

Supplementary Material

The role of IL-13 and IL-4 in adipose tissue fibrosis

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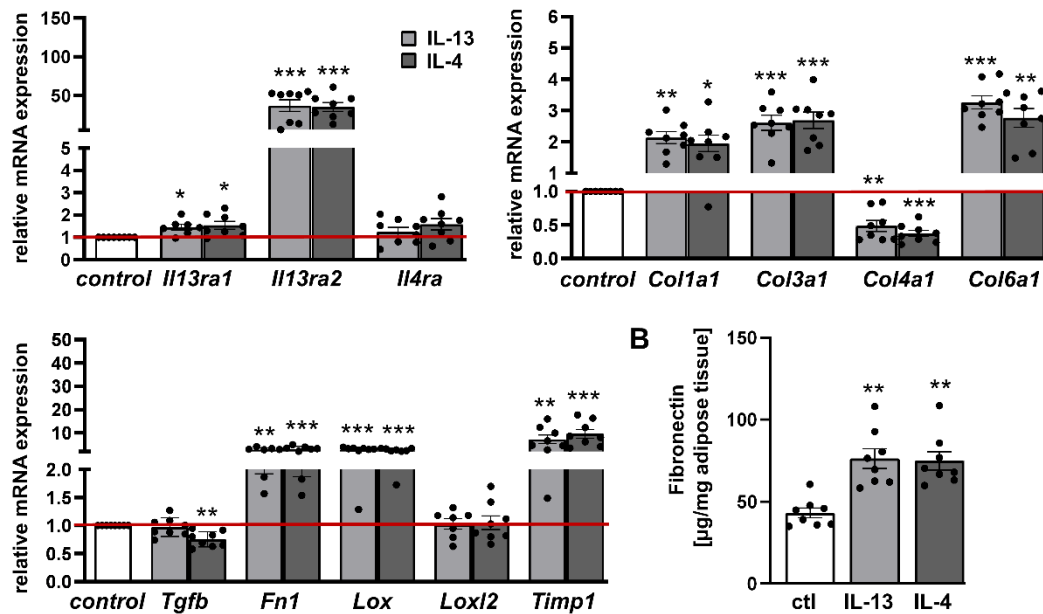
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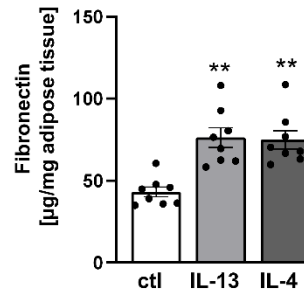
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Supplementary Figures

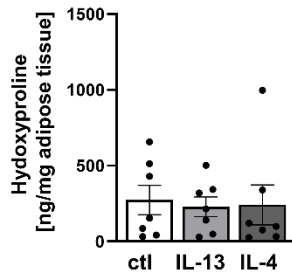
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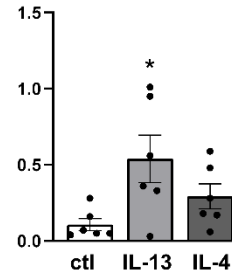
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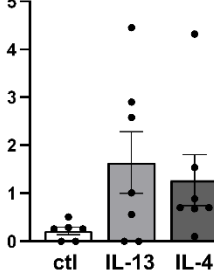
C



D



E



F

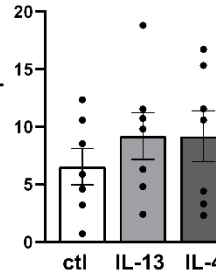


Figure S1: Fibrosis data in B6J mice.

