

1 **Supplementary materials**

2 **Table legends**

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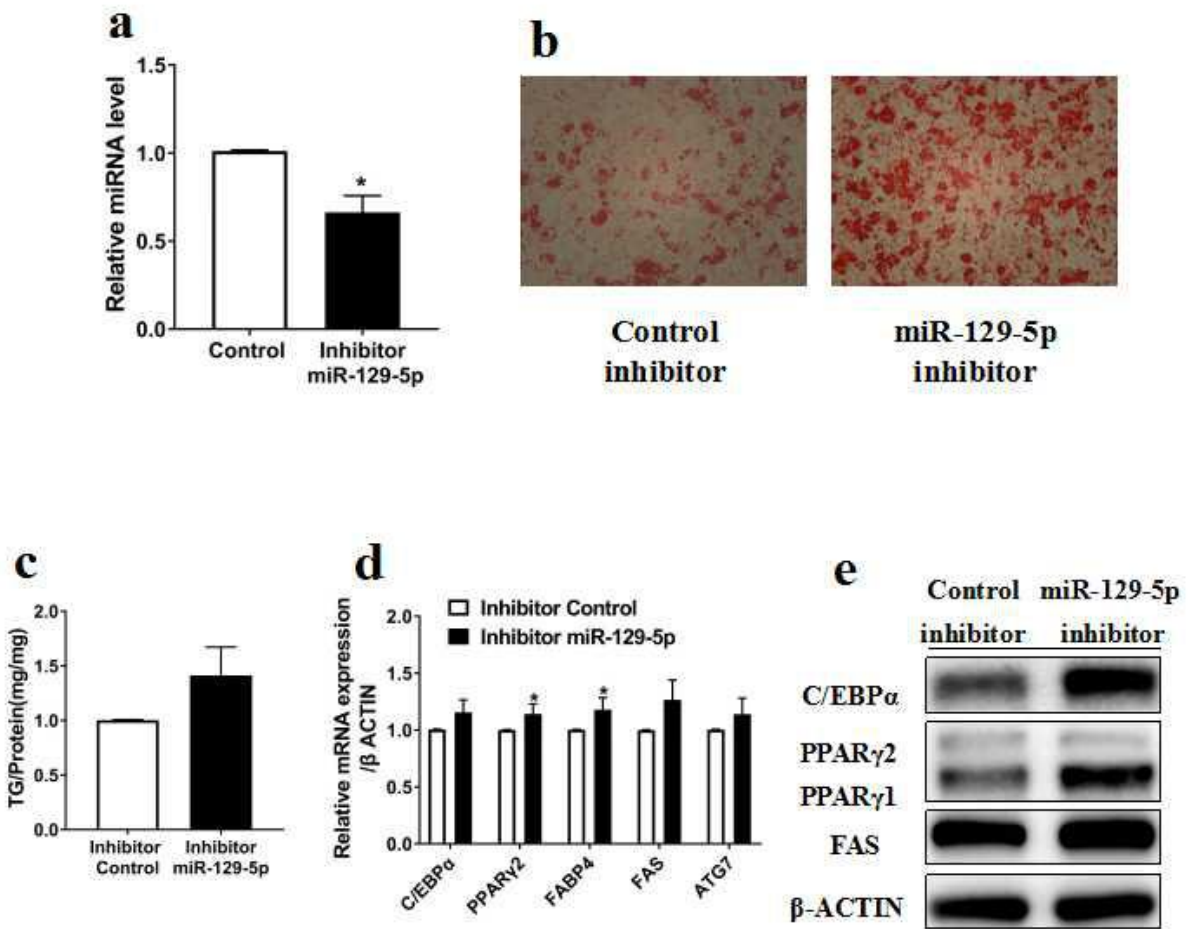
Supplementary table 1: the sequences for miR-129-5p mimic and inhibitor.

Product name	Sense(5'-3')	antisense (5'-3')
micrONTM mimic Negative Control #22	UUUGUACUACACAAAAG UACUG	CAGUACUUUUGUGUAG UACAAA
micrONTM	CUUUUUGCGGUCUGGGC	GCAAGCCCAGACCGCAA
mmu-miR-129-5p mimic	UUGC	AAAG
micrOFFTM inhibitor Negative Control #22	CAGUACUUUUGUGUAG UACAAA	/
micrOFFTM	GCAAGCCCAGACCGCAA	/
mmu-miR-129-5p inhibitor	AAAG	

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6 **Figure legends**

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10 **Supplementary material figure1: White adipocyte differentiation prompted by**

11 **microRNA-inhibitor-mediated low-expression of miR-129-5p.** (a) Expression levels of miR-129-5p. (b)

