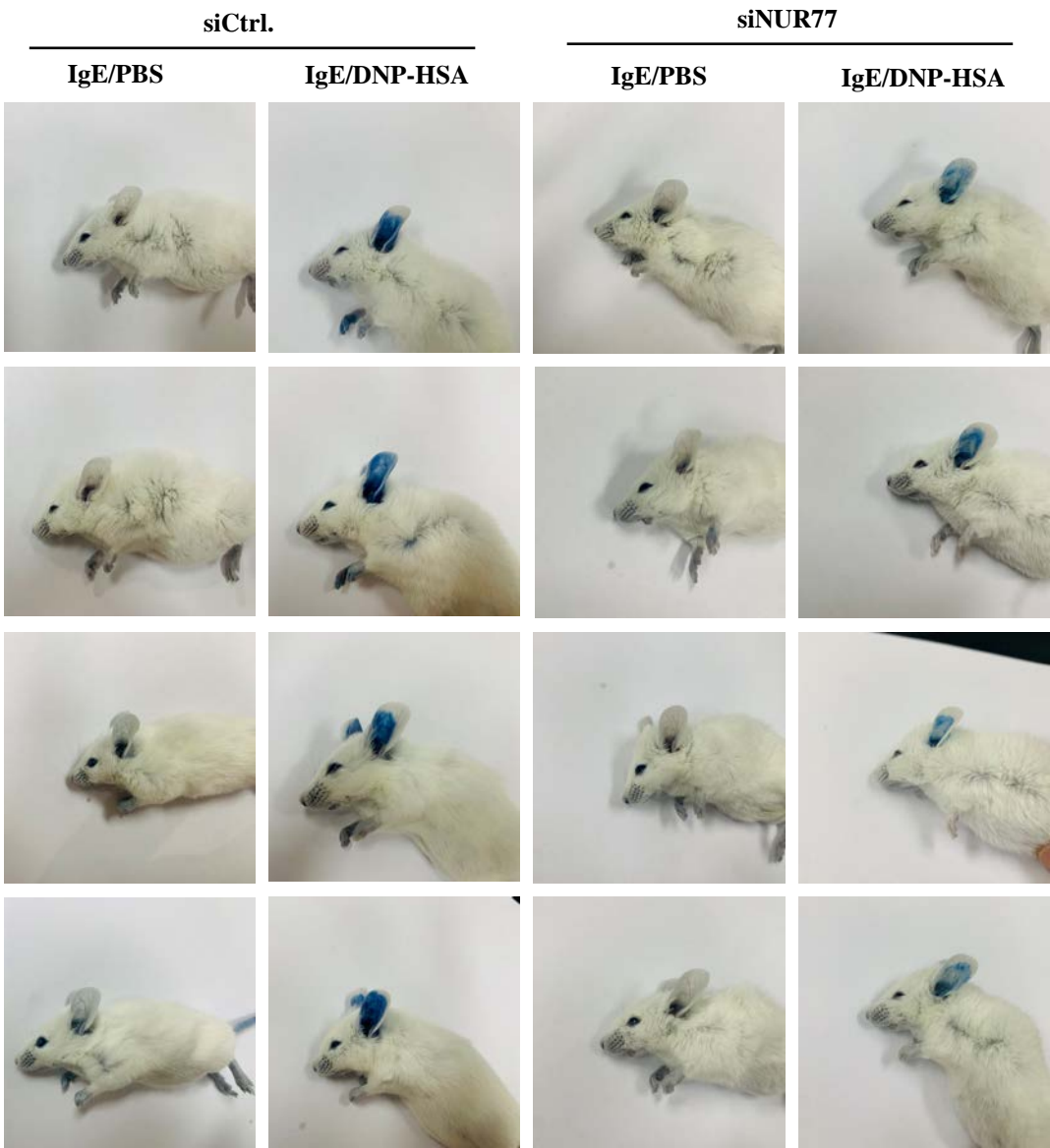