Adipose tissue explants from B6J mice (n=8) were stimulated either with IL-13 (50 ng/ml) or IL-4 (50 ng/ml) or non-stimulated (control) for four days. **(A)** mRNA expression of cytokine receptors and fibrosis markers are given as fold change compared to the control condition setting to 1. **(B)** Levels of fibronectin were determined in supernatants of the explants (n=8) by ELISA. **(C)** Content of hydroxyproline was measured in AT explants by hydroxyproline assay (n=7). The αSMA positive area **(D)** and the number of αSMA positive CLS **(E)** and Mac-2 positive CLS **(F)** were quantified by immunostainings. Data represented as mean ± SEM. *p-value <0.05; **p-value <0.01; ***p-value <0.001.

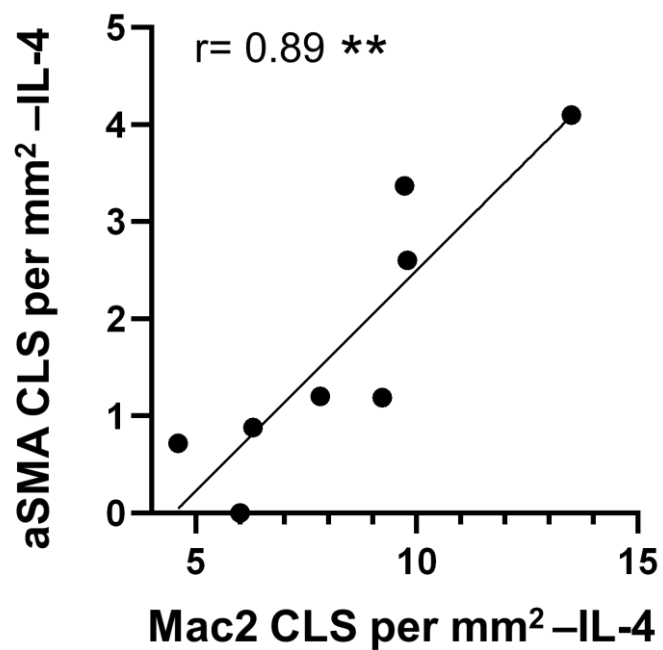


Figure S2: Correlation of aSMA-positive CLS with Mac2-positive CLS in C3H mice. WAT explants from C3H mice were stimulated with IL-4 (50ng/ml) four days and immunofluorescence staining was performed with antibodies against α -SMA and Mac2. The number of α -SMA positive CLS were correlated with the number of Mac2 positive CLS (n=8). For correlation analysis a Pearson correlation was used; **p-value <0.01.

