Electronic supplementary material (ESM)

ESM Methods

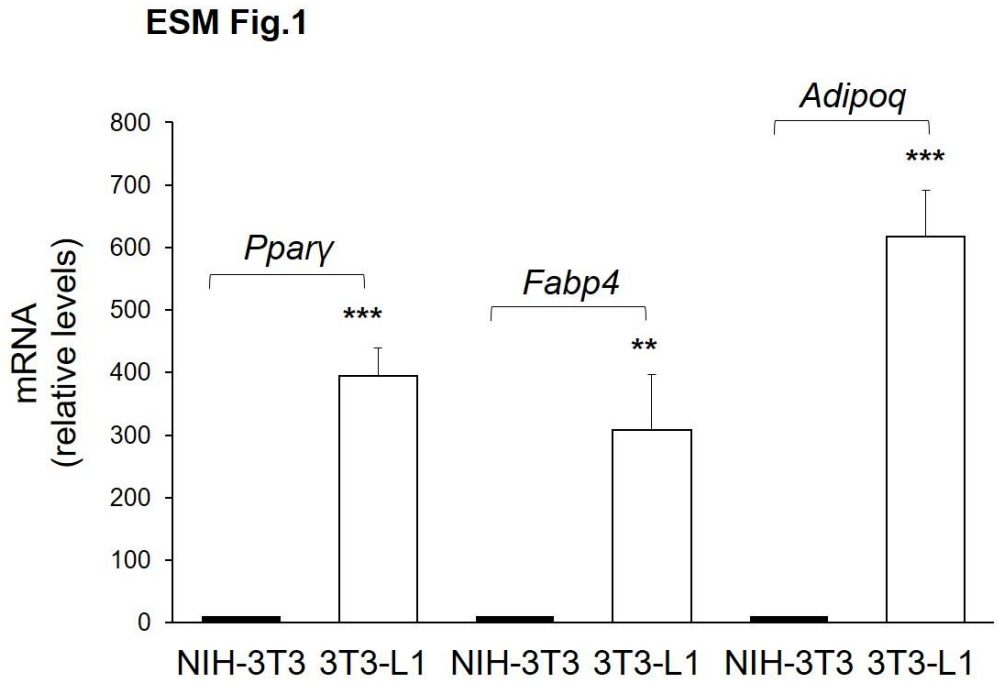
Cell culture and adipocyte differentiation. For adipocyte differentiation, cells were grown to confluence in medium containing 10% FCS. Two days after reaching confluence, the cells were cultured in DMEM supplemented with a differentiation cocktail containing 5µg/ml insulin, 0.5mmol/l 3-isobutyl-1-methylxanthine, 1mol/l dexamethasone, 1 µmol/l rosiglitazone and 10% FBS for 2 days. Forty-eight hours after induction, cells were maintained in DMEM containing 5µg/ml insulin and 10% FBS until they were ready for collection. The NIH-3T3 cells were cultured in the presence or the absence 5-Azacytidine (5µmol/l) for 6h before the administration of differentiation cocktail. Lipid accumulation of mature adipocytes was determined by Oil Red O staining as reported in [13]. The cells were incubated for 60 min at RT in Oil Red O staining solution. Images were taken using an Olympus microscope system (Center Valley, PA, USA). For quantification, absorbance was measured at 510 nm using a spectrophotometer (Beckman, CA, USA).

ESM Tables

Gene	Forward/Reverse	Primer (5' to 3')
Pparγ2 *mRNA*	Forward	CAGTGGAGACCGCCCAGGCT
	Reverse	TGGAGCAGGGGGTGAAGGCT
Fabp4 *mRNA*	Forward	TCTCACCTGGAAGACAGCTCC
	Reverse	GCTGATGATCATGTTGGGCTTGG
Glut4 *mRNA*	Forward	CAGAAGGTGATTGAACAGAG
	Reverse	AATGATGCCAATGAGAAA
Adipoq *mRNA*	Forward	GTGACGACACCAAAAGGGCTC
	Reverse	TCCAACCTGCACAAGTTCCC
Ppia *mRNA*	Forward	GCAGACAAAGTTCCAAAGACAG
	Reverse	CACCCTGGCACATGAATCC
Zfp423 *mRNA*	Forward	GGTTTTATTATGTGTTTTTGTAGTGTA
	Reverse	ATATCCCTCAACTCAACCTACTTAA
ZNF423 *mRNA*	Forward	AGGCCTAGAAGGAGAGCCAG
	Reverse	TCGTCATCACCATCTCCAGG
Zfp423 NUC 1 *MNase*	Forward	CCCGCACGGGCCTGTTA
	Reverse	CTCTGACAGCACTGGGCA
Zfp423 NUC 2 *MNase*	Forward	TGTGGCCGGACGCCTG
	Reverse	CCTTCTCCTCCGCCCCTTG
Zfp423 CTRL R *MNase*	Forward	GCCCGAGGGCAGGCA
	Reverse	GCACGGGCATTGCTCAG
Zfp423 *Bisulfite*	Forward	GGTTTTATTATGTGTTTTTGTAGTGTA
	Reverse	ATATCCCTCAACTCAACCTACTTAA
ZNF423 *Bisulfite*	Forward	GAGAGGAGGAAGAAATTTAGGGTGGGGTG
	Reverse	ACTCAAAACAATCCTCAATACCTAAAAAATAC

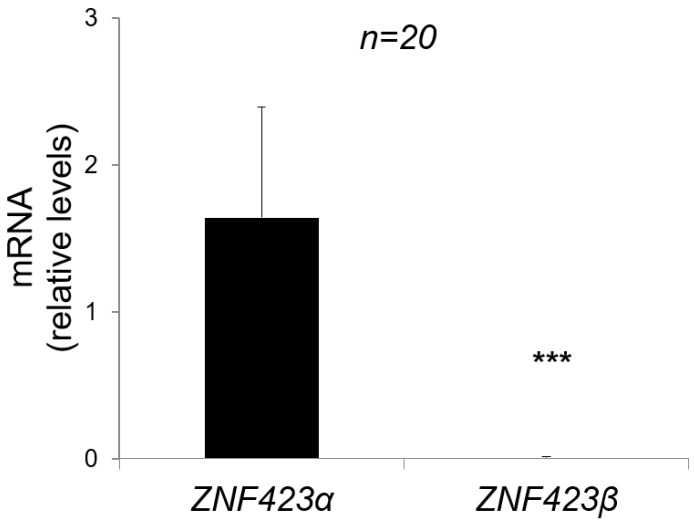
ESM Table 1. List of primers used in this study

ESM Figures



ESM Fig.1. Adipocyte marker genes in NIH-3T3 and 3T3-L1 cells. Total RNA was isolated from the cells and the relative mRNA levels of *Pparγ, Fabp4,* and *Adipoq* were determined by qPCR. Data normalisation has been performed using the housekeeping *Ppia* gene as internal control. Results are the means ± SD of three independent experiments. Statistical significance was established by 2-tail Student's t-test (***p*<0.01, and ****p*<0.001).

ESM Fig.2



ESM Fig.2. Expression of *ZNF423α* and *β* isoforms in SVF preadipocytes. Expression of *ZNF423α* (NM_015069) and *ZNF423β* (NM_001271620) mRNA was measured by qPCR. Data normalisation has been performed using the housekeeping *Ppia* gene (2-ΔCT*1000) as internal control. Results are the means ± SD, with *n* equal to the number of sample analysed. Statistical significance was established by 2-tail Student's t-test (***p<0.001).