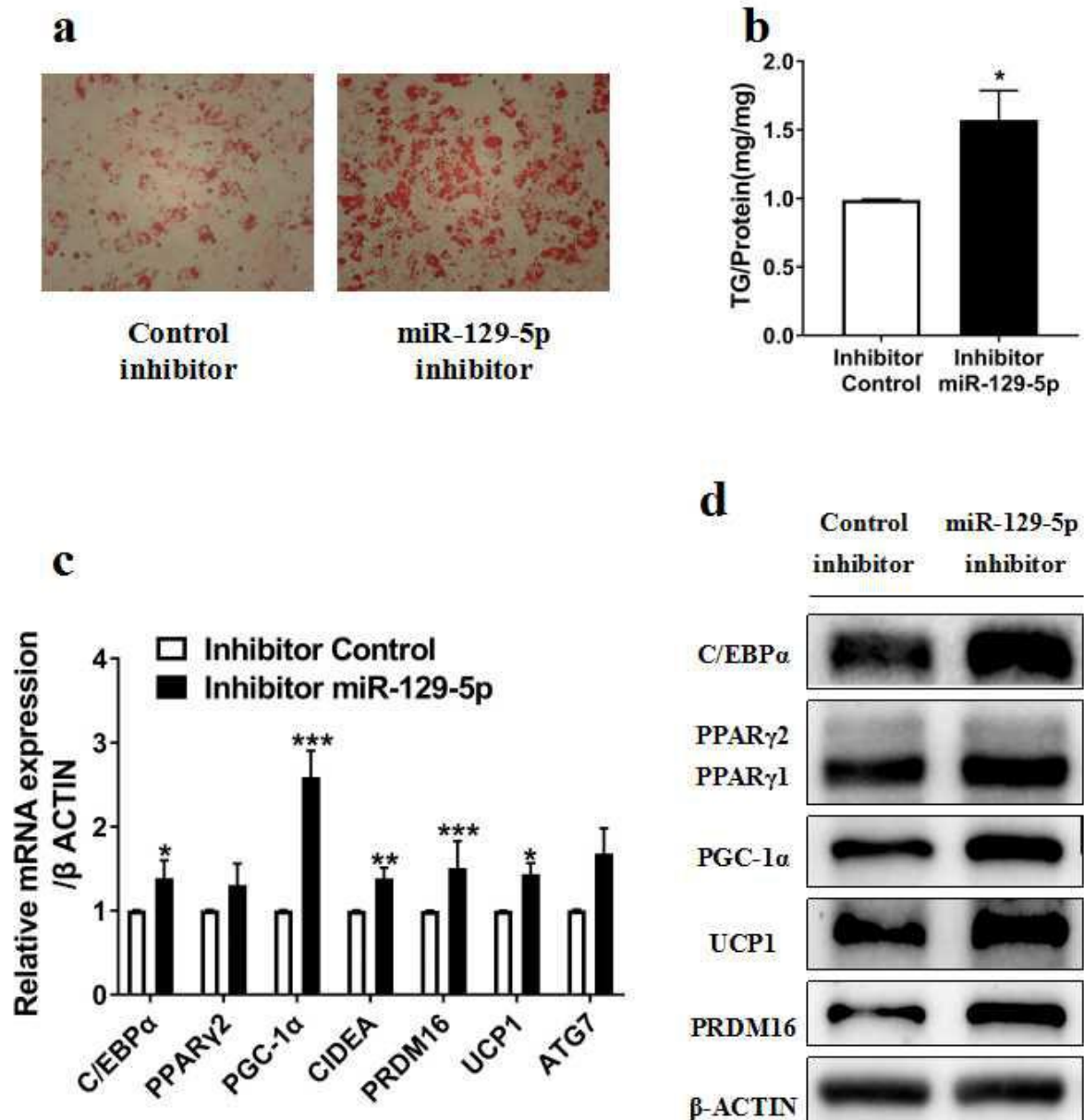
12 Oil Red O staining of mature adipocytes. These images were acquired with a microscope at 100x

13 amplification. (c) Relative TG content of cells isolated from EWAT. (d) The relative white adipogenic

14 genes and ATG7 were qualified by RT-qPCR. (e) Protein levels of the target genes were determined by

15 western blot. Student's t-test presented as mean±SEM of a representative of more than three independent