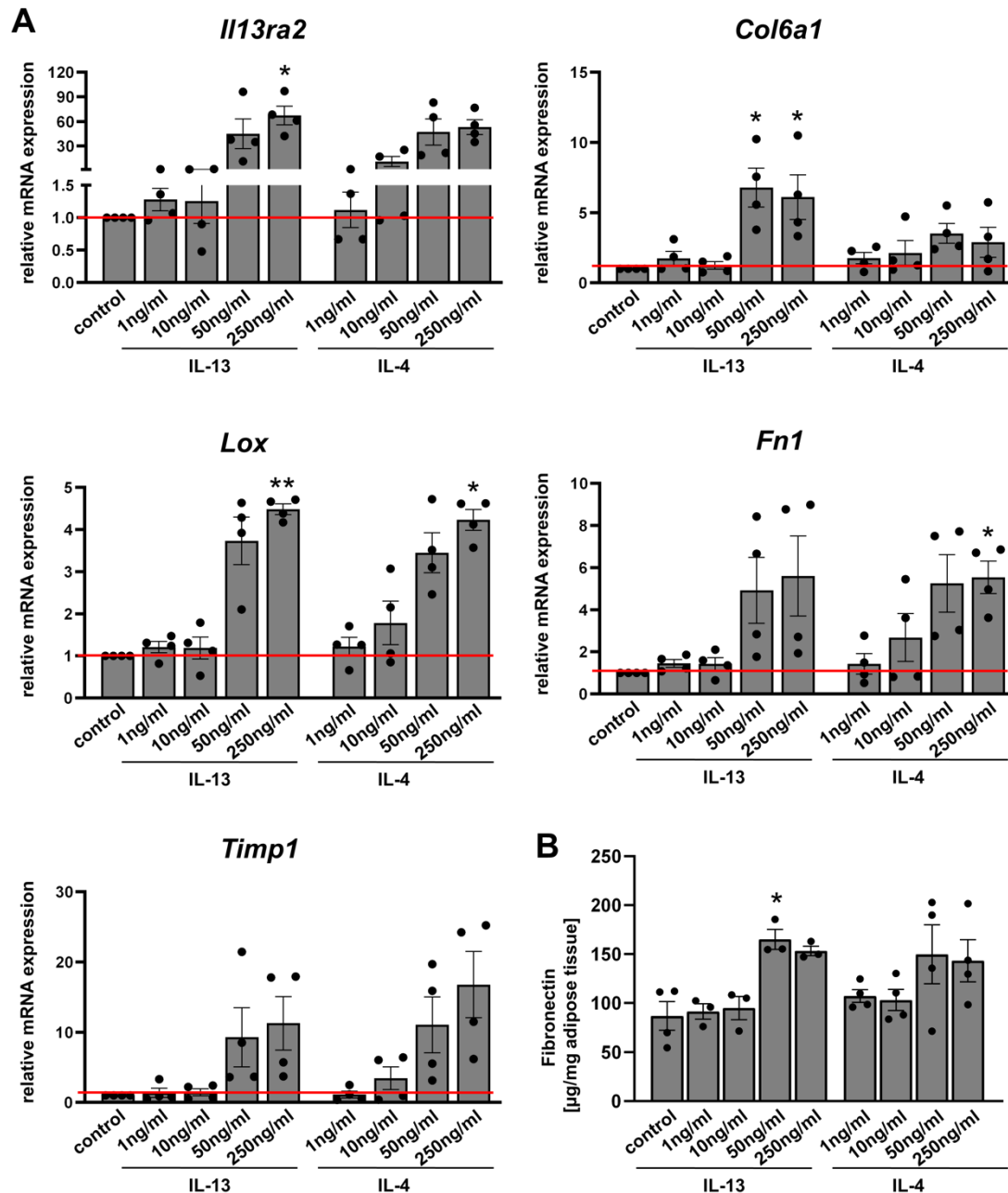


Figure S3: Concentration series of IL-13 and IL-4 in B6J mice.

WAT explants from B6J mice ($n=4$) were stimulated with increasing concentrations of IL-13 or IL-4 (1 ng/ml up to 250 ng/ml) or non-stimulated (control) for four days. (A) Fibrosis markers were determined by qPCR (stimulated data are represented as fold change compared to control data) (B) and fibronectin levels in the supernatants by ELISA. Data represented as mean $\pm$ SEM. * p -value <0.05 ; ** p -value <0.01 .

