**Figure 2.** Effects of *in vivo* melatonin treatment on specific white adipocyte marker ASC-1 expression in inguinal adipose tissue from Zücker rats.

**Figure 3.** Effects of *in vivo* melatonin supplementation on thermogenic protein UCP1 expression in MSC of inguinal adipose tissue from Zücker rats. ZL, Zücker lean rats; ZDF, Zücker diabetic fatty rats; C, unsupplemented control; M, melatonin-supplemented. All values are expressed as mean ± SEM of three independent experiments in duplicate. **P<0.01; *P<0.05; ***P<0.001.
Figure 7. Effects of *in vitro* melatonin treatment on thermogenic protein UCP1 expression in differentiated adipocytes from MSC of inguinal adipose tissue from ZDF rats. MSC, mesenchymal stem cells; Adipocytes, differentiated adipocytes after 21 days; Adipocytes+MLT, differentiated adipocytes after 21 days incubated with melatonin. All values are expressed as mean ± SEM of three independent experiments in duplicate. *P*<0.05.
Figure 8. Effects of *in vitro* melatonin treatment on brown-like cell marker A) PGC1-α and B) CITED1 expression in differentiated adipocytes from WMSC and bMSC inguinal adipose tissue from ZDF rats. MSC, mesenchymal stem cells; Adipocytes, differentiated adipocytes after 21 days, Adipo+MLT, differentiated adipocytes after 21 days incubated with melatonin. All values are expressed as mean ± SEM of three independent experiments in duplicate. **P<0.01; *P<0.05.
A

Human MSC

B-actin – 43KDa
UCP1 – 33KDa

B

PGC1a – 110KDa
B-actin – 43KDa
Figure 9. Effects of *in vitro* melatonin treatment on thermogenic protein A) UCP1, B) PGC1-α and C) brown-like cell marker CITED1 expression in differentiated adipocytes from hMSC isolated from lipoaspirates’ adipose tissue. MSC, human mesenchymal stem cells; Adipocytes, differentiated adipocytes after 21 days; Adipocytes+MLT, differentiated adipocytes after 21 days incubated with melatonin. All values are expressed as mean ± SEM of three independent experiments in duplicate. **P<0.01; *P<0.05.