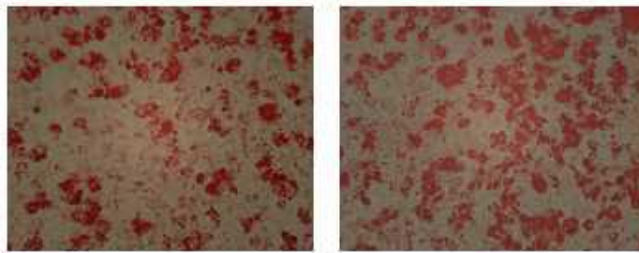
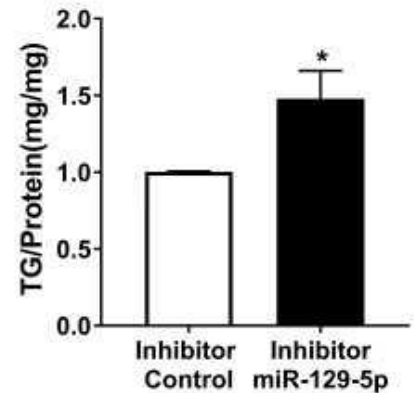
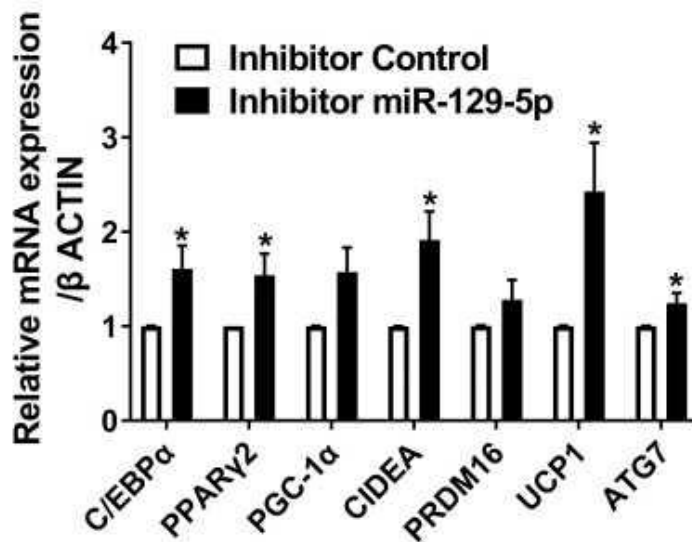
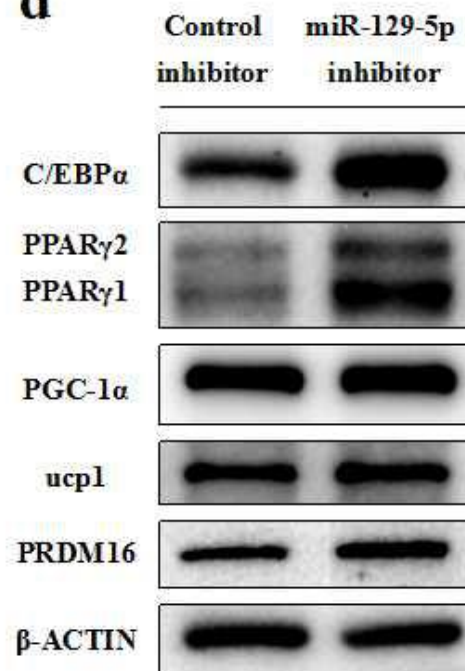
16 experiments (*P < 0.05).



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18 **Supplementary material figure 2: miR-129-5p inhibitors prompted browning of SVF from abdominally**
 19 **subcutaneous fat tissues in male mice.** SVF from abdominally subcutaneous fat tissues were induced to
 20 differentiate into brown adipocytes. (a) Oil Red O staining of mature beige adipocytes at 100x amplification. (b)
 21 Relative TG content of these cells. (c) C/EBPα, PPARγ2, UCP1 and ATG7 gene expressions were quantified
 22 by RT-qPCR. (d) Marker proteins and genes of brown adipocyte were determined by western blot. Data was
 23 analyzed with Student's t-test and is presented as mean±SEM of a representative of more than three independent
 24 experiments (*P < 0.05, **P < 0.01, and ***P < 0.001).

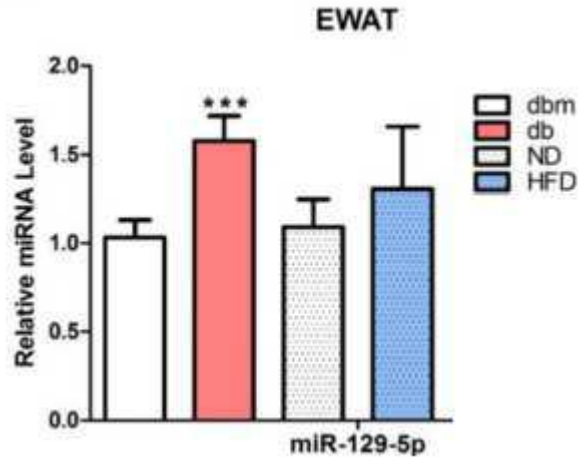
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aControl
inhibitormiR-129-5p
inhibitor**b****c****d**