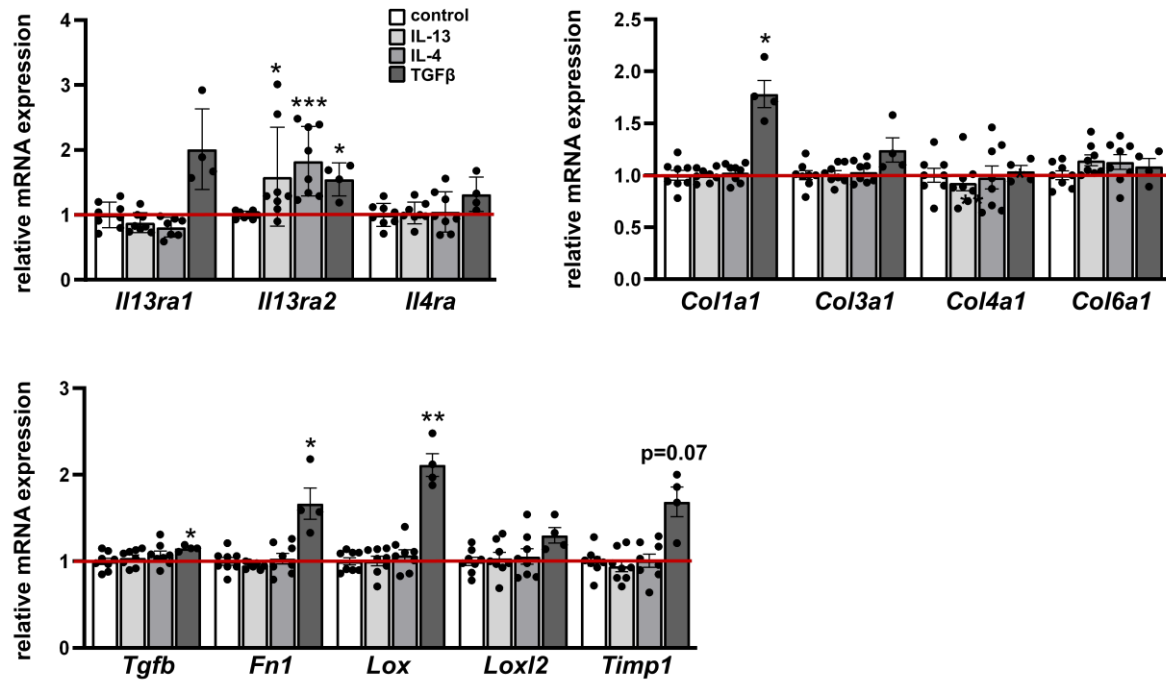


Figure S4: Fibrosis marker expression in 3T3-L1 differentiated adipocytes.

3T3-L1 cells were differentiated into adipocytes and stimulated with IL-13 or IL-4 (50 ng/ml) or Tgf-β1 (5 ng/ml) for 48h. mRNA expression was measured by qPCR and calculated as fold change compared to non-stimulated adipocytes (control). Data are presented as mean + SEM of three or four independent experiments with repeated approaches (n=4-8); *p-value <0.05; **p-value <0.01; ***p-value <0.001.

subcutaneous adipose tissue

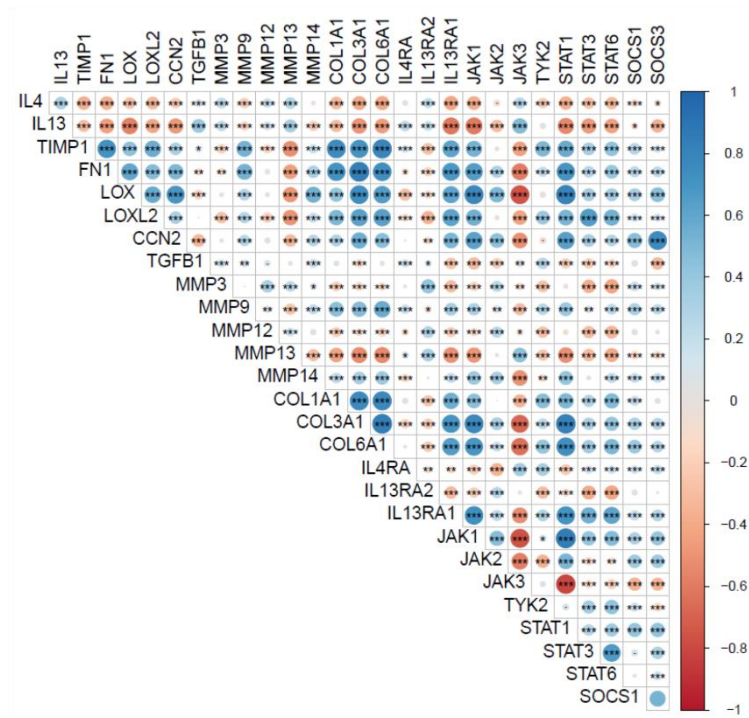


Figure S5: Gene correlation analysis of human subcutaneous adipose tissues. The presented data are RNA-Seq data from human subcutaneous adipose tissue samples (n=1,553). Correlation analysis of fibrotic-related genes as well as *IL-13* and *IL-4*. Positive correlations are shown in blue, while negative correlations are represented in red. The size of the dot refers to the degree of correlation; *p-value < 0.05; **p-value < 0.01; ***p-value < 0.001.

