

Supplementary Figures

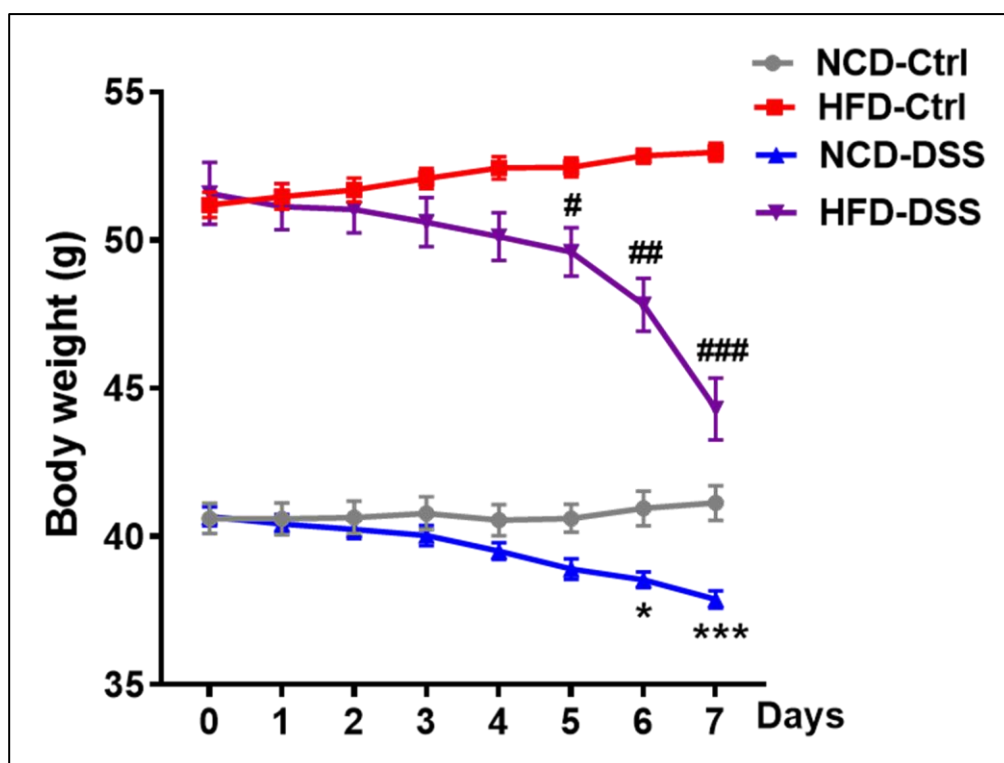


Figure S1. Body weight change in each group. Data are expressed as mean±SEM . * p < 0.05, *** p < 0.001 compared with NCD-Ctrl; # p < 0.05, ## p < 0.01, ### p < 0.001 versus HFD-Ctrl.