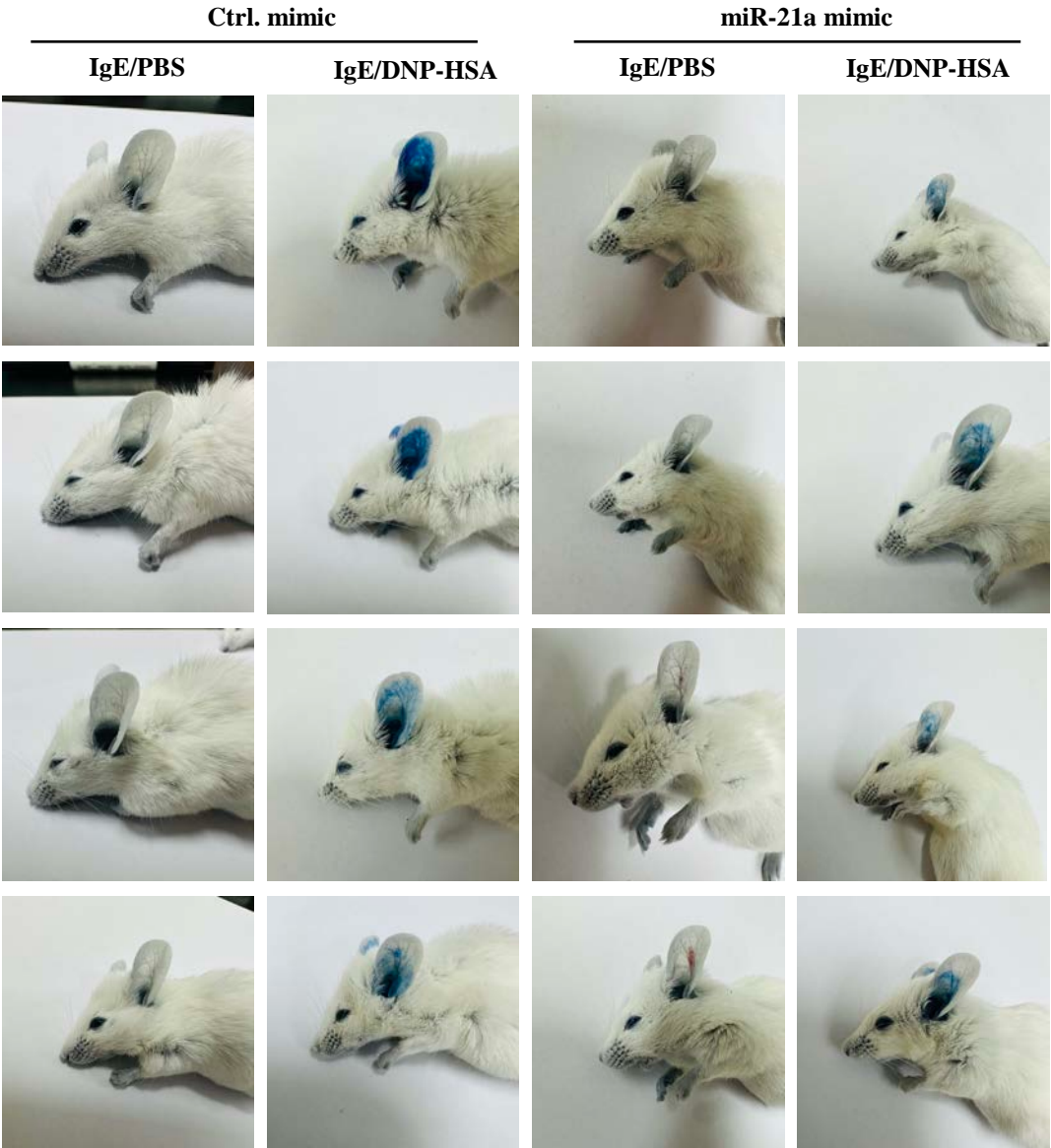