Supplementary Tables

Table S1: Mouse primer sequences for quantitative RT-PCR.

Primer	Sequenz 5' -> 3'
<i>Ipo8_for</i>	ACAAGCTCTGCTGACTGTGC
<i>Ipo8_rev</i>	CAGTGCCTTCGGTGCTCTG
<i>IL4Ra_for</i>	GAGGGACCTGGCTTCTGATT
<i>IL4Ra_rev</i>	CCTTGATGCTCCCAGATCCA
<i>IL13Ra1_for</i>	GGTGGGCTCTCAGTGTAGTG
<i>IL13Ra1_rev</i>	TCAGGATCACCTTCAGGGGG
<i>IL13Ra2_for</i>	ACACAGGGCCAGACTCAAAG
<i>IL13Ra2_rev</i>	TGGAGGCTCAATGTGGGTTC
<i>Tgfb_for</i>	CTGCTGACCCCCACTGATAC
<i>Tgfb_for</i>	AGCCCTGTATTCCGTCTCCT
<i>Itgam (Cd11b)_for</i>	ATGGACGCTGATGGCAATACC
<i>Itgam (Cd11b)_rev</i>	TCCCCATTACGTCTCCCA
<i>Col1a1_for</i>	CGATGGATTCCCGTTCGAGT
<i>Col1a1_rev</i>	GAGGCCTCGGTGGACATTAG
<i>Col3a1_for</i>	CTGTAACATGGAACTGGGGAAA
<i>Col3a1_rev</i>	CCATAGCTGAACTGAAAACCACC
<i>Col4a1_for</i>	CTGGCACAAAAGGGACGAG
<i>Col4a1_rev</i>	ACGTGGCCGAGAATTCACC
<i>Col6a1_for</i>	CTGCTGCTACAAGCCTGCT
<i>Col6a1_rev</i>	CCCCATAAGGTTTCAGCCTCA
<i>Lox_for</i>	CAGCCACATAGATCGCATGGT
<i>Lox_rev</i>	GCCGTATCCAGGTCGGTTC
<i>Loxl2_for</i>	ATTAACCCCAACTATGAAGTGCC
<i>Loxl2_rev</i>	CTGTCTCCTCACTGAAGGCTC
<i>Fn1_for</i>	TTCAAGTGTGATCCCCATGAAG
<i>Fn1_rev</i>	CAGGTCTACGGCAGTTGTCA
<i>Timp1_for</i>	CGAGACCACCTTATACCAGCG
<i>Timp1_rev</i>	ATGACTGGGGTGTAGGCGTA

Table S2: Correlation values in visceral adipose tissue from genes with metabolic data

