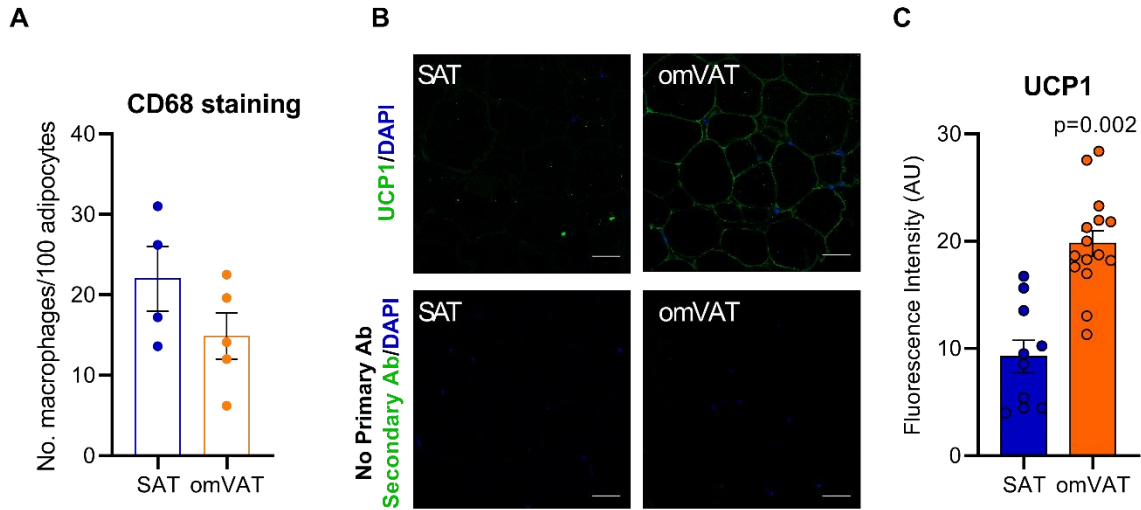
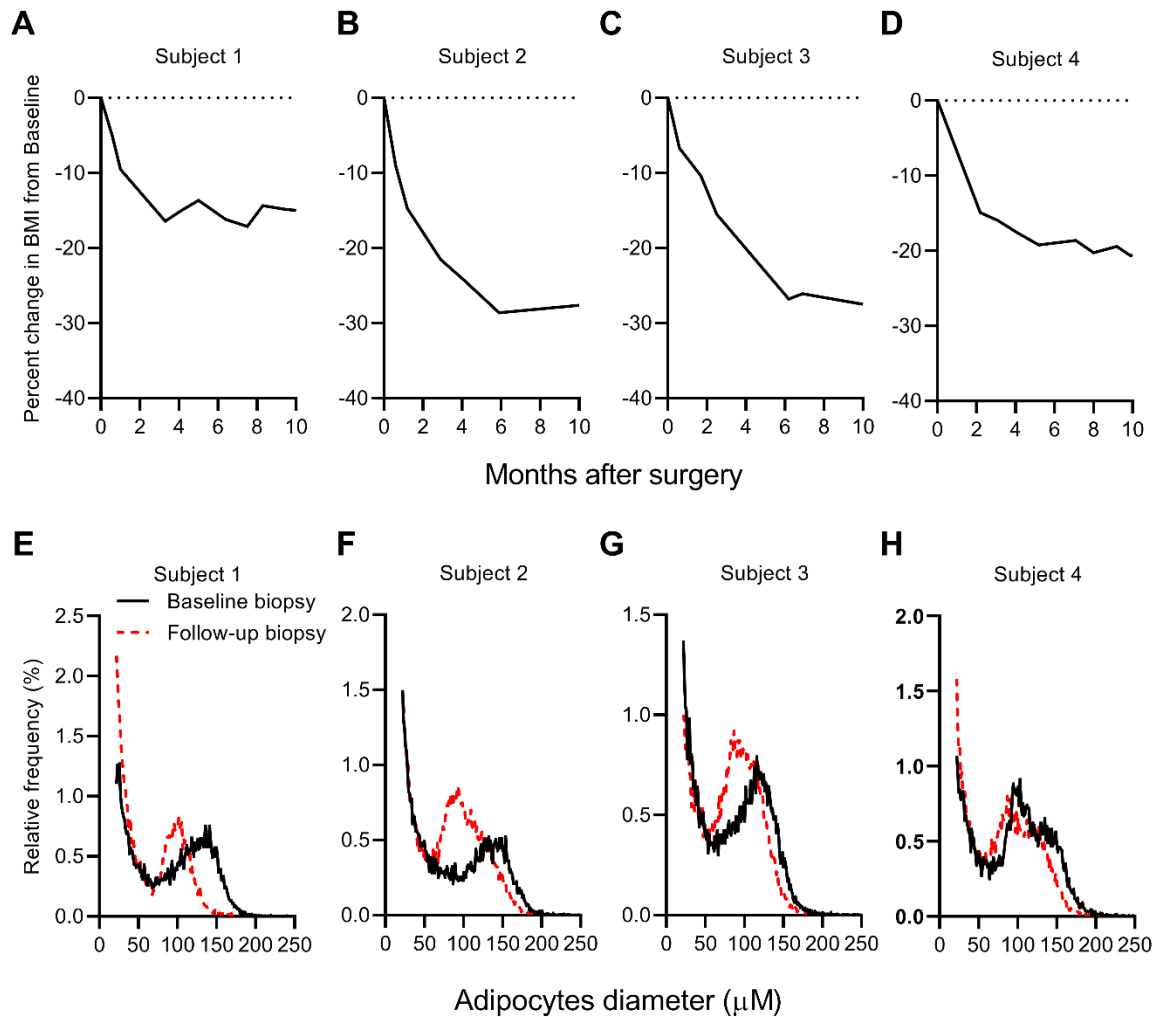