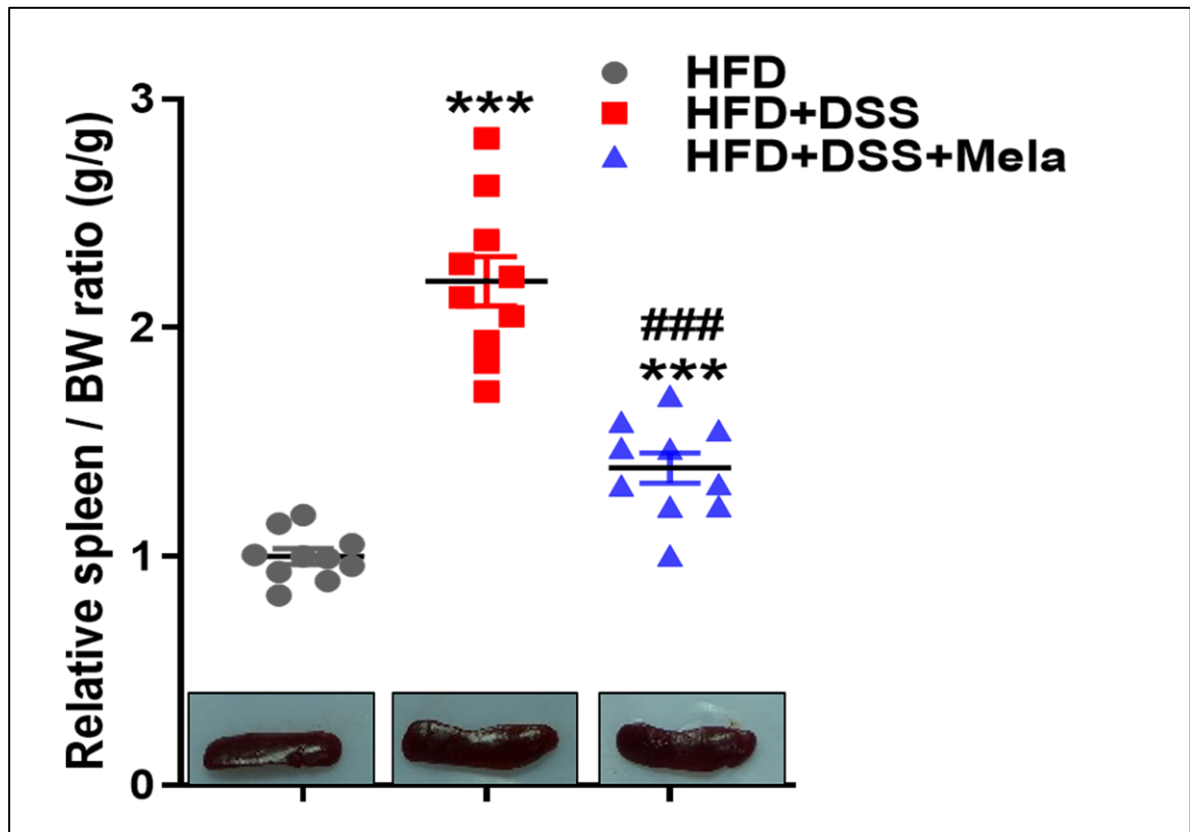


Figure S2. Representative images of spleen and spleen weight in each group. Data are expressed as mean±SEM . *** $p < 0.001$ compared with HFD; ### $p < 0.001$ versus HFD+DSS.

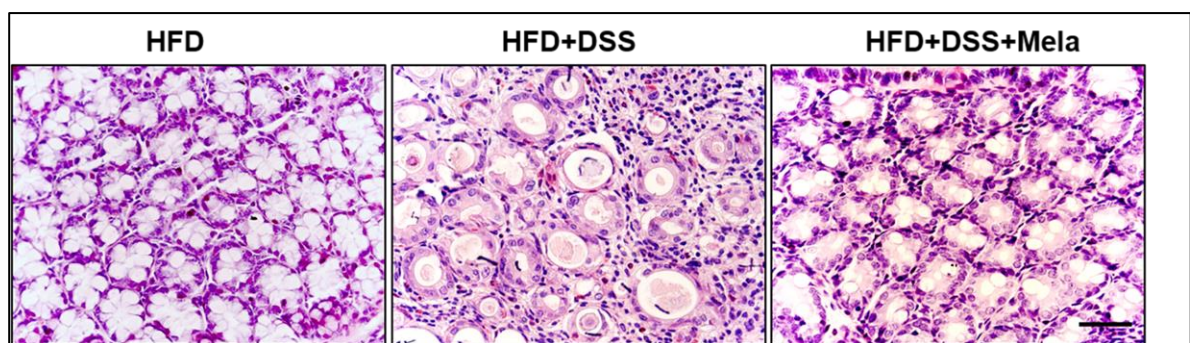


Figure S3. Representative H&E staining in colons (Scale bar = 50 μm) .

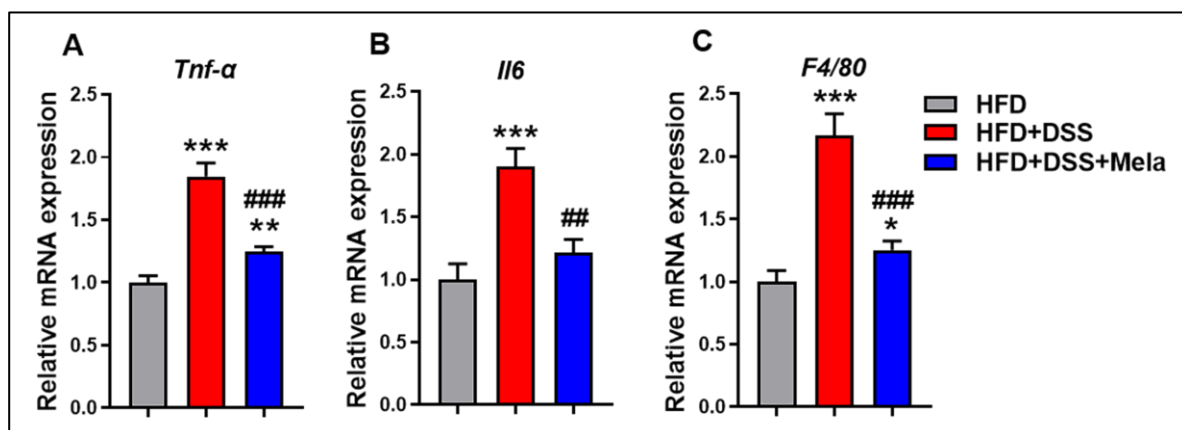


Figure S4. Effect of melatonin on the productions of cytokines of Mes-WAT in obese mice. (A-C) Expression of *Tnfα*(A), *Il6* (B), *F4/80* (C) in Mes-WAT. Data are expressed as mean±SEM of at least triplicated experiments from 3-5 mice. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ compared with HFD; ## $p < 0.01$, ### $p < 0.001$ versus HFD+DSS.