Phenotypes	Corr IL4	adj. P-value IL4	Code IL4	Corr IL13	adj. P-value IL13	Code IL13	Corr TIMP1	adj. P-value TIMP1	Code TIMP1	Corr FN1	adj. P-value FN1	Code FN1
NEFA	0.1901	1		0.02638	1		0.1675	1		0.1985	1	
Cholesterol	0.08597	0.095084		0.02357	1		-0.07175	0.36463		-0.003369	1	
LDL Cholesterol	0.05061	1		-0.001516	1		-0.01179	1		0.03894	1	
HbA1c	0.0403	1		0.009805	1		-0.05019	1		-0.00368	1	
Diabetes	0.0306	1		0.02955	1		-0.001653	1		0.01459	1	
HDL Cholesterol	0.02614	1		0.008203	1		-0.008739	1		-0.03501	1	
FPG	0.02407	1		0.02578	1		-0.01755	1		-0.01529	1	
Age	0.01957	1		0.03187	1		-0.01645	1		-0.02385	1	
CrP	0.01356	1		0.04666	0.84633		-0.02405	1		-0.03569	1	
Height	-0.003776	1		-0.01084	1		0.01761	1		0.0219	1	
WHR	-0.01794	1		-0.02922	1		-0.02715	1		0.07791	1	
Body weight	-0.03605	1		-0.08069	0.027695	*	0.03554	1		0.06076	0.26639	
BMI	-0.03733	1		-0.07005	0.092021		0.03681	1		0.05901	0.28066	
Leptin	-0.05239	1		-0.08988	0.42081		0.1123	0.1335		0.0773	0.85619	
Adiponectin	-0.06606	1		0.02474	1		0.2379	0.18369		0.003568	1	
Body fat	-0.1069	0.07685	.	-0.1375	0.0050682	**	0.2537	2.24x10 ⁻¹⁰	***	0.2044	1.06x10 ⁻⁶	***
FPI	-0.1594	0.007561	**	-0.1178	0.14009		0.02904	1		0.1316	0.058568	
HOMA-IR	-0.1683	0.0069919	**	-0.1232	0.14009		0.02996	1		0.1501	0.025751	*
Waist	-0.1949	0.015365	*	-0.2693	6.99x10 ⁻⁵	***	0.1255	0.50287		0.2546	0.00022736	***

Phenotypes	Corr LOX	adj. P-value LOX	Code LOX	Corr LOXL2	adj. P-value LOXL2	Code LOXL2	Corr CCN2	adj. P-value CCN2	Code CCN2	Corr TGFβ1	adj. P-value TGFβ1	Code TGFβ1
NEFA	0.139	1		0.1332	1		0.1563	1		-0.04774	1	
Cholesterol	0.01239	1		-0.03954	1		0.02546	1		0.002711	1	
LDL Cholesterol	0.03906	1		-0.04648	1		0.03201	1		0.00747	1	
HbA1c	0.008841	1		0.1021	0.046455	*	-0.006924	1		-0.03881	1	
Diabetes	-0.01522	1		0.06099	0.21691		0.02715	1		-0.04049	1	
HDL Cholesterol	-0.07729	0.25522		-0.0767	0.21691		-0.04246	1		0.01562	1	
FPG	-0.01454	1		0.1054	0.0013492	**	-0.008076	1		0.019	1	
Age	-0.01628	1		-0.02027	1		-0.01414	1		0.03125	1	
CrP	-0.04329	0.93383		0.02558	1		-0.02254	1		0.0437	1	
Height	0.02728	1		0.01811	1		-0.006735	1		0.006785	1	
WHR	0.01268	1		0.0615	1		0.05263	1		0.08595	1	
Body weight	0.05334	0.48702		0.03638	1		0.0436	1		-0.04534	1	
BMI	0.05048	0.51384		0.03212	1		0.05505	0.42087		-0.04098	1	
Leptin	0.1333	0.024848	*	0.1145	0.088911	.	0.1325	0.028151	*	-0.01984	1	
Adiponectin	0.1936	0.48702		0.102	1		-0.00064	1		0.07075	1	
Body fat	0.1232	0.020657	*	0.07541	0.5177		0.09617	0.18006		0.04846	1	
FPI	0.09835	0.42232		0.205	9.36x10 ⁻⁵	***	0.1064	0.28529		-0.0423	1	
HOMA-IR	0.1202	0.17953		0.2433	3.97x10 ⁻⁶	***	0.1218	0.1737		-0.04802	1	
Waist	0.2414	0.0006787	***	0.1752	0.046455	*	0.2761	3.87x10 ⁻⁵	***	-0.1562	0.1526	