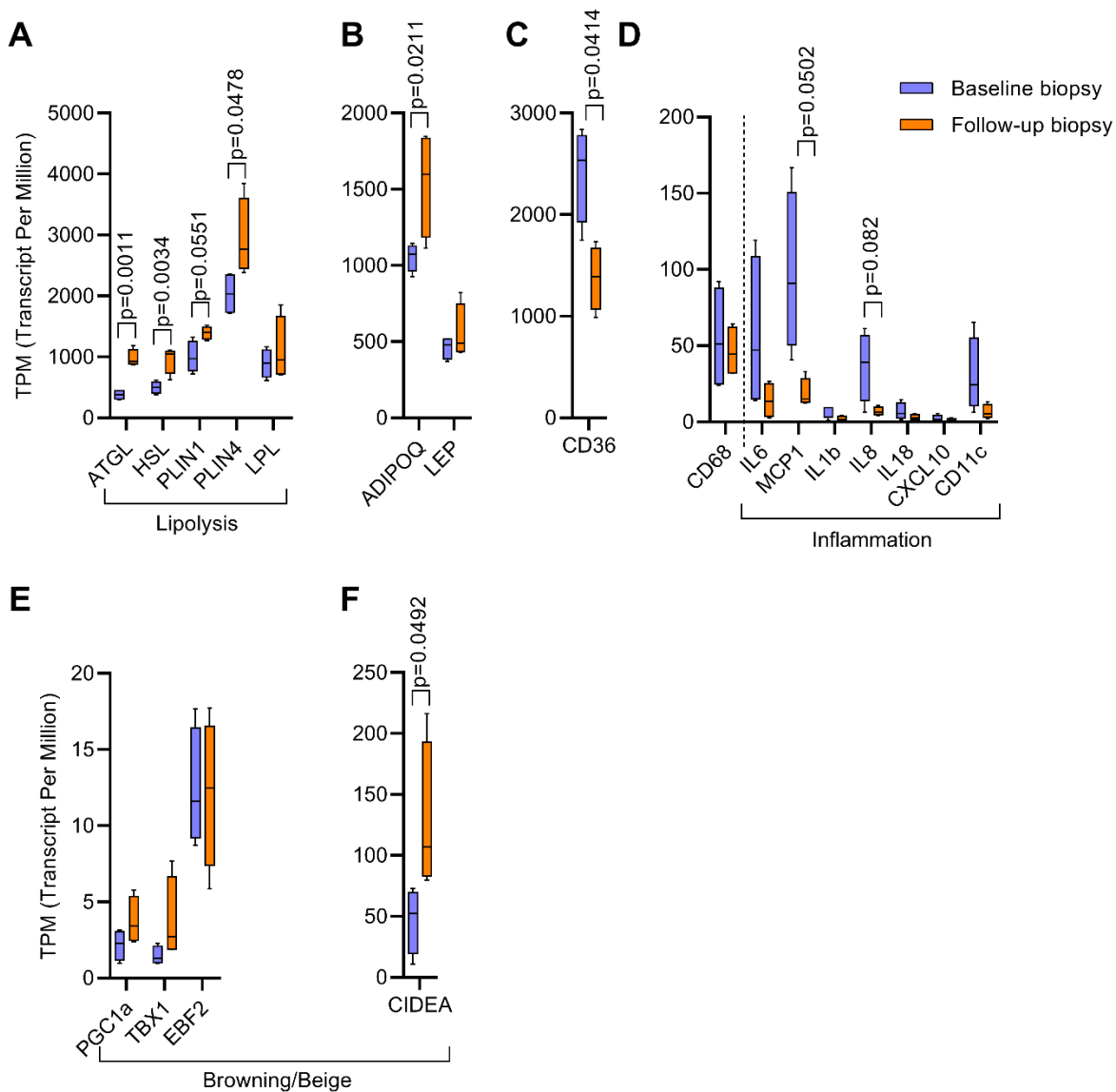
Supplemental Figure S1. Expression by RNA-seq of a panel of genes associated to lipid metabolism, adipogenesis, browning of adipose tissue, and inflammation in SAT and omVAT. (A-B) Gene expression of lipogenic, (C) lipolytic, (D-E) adipogenic, (F-G) browning, and (H-I) inflammatory markers. Value expressed as TPM (transcript per million) (n=10). Error bars represent mean ± SEM. RNA-seq gene expression data were compared using Wilcoxon matched-pairs signed rank test.