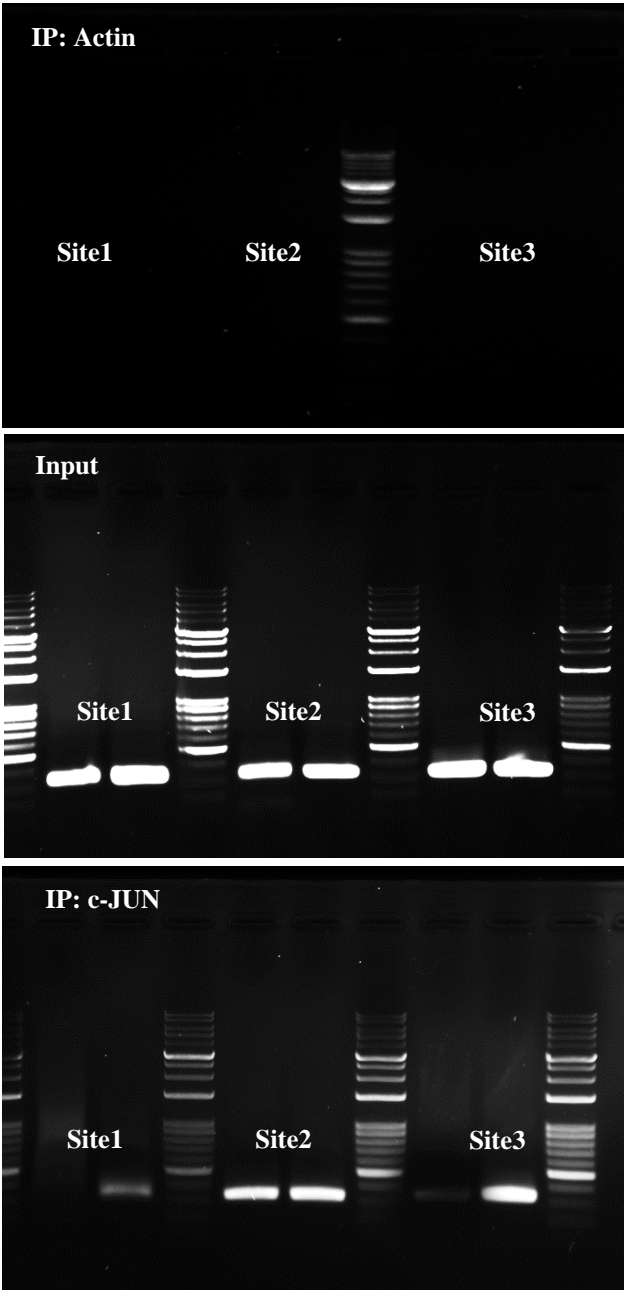
Figure 8A





# ChIP assay

Figure 10B



## qRT-PCR

**Fig.2** RBL2H3\_DNP-HSA

Sample Target gene	IgE/Mock	IgE/DNP-HSA
<b>NR4A1</b>	1.075129448	3.20630861
	0.92670716	3.292076143
	0.998163392	2.63893442
<b>NR4A2</b>	1.117192824	2.277940325
	0.941038296	2.172283304
	0.941768879	1.945778237
<b>NR4A3</b>	0.790171233	2.598021806
	0.813715078	2.367708286
	1.396113689	2.235275169
<b>EGR1</b>	1.030257432	1.680124448
	0.99988887	2.015121298
	0.969853698	1.792234289
<b>FosB</b>	0.908850175	5.360858928
	1.161762165	5.328440134
	0.92938766	5.702809235
<b>Nab2</b>	0.957300878	1.70298678
	1.083863082	1.741497172
	0.958836041	1.676464633

**Fig.3B** RBL2H3\_siNUR77

Sample Target gene	siCtrl./IgE/PBS	siCtrl./IgE/DNP-HSA	siNUR77/IgE/PBS	siNUR77/IgE/DNP-HSA
<b>NR4A1</b>	1.119009475	2.710196934	0.74844424	0.771132782
	1.075008131	2.695499725	0.595833659	0.749304278
	0.805982393	2.466342589	0.636121523	0.780528123

**Fig.4B** PCA\_siNUR77

Sample Target gene	siCtrl./IgE/PBS	siCtrl./IgE/DNP-HSA	siNUR77/IgE/PBS	siNUR77/IgE/DNP-HSA
<b>NR4A1</b>	0.99772554	2.756831528	1.232222832	1.138212401
	1.035938907	2.776924921	1.060647337	1.327270884
	0.96750845	2.840505512	1.125232089	1.568419391

**Fig.5B** PSA\_siNUR77

Sample Target gene	siCtrl./IgE/PBS	siCtrl./IgE/DNP-HSA	siNUR77/IgE/PBS	siNUR77/IgE/DNP-HSA
<b>NR4A1</b>	0.974211408	1.520139774	0.703308823	0.820576669
	1.025788592	1.538370013	0.789353623	0.819788353

**Fig.6B** RBL2H3\_siNUR77

Sample Target gene	siCtrl./IgE/PBS	siCtrl./IgE/DNP-HSA	siNUR77/IgE/PBS	siNUR77/IgE/DNP-HSA
<b>miR-21a-5p</b>	2.619293919	1.044515647	3.966458517	4.227775689
	2.521668933	1.010504011	3.836346071	4.112022982
	2.497217912	0.94742973	4.016404339	3.993294782
<b>miR-124-3p</b>	5.437273849	0.899251566	10.35437936	9.68824869
	4.99742568	1.013925395	9.51198213	9.781803038
	5.597372628	1.096763015	10.64192719	10.40757966

**Fig.7B** RBL2H3\_miR-21 mimic

Sample Target gene	Ctrl.mimic/IgE/PBS	Ctrl.mimic/IgE/DNP-HSA	miR-21 mimic/IgE/PBS	miR-21 mimic/IgE/DNP-HSA
<b>miR-21a-5p</b>	1.002687855	1.581434608	28.39263248	18.86530588
	0.978405615	1.669026656	31.86302401	17.45443773
	1.01933118	1.745763106	28.00029007	15.3816203
<b>NR4A1</b>	1.061244726	1.433928595	0.368369502	0.357017302
	0.969377637	1.337902687	0.212084209	0.361013446
	0.969377637	1.418338316	0.426181902	0.303129742

**Fig.8B** PCA\_miR-21 mimic

Sample Target gene	Ctrl.mimic/IgE/PBS	Ctrl.mimic/IgE/DNP-HSA	miR-21 mimic/IgE/PBS	miR-21 mimic/IgE/DNP-HSA
<b>miR-21a-5p</b>	0.974461439	0.598899961	2.025432437	1.019030927
	0.984100262	0.517539638	2.067901841	1.041266328
	1.042787927	0.587248015	2.020457903	1.09279455