Phenotypes	Corr MMP3	adj. P-value MMP3	Code MMP3	Corr MMP9	adj. P-value MMP9	Code MMP9	Corr MMP12	adj. P-value MMP12	Code MMP12	Corr MMP13	adj. P-value MMP13	Code MMP13
NEFA	-0.1457	1		0.08109	1		0.05823	1		0.1813	1	
Cholesterol	0.01063	1		-0.01768	1		0.04069	1		0.07175	0.38732	
LDL Cholesterol	-0.01667	1		-0.004943	1		0.01071	1		0.03583	1	
HbA1c	0.03548	1		0.03447	1		0.07308	0.50219		0.04441	1	
Diabetes	0.01093	1		-0.001574	1		0.07099	0.10101		0.04202	1	
HDL Cholesterol	0.03071	1		-0.07614	0.33709		-0.01302	1		-0.001339	1	
FPG	-0.007209	1		0.02281	1		0.05829	0.49911		0.02513	1	
Age	-0.0009319	1		0.006714	1		-0.01154	1		0.004115	1	
CrP	0.04543	1		0.07855	0.043836	*	0.05597	0.49911		0.04332	1	
Height	0.02303	1		0.01901	1		-0.02095	1		-0.001581	1	
WHR	0.06714	1		0.06017	1		-0.01888	1		0.02846	1	
Body weight	-0.004807	1		-0.007866	1		-0.02694	1		-0.02581	1	
BMI	-0.02418	1		-0.004904	1		-0.01329	1		-0.03656	1	
Leptin	-0.03934	1		-0.01071	1		-0.03045	1		-0.02443	1	
Adiponectin	-0.1629	1		-0.06671	1		-0.2195	0.34089		-0.3396	0.0041624	**
Body fat	-0.0755	0.88891		-0.05313	1		-0.08073	0.50219		-0.09519	0.2181	
FPI	-0.0492	1		0.04348	1		0.009973	1		-0.03949	1	
HOMA-IR	-0.08024	1		0.07578	1		0.02065	1		-0.05691	1	
Waist	-0.01876	1		0.007975	1		-0.09002	1		-0.00491	1	

Phenotypes	Corr MMP14	adj. P-value MMP14	Code MMP14	Corr COL1A1	adj. P-value COL1A1	Code COL1A1	Corr COL3A1	adj. P-value COL3A1	Code COL3A1	Corr COL6A1	adj. P-value COL6A1	Code COL6A1
NEFA	0.1084	1		0.01466	1		0.09862	1		0.07433	1	
Cholesterol	0.03642	1		-0.07904	0.19363		-0.04062	1		-0.04787	1	
LDL Cholesterol	0.02662	1		-0.009319	1		0.009198	1		-0.007326	1	
HbA1c	0.01349	1		-0.04693	1		-0.006616	1		-0.02244	1	
Diabetes	-0.0151	1		-0.01836	1		0.02883	1		-0.01246	1	
HDL Cholesterol	0.02099	1		0.01975	1		-0.03625	1		0.00177	1	
FPG	-0.01398	1		-0.03417	1		-0.008487	1		0.002926	1	
Age	0.03095	1		-0.01943	1		-0.00608	1		-0.01092	1	
CrP	-0.01405	1		-0.02101	1		-0.04034	1		-0.02585	1	
Height	0.007906	1		0.01972	1		0.008899	1		0.01758	1	
WHR	0.0376	1		-0.005308	1		-0.001885	1		0.01918	1	
Body weight	-0.03855	1		0.03502	1		0.03398	1		0.02929	1	
BMI	-0.04481	1		0.0378	1		0.04401	1		0.0316	1	
Leptin	-0.09944	0.26786		0.1078	0.17408		0.1071	0.18235		0.08015	0.84716	
Adiponectin	0.2426	0.15819		0.3119	0.013131	*	0.1685	1		0.2881	0.033835	*
Body fat	0.02018	1		0.2174	1.37x10 ⁻⁷	***	0.1625	0.00032383	***	0.1864	1.45x10 ⁻⁵	***
FPI	-0.1337	0.056569		0.05359	1		0.09151	0.6564		0.07786	1	
HOMA-IR	-0.1153	0.24071		0.05892	1		0.1198	0.1849		0.1024	0.5261	
Waist	-0.2605	0.00014733	***	0.07189	1		0.1918	0.01963	*	0.1164	0.78074	

