

Supplementary information

Characteristics	T0 Median (IQ range)	T6 Median (IQ range)	T12 Median (IQ range)	*p-value T0 vs T6	*p-value T0 vs T12	*p-value T6 vs T12
Number	36 (3M/33F)	33 (2/31)	33 (2/31)			
Weight (kg/m2)	115.5 (103-130.5)	86.7 (77.3-96)	76.5 (68.05-91.6)	<0.0001	<0.0001	<0.0001
BMI	44.28 (39.74-48.32)	33.45 (30.6034.80)	29.81 (27.10-32.21)	<0.0001	<0.0001	<0.0001
Waist circumference (cm)	122 (114-129)	100 (90-107)	93.25 (83.75-101.5)	<0.0001	<0.0001	<0.0001
Hips circumference (cm)	141 (132-150)	120 (110-127)	110.5 (103.75-119)	<0.0001	<0.0001	<0.0001
W-H ratio	0.86 (0.83-0.91)	0.83 (0.80-0.89)	0.83 (0.79-0.88)	0.0316	0.0058	0.0997
Current smoker (%)	16.6	16.6	14.28	>0.999	>0.999	>0.999
Glycemia mg/dl	93 (87-102.5)	81 (77-87)	85 (80-91.5)	<0.0001	<0.0001	0.0636
Insulin (μU/ml)	17.95 (14.78-22.13)	7.8 (6.1-8.7)	7.4 (5.4-9.6)	<0.0001	<0.0001	0.4404
HOMA1R	4.32 (3.00-5.21)	1.51 (1.17-1.98)	1.50 (1.05-2.07)	<0.0001	<0.0001	0.5052
HbA1c	38 (36-43)	34 (32-37)	34 (32-36)	<0.0001	<0.0001	0.5831
Total cholesterol (mg/dl)	200.5 (168.5-224.5)	195 (163-230)	202 (176.5-234.5)	0.5857	0.1635	0.0444
HDL-C (mg/dl)	50 (41-57)	55 (47-62)	55.5 (49.5-67)	0.0293	0.0013	0.0016
LDL-C (mg/dl)	123.6 (95.8-148)	120.4 (96.8-147.2)	122.6 (105.3-154.8)	0.8094	0.5434	0.5435
Triglycerides (mg/dl)	124 (96-179)	95 (73-126)	84.5 (75-110.5)	<0.0001	<0.0001	0.0937
ALT (U/l)	29 (22.5-38.5)	18 (14-22)	18 (13-21.5)	0.0002	0.0007	0.3340
AST (U/l)	20 (16-24)	18 (16-21)	20 (15-24.5)	0.2517	0.4539	0.1229

Table S1. Clinical and biochemical profiles of the human cohort. Median values and interquartile ranges of studied variables measured in obese patients before (T0) and 6 months (T6) and 12 months (T12) after bariatric surgery. The p-value for difference between T0, T6 and T12 groups were calculated by Wilcoxon rank-sum test.