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27 **Supplementary material figure3: Reduction of miR-129-5p prompted brown adipocyte differentiation.** (a)
 28 Oil Red O staining of mature brown adipocytes. (b) Relative TG content of the mature brown adipocytes. (c) The
 29 expression of regulators involved in adipogenesis and ATG7 were analyzed by RT-qPCR. (d) Protein levels of
 30 the target genes were determined by western blot. The SVF from interscapular fat tissues were induced to
 31 differentiate toward the brown adipocytes. Data was analyzed with Student's t-test and was presented as
 32 mean±SEM of a representative of more than three independent experiments (*P < 0.05).

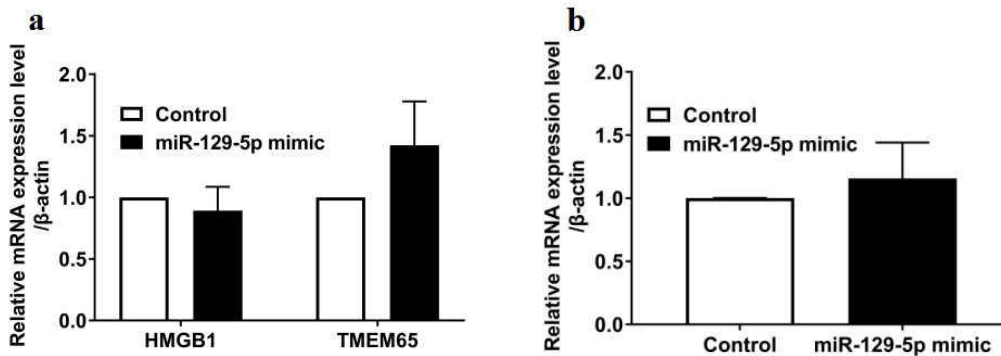
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35 **Supplementary material figure4: miR-129-5p level was detected in EWAT from different obese mouse**
 36 **models.** (a).Relative expression level of miR-129-5p in epididymal white adipose tissue (EWAT) of *db/db* mice,
 37 high-fat diet(HFD) mice compared with wild-type mice (WT), normal feeding mice(ND) n=10, *p<0.05,
 38 ***p<0.001.

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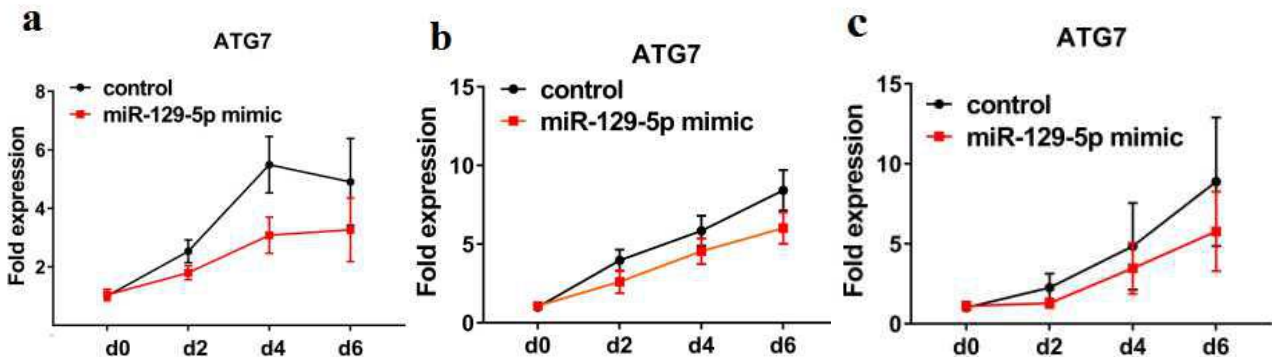


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41 **Supplementary materials figure 5:** (a) HMGB1 and TMEM65 were detected by RT-qPCR in SVF white
 42 adipocytes. (b) Predicted target genes SOX2 were detected by RT-qPCR in beige adipocytes.(The
 43 difference was not statistically significant.)