**Fig.9A** PSA\_miR-21 mimic

Sample Target gene	Ctrl.mimic/IgE/PBS	Ctrl.mimic/IgE/DNP-HSA	miR-21 mimic/IgE/PBS	miR-21 mimic/IgE/DNP-HSA
<b>miR-21a-5p</b>	0.961436004	0.508301259	0.7294247	0.747038153
	0.955216433	0.438459666	0.791825492	0.781958621
	1.088874514	0.497623181	0.776844121	0.785775416

## beta-hexosaminidase activity

**Fig.3B** RBL2H3\_siNR4A1

siCtrl./IgE/PBS	siCtrl./IgE/DNP-HAS	10nM siNR4A1/IgE/DNP-HSA	20nM siNR4A1/IgE/DNP-HSA	40nM siNR4A1/IgE/DNP-HSA	80nM siNR4A1/IgE/DNP-HSA
100	360	222.8571429	255.7142857	259.2857143	277.8571429
107.1428571	330.7142857	219.2857143	235.7142857	260	242.1428571
100	355.7142857	254.2857143	250	274.2857143	280.7142857

**Fig.7A** RBL2H3\_miR-21 mimic

Ctrl.mimic/IgE/PBS	Ctrl.mimic/IgE/DNP-HSA	0nM miR-21 mimic/IgE/DNP-HS	20nM miR-21 mimic/IgE/DNP-HSA	40nM miR-21 mimic/IgE/DNP-HSA
82.94930876	268.8940092	136.8663594	141.7050691	143.7788018
117.5115207	281.3364055	133.4101382	127.1889401	183.1797235
99.53917051	243.3179724	125.8064516	180.4147465	167.9723502

**Fig.7D** RBL2H3\_miR-124-1 mimic

Ctrl.mimic/IgE/PBS	Ctrl.mimic/IgE/DNP-HSA	0nM miR-124-1mimic/IgE/DNP-HS	20nM miR-124-1mimic/IgE/DNP-HS	40nM miR-124-1mimic/IgE/DNP-HSA	80nM miR-124-1mimic/IgE/DNP-HSA
97.6744186	205.1162791	106.0465116	126.9767442	113.7209302	131.8604651
104.6511628	246.2790698	117.2093023	132.5581395	114.4186047	96.97674419
97.6744186	207.9069767	98.37209302	106.744186	121.3953488	134.6511628

**Fig.10D** RBL2H3\_siCJUN

siCtrl./IgE/PBS	siCtrl./IgE/DNP-HAS	10nM siCJUN/IgE/DNP-HAS	20nM siCJUN/IgE/DNP-HSA	40nM siCJUN/IgE/DNP-HSA	80nM siCJUN/IgE/DNP-HSA
101.1363636	251.1363636	184.0909091	153.4090909	186.3636364	196.5909091
100	242.0454545	209.0909091	167.0454545	172.7272727	203.4090909
109.0909091	251.1363636	220.4545455	200	205.6818182	232.9545455

## Evansblue absorbance

**Fig.4A** PCA\_siNUR77

siCtrl./IgE/PBS	siCtrl./IgE/DNP-HSA	siNUR77/IgE/PBS	siNUR77/IgE/DNP-HSA
1.14614	31.14798	2.821	27.98031
1.51024	46.00326	2.0928	8.53737
4.13176	53.57654	3.14869	12.54247
8.53737	45.23865	4.05894	7.37225

**Fig.8** PCA\_miR-21 mimic

Ctrl.mimic/IgE/PBS	Ctrl.mimic/IgE/DNP-HSA	miR-21 mimic/IgE/PBS	miR-21 mimic/IgE/DNP-HSA
0.097612	1.15600625	0.1437495	0.175123
0.11883525	1.241822	0.086539	0.234179
0.10960775	1.12094175	0.0662385	0.2064965
0.10591675	1.11725075	0.252634	0.1400585

# Serum Histamine ELISA

Fig.5 PSA\_siNUR77

siCtrl./IgE/PBS	siCtrl./IgE/DNP-HSA	siNUR77/IgE/PBS	siNUR77/IgE/DNP-HSA
8.900713799	19.39855292	7.648027457	9.64639862
9.047765805	15.73530441	7.221996246	6.722037437

Fig.9 PSA\_miR-21 mimic

Ctrl.mimic/IgE/PBS	Ctrl.mimic/IgE/DNP-HSA	miR-21 mimic/IgE/PBS	miR-21 mimic/IgE/DNP-HSA
15.25695213	37.11002668	14.35351073	27.13684996
15.45111559	40.90434139	15.45111559	28.40333769