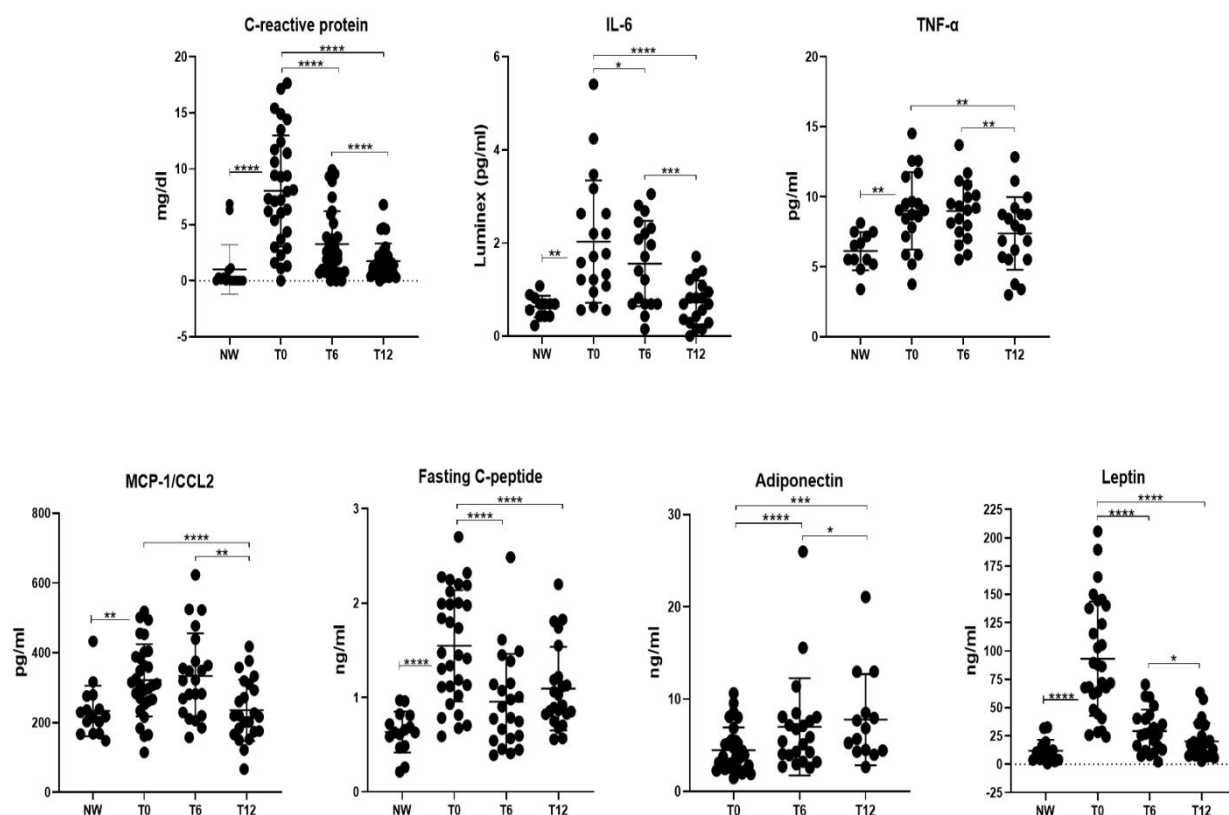


Fig S1. Analysis of inflammation markers in patients affected by obesity before and after surgery. Mean values with SD are reported for enrolled severely obese patients before (T0) and six (T6), and 12 months (T12) after bariatric surgery. A cohort of normal-weight (NW) subjects was also analysed as a reference. A two-tailed Student's t-test ($\alpha = 0.05$) was performed if the requirements of normal distribution (Shapiro-Wilk test) were met. Otherwise, the Mann-Whitney test was performed. Non-parametric statistics (Wilcoxon signed-rank test) or paired t-tests were used to compare the levels of repeated measurements T0, T1, and T2 (b). The following indicators were used for all statistical tests: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; and **** $p < 0.0001$.