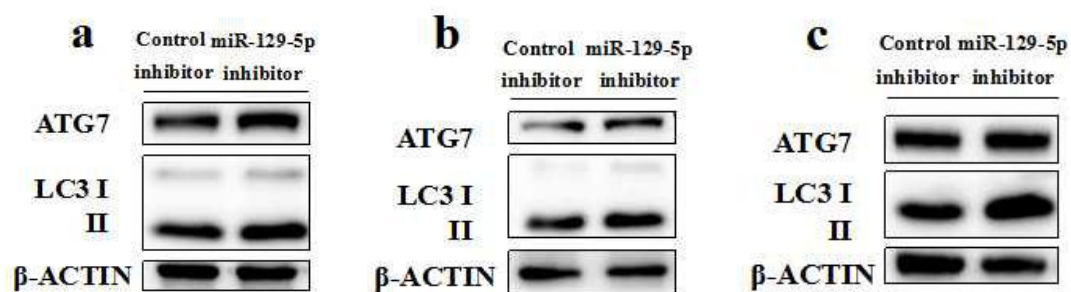
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Supplementary materials figure 6: (a-c) The time course of ATG7 expression during white, beige and brown adipogenic differentiation when transfected control and miR-129-5p mimics were quantified by RT-qPCR.



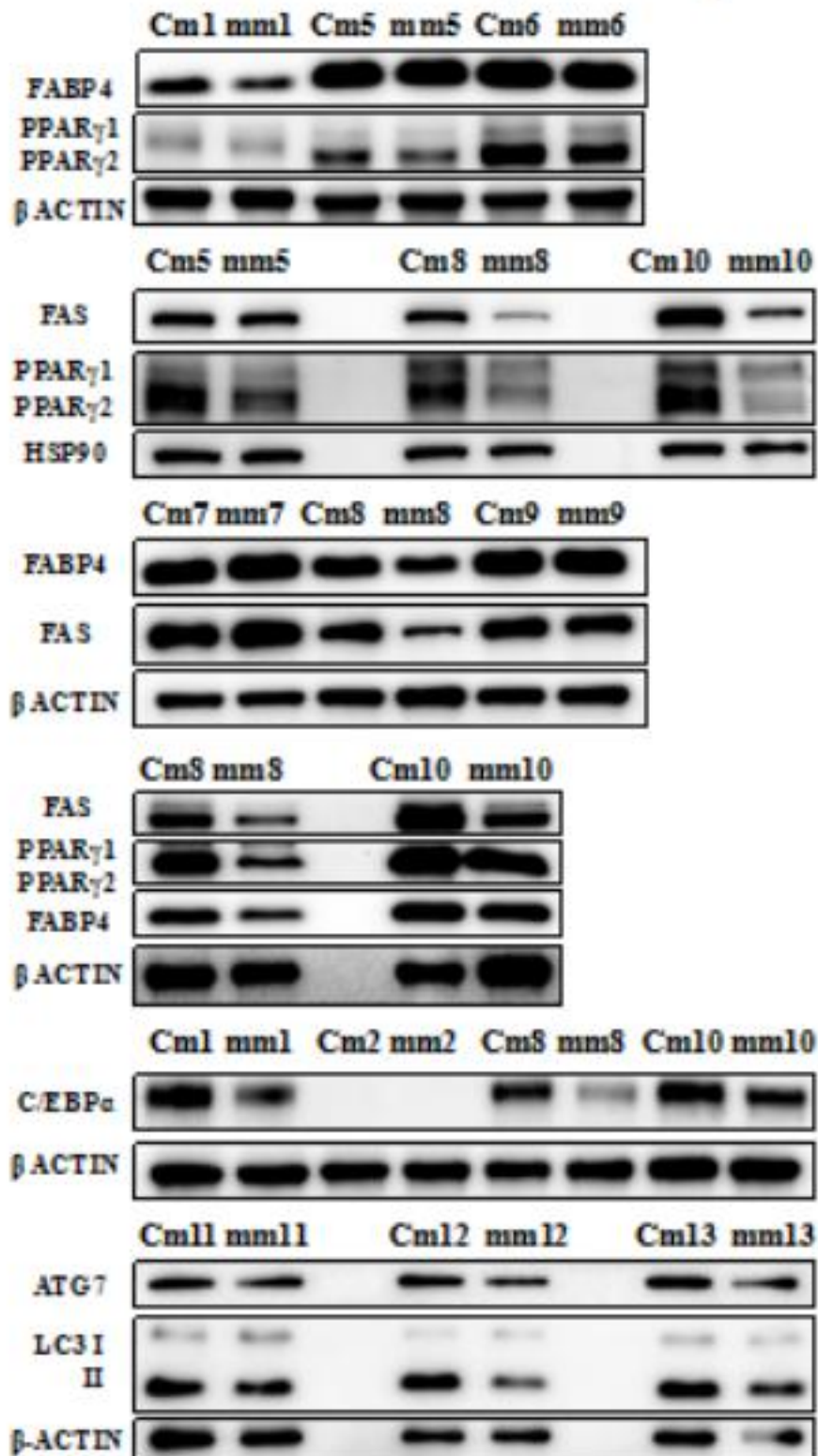
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Supplementary materials figure7: (a-c) ATG7 and LC3I/II were determined by western blot transfected control and miR-129-5p inhibitors in mature white, beige and brown adipocytes from SVF.