Supplementary Tables

Supplementary Table S1. Compositions of experimental diets.

	NCD		HFD (60% fat)	
	gm%	kcal%	gm%	kcal%
Protein	19.2	20	26.2	20
Fat	4.3	10	34.9	60
Carbohydrate	67.3	70	26.3	20

Supplementary Table S2. Sequences of real-time PCR primers.		
Target gene	Sequence (5'-3')	Product Length
<i>Il-6</i>	F-CGACGGCCTTCCCTACTT	60
	R-TGGGAGTGGTATCCTCTGTGAA	
<i>Tnfa</i>	F-CATCTTCTCAAAATTCGAGTGACAA	175
	R-TGGGAGTAGACAAGGTACAACCC	
<i>Mcp1</i>	F-CAACTCTCACTGAAGCCAGCTCT	69
	R-CAGGCCCAAGAAGCATGACA	
<i>F4/80</i>	F-GCTGTGAGATTGTGGAAGCA	166
	R-ATGGCCAAGGCAAGACATAC	
<i>Bax</i>	F-TTGCCCTCTTCTACTTTGCTAG	81
	R-CCATGATGGTTCTGATCAGCTC	
<i>Bcl2</i>	F-GATGACTTCTCTCGTCGCTAC	156
	R-GAACTCAAAGAAGGCCACAATC	
<i>Grp78</i>	F-ATGATGAAGTTCCTGTGGTGG	174
	R-CTGATCGTTGGCTATGATCTCC	
<i>Xbp1</i>	F-TTGCCTCTTCAGATTCTGAGTC	85
	R-GGGGAAGGACATTTGAAAAACA	
<i>Atf4</i>	F-AGTTTAGAGCTAGGCAGTGAAG	135
	R-CATACAGATGCCACTGTCATTG	
<i>Nrf2</i>	F-CAGCCATGACTGATTAAAGCAG	107
	R-CAGCTGCTTGTTTTTCGGTATTA	
<i>Ho-1</i>	F-TCCTTGTACCATATCTACACGG	198
	R-GAGACGCTTTACATAGTGCTGT	
<i>Nqo1</i>	F-GAAGACATCATTCAACTACGCC	179
	R-GAGATGACTCGGAAGGATACTG	
<i>Zo-1</i>	F-CTGGTGAAGTCTCGGAAAAATG	97
	R-CATCTCTTGCTGCCAAACTATC	
<i>Cldn</i>	F-TTATGGTCATCAGCATCATCGT	111

	R-TGATCATGATCTTGGCCTTGAC	
<i>Ocln</i>	F-TGCTTCATCGCTTCCTTAGTAA	155
	R-GGGTTCACCTCCCATTATGTACA	
<i>Tff3</i>	F-CTCTGGGATAGCTGCAGATTAC	193
	R-TCAAAATGTGCATTCTGTCTCC	
<i>Hsl</i>	F-CTCACAGTTACCATCTCACCTC	122
	R-GATTTTGCCAGGCTGTTGAGTA	
<i>Atgl</i>	F-CAGAGATGGACTTCGATTCCTT	181
	R-CAGGTGCTCTAGAATTCGATCT	
<i>Cd36</i>	F:GGAAGTGTGGGCTCATTGC	68
	R:CATGAGAATGCCTCCAAACAC	
<i>Fatp1</i>	F:CGCTTTCTGCGTATCGTCTG	120
	R:GATGCACGGGATCGTGTCT	
<i>Atg5</i>	F-GATGGGATTGCAAAATGACAGA	133
	R-GAAAGGTCTTTCAGTCGTTGTC	
<i>Atg7</i>	F-TGTATAACACCAACACACTCGA	197
	R-GGCAGGATAGCAAAACCAATAG	
<i>Beclin1</i>	F-TAATAGCTTCACTCTGATCGGG	217
	R-CAAACAGCGTTTGTAGTTCTGA	
<i>Tfeb</i>	F-CACAGGTTACCCCGATACC	96
	R-AGGGAGTCATCTAGGAGCATT	
<i>Gapdh</i>	F-GTCGTGGATCTGACGTGCC	72
	R-TGCCTGCTTCACCACCTTCT	

Supplementary Table S3. List of antibodies used in the study				
Antigen name	Company	Identifier	Application	Dilution
β -actin	Sigma	A1978	WB	1:5000
Nrf2	proteintech	16396-1-AP	WB	1:1000
Ho-1	proteintech	10701-1-AP	WB	1:1000
Zo-1	proteintech	21773-1-AP	WB/IF	1:5000/1:1000
Atg5	proteintech	10181-2-AP	WB/IF	1:1000/1:100
LC3	proteintech	14600-1-AP	WB	1:1000
Bax	proteintech	50599-2-Ig	WB	1:5000
CD36	abcam	ab133625	WB	1:1000
Fatp1	Novus	H00376497-D01P	WB	1:1000

WB, Western blot;
IF, Immunofluorescence