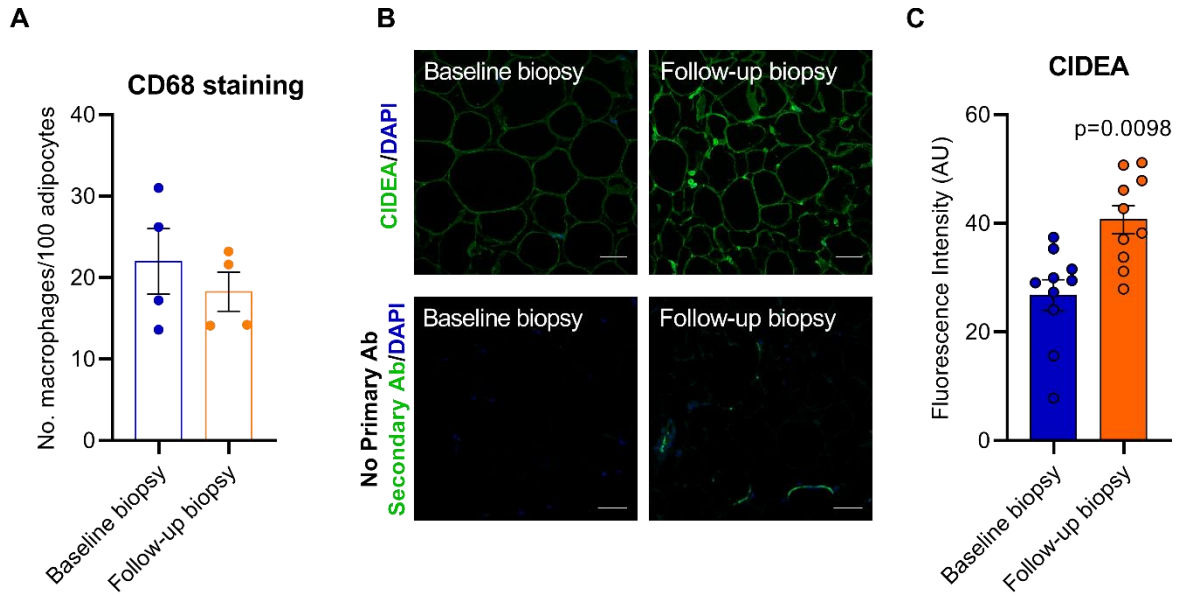
Supplemental Figure S2. Increase in CD68 and UCP1 staining in omVAT compared to SAT. (A) Quantification of CD 68 macrophage positive cells infiltrating in SAT and omVAT depot. (n=4-5 patients each group). (B) Representative immunofluorescence staining for UCP1 in SAT and omVAT depot. Representative images of serial sections stained with DAPI and secondary antibody only, without primary antibody, as negative control. (C) Immunofluorescence quantification of UCP1, showing a significant increase in UCP1 fluorescence intensity in omVAT compared to SAT. (n=3-4 patients each group, 3-5 different visual fields each patient). Error bars represent mean \pm SEM. Data were compared using Wilcoxon matched-pairs signed rank test.



Supplemental Figure S3. Reduction in body weight and cell size profile after weight loss in each of the four patients returning for a second SAT biopsy. (A-D) Individual change in BMI from baseline (dotted line) during the follow-up visits (solid line) for each of the four participants that consented for a second follow-up SAT biopsy. (E-H) Individual Multisizer cell profiles for each of the four participants at the baseline biopsy during bariatric surgery (solid line) and at the follow-up SAT biopsy (dotted line).



Supplemental Figure S4. Variation in gene expression by RNA-seq of a panel of genes associated to lipid metabolism, adipogenesis, browning and inflammation in SAT after weight loss. (A) Gene expression of lipolytic, (B-C) adipogenic, (D) inflammatory, and (E-F) browning markers. Value expressed as TPM (transcript per million) (n=10). Error bars represent mean \pm SEM. RNA-seq gene expression data were compared using Wilcoxon matched-pairs signed rank test.