a White adipocyte from SVF

CM, control mimic

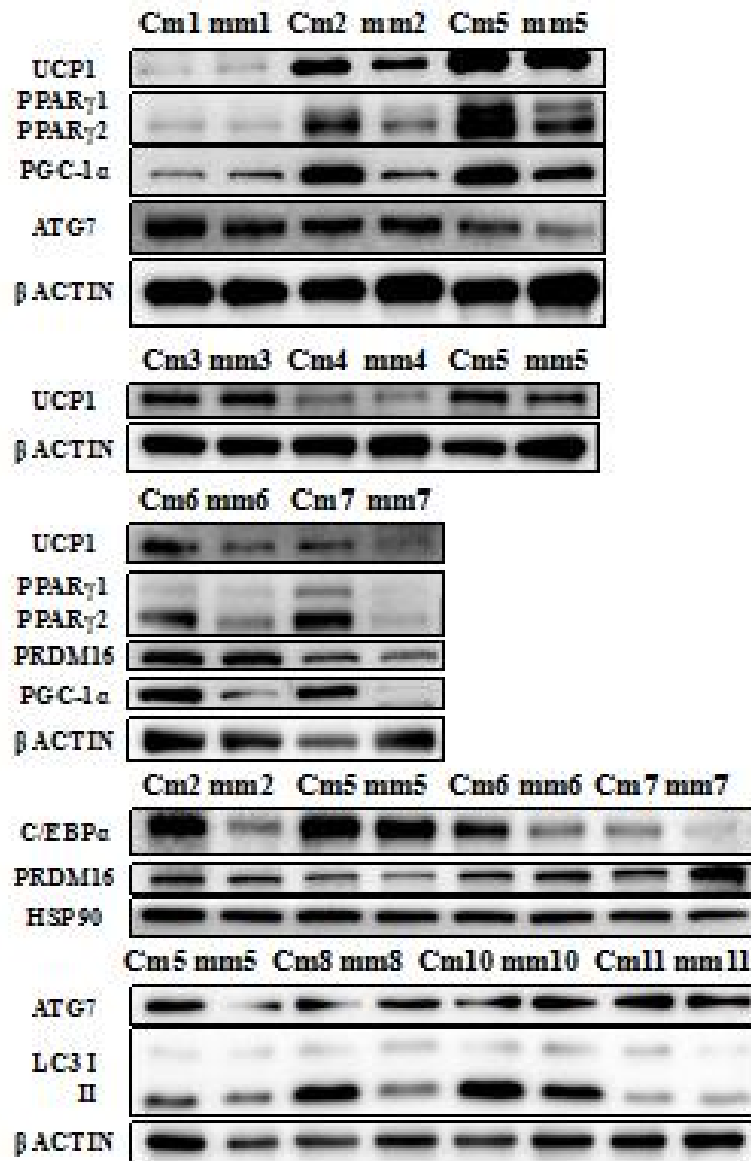
mM, miR-129-5p mimic



b Beige adipocyte from SVF

CM, control mimic

mM, m iR-129-5p mimic

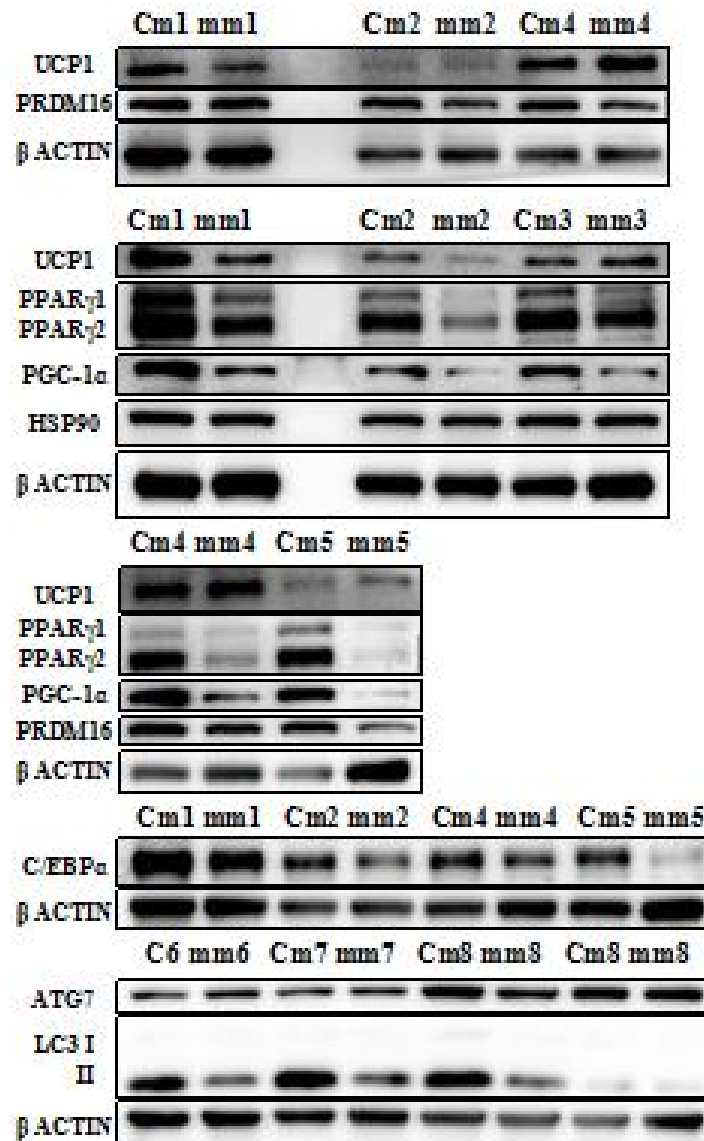