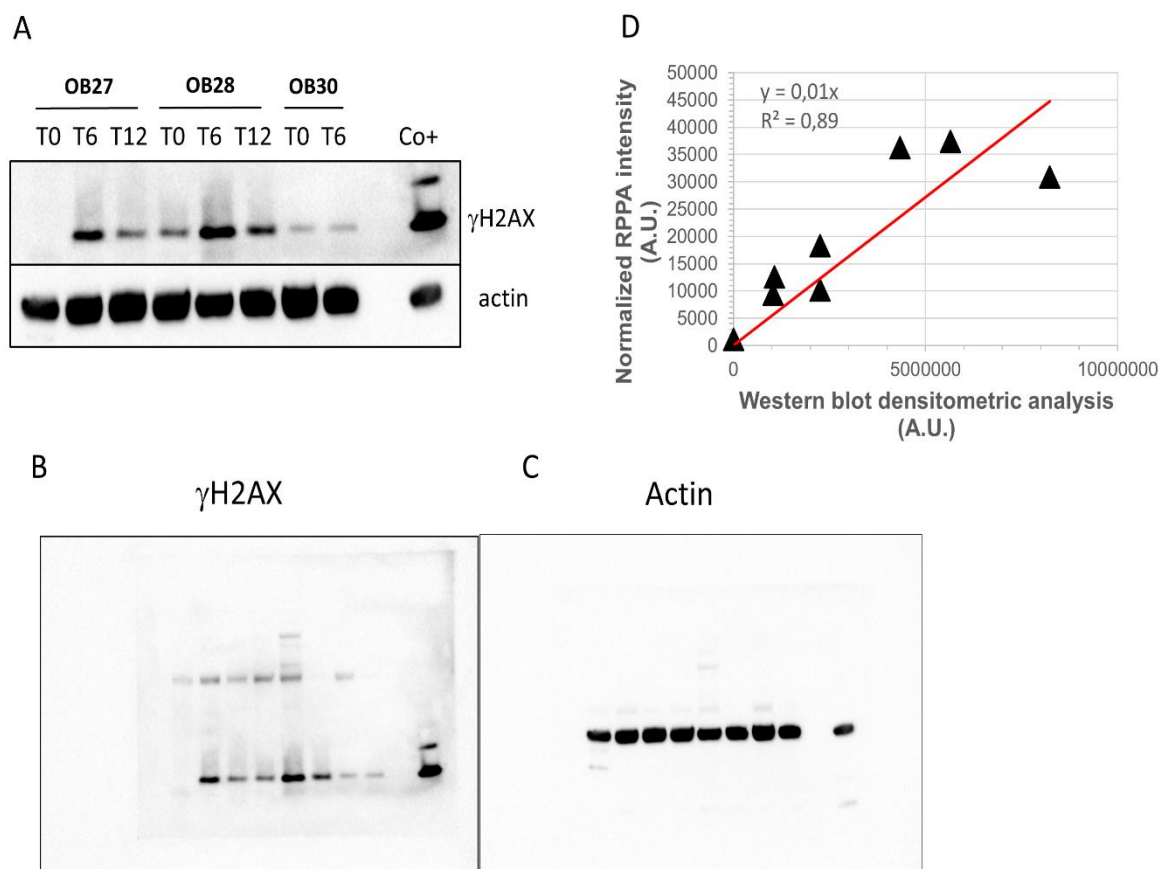


Fig S2. Original western blot for validation of RPPA. (A) Validation of γ H2AX RPPA results by western blot analysis for a set of PBMC samples from obese subjects (OB27, OB28, OB30) at the enrolment time (T0); six months after BS (T6); one year after BS (T12). A complete picture of the western blot analysis is shown (A). 4Gy irradiated human primary fibroblasts were used as positive control (Co+). Full and uncropped western blot filters for γ H2AX (B) and actin (C) are shown. "Intensity values (A.U.) obtained from RPPA and densitometric analysis of western blotting for H2AX activation are plotted along with the corresponding equation and coefficient of determination (R^2) of the linear regression (D). Pearson's correlation coefficient: 0,85.

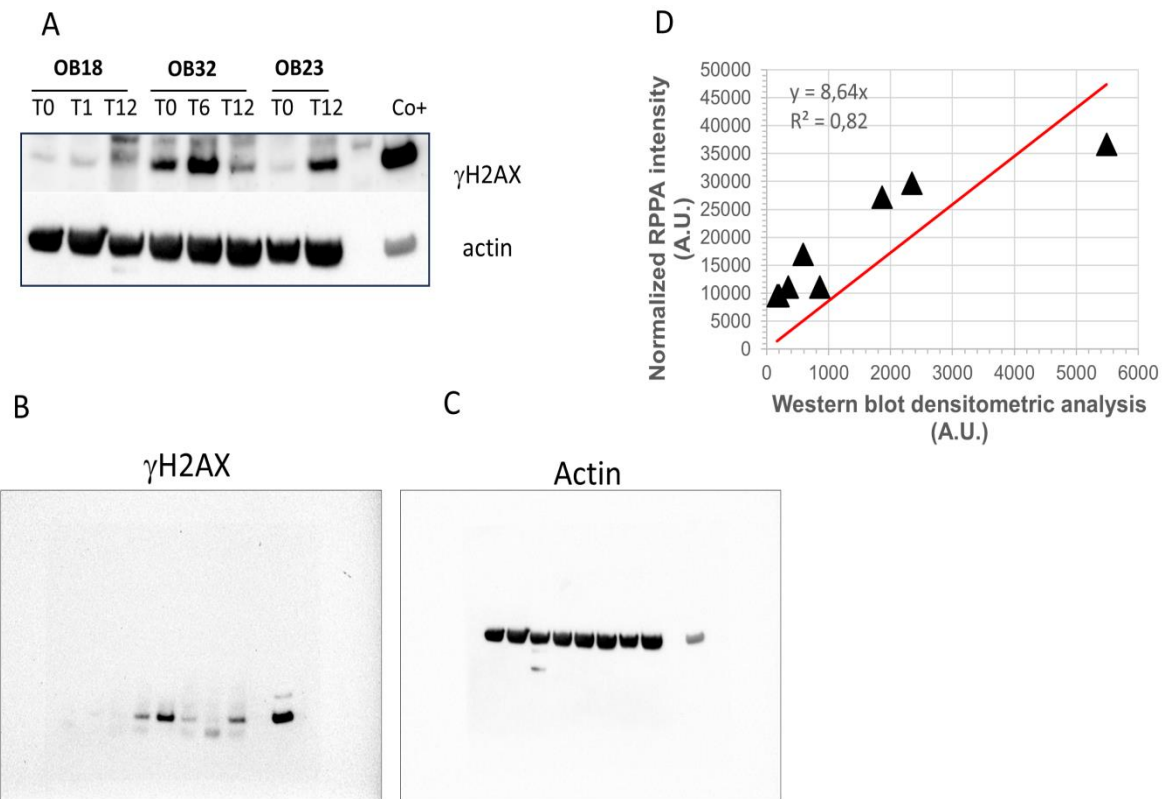


Fig S3. Original western blot for validation of RPPA. (A) Validation of γ H2AX RPPA results by western blot analysis for a set of PBMC samples from obese subjects (OB18, OB32, OB23) at the enrolment time (T0), six months after BS (T6) and one year after BS (T12). A complete picture of the western blot analysis is shown (A). 4Gy irradiated human primary fibroblasts were used as positive control (Co+). Full and uncropped western blot filters for γ H2AX (B) and actin (C) are shown. "Intensity values (A.U.) obtained from RPPA and densitometric analysis of western blotting for H2AX activation are plotted along with the corresponding equation and coefficient of determination (R^2) of the linear regression (D). Pearson's correlation coefficient: 0,91. Due to low levels of activated H2AX in part of the samples, the densitometric analysis values for the second exemplificative western blot image (dashed arrow) were obtained after probing the filter with the primary antibody, followed by labelled streptavidin-biotin (LSAB) method for signal amplification. The LSAB method with subsequent chemiluminescent detection, allowed us to determine the levels of activated H2AX in sample with poor expression while leaving the relative sample intensities unaltered.