Supplemental Figure S5. Both CD68 and CIDEA staining are increased in SAT after weight loss. (A) Quantification of CD 68 macrophage positive cells infiltrating in SAT depot before and after weight loss. (n=4 patients each group). (B) Representative immunofluorescence staining for CIDEA in SAT depot before (Baseline) and after weight loss (Follow-up). Representative images of serial sections stained with DAPI and secondary antibody only, without primary antibody, as negative control. (C) Immunofluorescence quantification of CIDEA, showing a significant increase in CIDEA fluorescence intensity after weight loss. (n=3 patients each group, 3-4 different visual fields each patient).

Supplemental Table S1. List of genes and sequences of the primers used for RT-PCR gene expression analysis.

Gene Symbol	Forward	Reverse
ACC1	GGATGGTGTTCACCTCGGTAATAGA	GGGTGATATGTGCTGCGTCAT
ADIPOQ	TGCCCCAGCAAGTGTAAACC	TCAGAAACAGGCACACAACCTCA
ATGL	CAGACGGCGAGAATGTCATTATAT	TGCAGACATTGGCCTGGAT
CD163	CAGTGCAGAAAACCCCAAA	AAAGGATGACTGACGGGATGA
CD206	CGCTACTAGGCAATGCCAATG	GCAATCTGCGTACCACTTGTTTT
CD36	CAGGTCAACCTATTGGTCAAGCC	GCCTTCTCATACCAATGGTCC
CD68	GGGAGCAGGGTTGAGCAA	AACCGCCTCACCCAAAGTC
CGI-58	ACAGACCTGTCTATGCTTTTGAC	AGGGCACATCTCCACTCTTCA
CIDEA	CATGTATGAGATGTACTCCGTGTC	GAGTAGGACAGGAACCGCAG
CITED1	GAGGCCTGCACTTGATGTC	CACGGAGCTCATCTCTTGGT
CKMT1	TGAGGAGACCTATGAGGTATTTGC	CTCATCAAAGTAGCCAGA ACGG
CKMT2	AGGAGTCCTATGAGGTGTTTGC	CGTAATGCTCGTCAACTGC
COX4L1	TCGGTTTCACCGCGCTCGTTAT	TGTCCAGCATCCTCTTGGTCTG
COX7C	CCCTGGGAAGAATTTGCCA	GGAAGTGAACATCCTTATG
EBF2	GGGACAAGGACAAAAGAT	TCAATTCAGGTTGCGTTT
ELOVL3	AAGGACATGAGGCCCTTTTT	AAGATTGCAAGGCAGAAGGA
ELOVL6	AACGAGCAAAGTTTGAAGTGAAGG	TCGAAGAGCACCGAATATACTGA
FAS	CGCTCGGCATGGCTATCT	CTCGTTGAAGAACGCATCCA
GLUT4	CCATCCTGATGACTGTGGCTCT	GCCACGATGAACCAAGGAATGG
HSL	GACCCCTGCACAACATGATG	TGAGCAGCACCCCTTTGGATG
IL10	TGAGAACAGCTGCACCCACTT	TCGGAGATCTCGAAGCATGTTA
IL6	AGGGCTCTTCGGCAAATGTA	GAAGGAATGCCATTAACAACAA
LEP	AAGGTTTGGTGTGTGGAGATG	CTCCTGTCTCTTCTTTCTCTGC
LIPIN1	TGCTGGAGAGCAGCAGAACTC	TAGGGTATGAGGCTGACTGAG
MCP1	CAAGCAGAAGTGGTTTCAGGAT	TCTTCGGAGTTTGGGTTTGC
PCK2	TTTACCAATGTGGCTGAGAC	TCCTTGTACCAGGTTTCCA
PGC1a	ATGGAGTGACATCGAGTGTGC	GAGTCCACCCAGAAAGCTGT
PLIN1	GCGGAATTTGCTGCCAACACTC	AGACTTCTGGGCTTGCTGGTGT
PPARa	AACATCCAAGAGATTTTCGCAATC	CCGTAAAGCCAAAGCTTCCA
PPARg2	TCAGGGCTGCCAGTTTCG	GCTTTTGGCATACTCTGTGATCTC
PRDM16	TACACTGTGCAGGCAGGCTA	GTGTGGAGAGGAGTGTCTTCG
SREBP1c	CGGAACCATCTTGCCAACA	GCCGGTTGATAGGCAGCTT
TBP	GTGACCCAGCATCACTGTTTC	GAGCATCTCCAGCACACTCT
TBX1	CGCAGTGGATGAAGCAAATCGTG	TTTGCGTGGGTCCACATAGACC
TMEM26	ATGGAGGGACTGGTCTTCCTT	CTTCACCTCGGTCACTCGC
TNFa	GCAGGTCTACTTTGGGATCATTG	GCGTTTGGGAAGGTTGGA
UCP1	GTG TGC CCA ACT GTG CAA TG	CCA GGA TCC AAG TCG CAA GA