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c Brown adipocyte from SVF

CM, control mimic
mM, miR-129-5p mimic



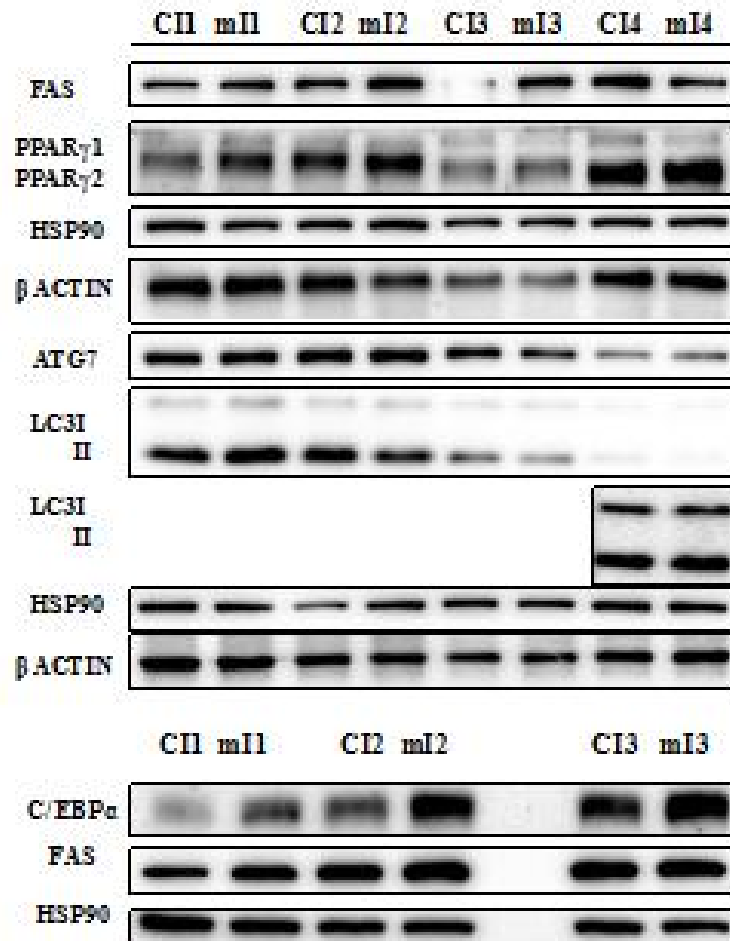
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d White adipocyte from SVF

CI, control inhibitor

mI, miR-129-5p inhibitor



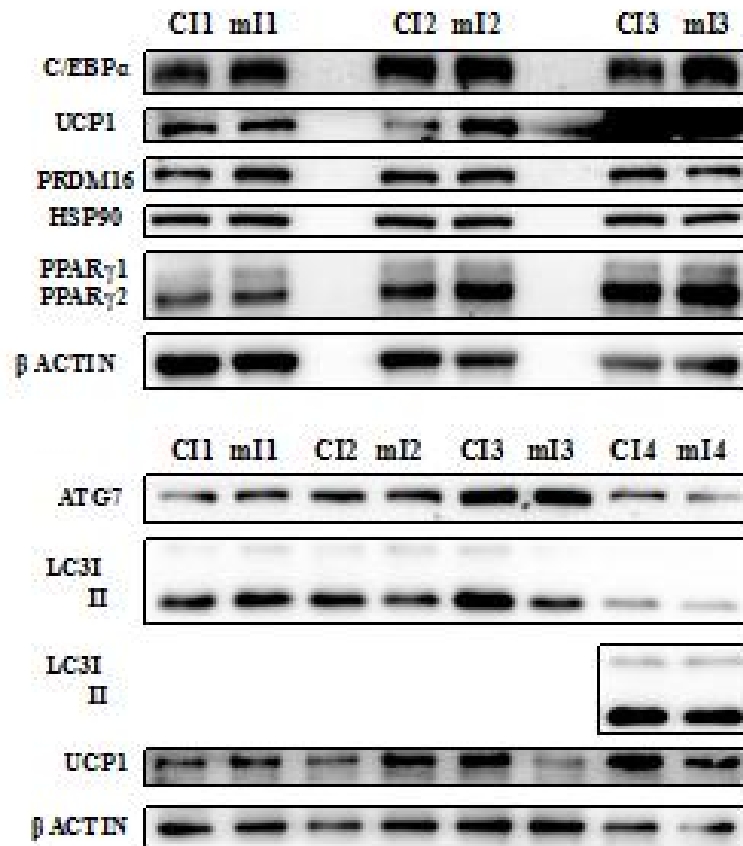
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e Beige adipocyte from SVF

CI, control inhibitor

mI, miR-129-5p inhibitor

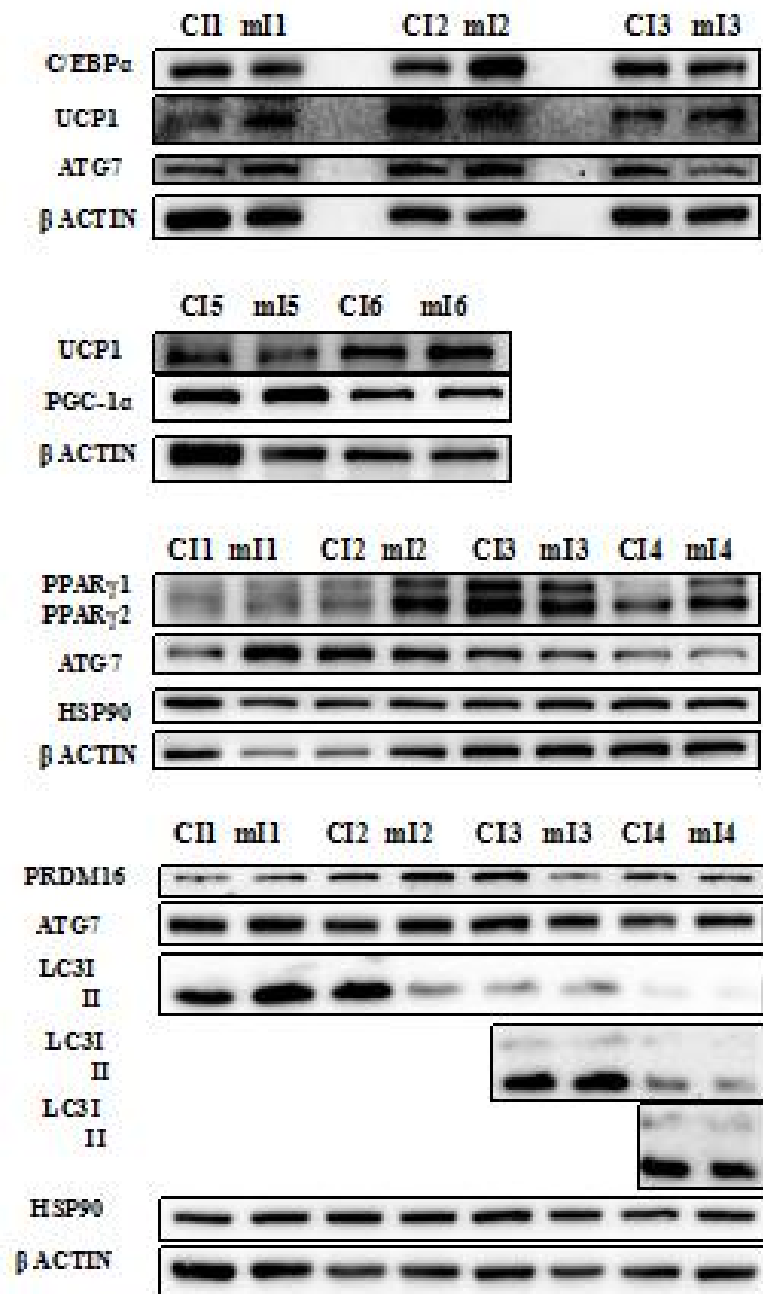


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f Brown adipocyte from SVF

CI, control inhibitor
 mI, miR-129-5p inhibitor



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Supplementary figure 8: (a-f) All uncropped western bolt bands.