Phenotypes	Corr IL4RA	adj. P-value IL4RA	Code IL4RA	Corr IL13RA2	adj. P-value IL13RA2	Code IL13RA2	Corr IL13RA1	adj. P-value IL13RA1	Code IL13RA1	Corr JAK1	adj. P-value JAK1	Code JAK1	Corr JAK2	adj. P-value JAK2	Code JAK2
NEFA	0.1092	1		-0.1279	1		0.06962	1		0.1049	1		0.258	0.46801	
Cholesterol	-0.02213	1		0.03548	1		-0.0602	0.73014		-0.03368	1		0.04171	1	
LDL Cholesterol	0.0006553	1		0.01213	1		-0.02428	1		-0.007244	1		0.01376	1	
HbA1c	-0.04511	1		0.04447	1		-0.0603	0.88966		-0.0426	1		0.03124	1	
Diabetes	0.005399	1		0.05903	0.39006		0.005373	1		-0.0251	1		0.02589	1	
HDL Cholesterol	-0.0119	1		0.04491	1		-0.05209	1		-0.02958	1		-0.07442	0.38863	
FPG	0.009098	1		0.04007	1		-0.03486	1		-0.03517	1		0.006913	1	
Age	0.04114	1		0.02521	1		-0.02907	1		-0.01161	1		-0.0133	1	
CrP	0.0235	1		0.01417	1		-0.06776	0.15473		-0.06626	0.17318		-0.01774	1	
Height	-0.001799	1		0.002723	1		0.02369	1		0.01345	1		0.02402	1	
WHR	0.0002111	1		-0.06743	1		0.0222	1		0.01794	1		0.1526	0.86484	
Body weight	-0.0179	1		-0.007473	1		0.05232	0.57779		0.03727	1		0.02465	1	
BMI	-0.009851	1		-0.006157	1		0.046	0.83956		0.04107	1		0.01603	1	
Leptin	-0.02092	1		-0.0456	1		0.03719	1		0.04613	1		-0.02479	1	
Adiponectin	0.1011	1		0.09534	1		0.1306	1		0.2585	0.098716		-0.1473	1	
Body fat	-0.0483	1		0.0002013	1		0.08707	0.34877		0.1273	0.014721	*	-0.001557	1	
FPI	-0.05427	1		0.0004188	1		0.09797	0.46236		0.06466	1		0.04092	1	
HOMA-IR	-0.01597	1		-0.006387	1		0.1219	0.17215		0.09592	0.6507		0.04706	1	
Waist	-0.09384	1		-0.07335	1		0.1888	0.024956	*	0.1467	0.20592		0.1748	0.056202	

Phenotypes	Corr IL4RA	adj. P-value IL4RA	Corr JAK3	adj. P-value JAK3	Code JAK3	Corr TYK2	adj. P-value TYK2	Code TYK2	Corr STAT1	adj. P-value STAT1	Code STAT1	Corr STAT3	adj. P-value STAT3	Code STAT3
NEFA	0.1092	1	-0.07272	1		0.007408	1		0.1666	1		0.05808	1	
Cholesterol	-0.02213	1	-0.02869	1		-0.05532	1		-0.05613	0.97524		-0.04624	1	
LDL Cholesterol	0.0006553	1	-0.02726	1		-0.01332	1		-0.03889	1		-0.033	1	
HbA1c	-0.04511	1	0.02913	1		-0.08164	0.34247		-0.03755	1		-0.01291	1	
Diabetes	0.005399	1	-0.01201	1		-0.04776	0.97539		7.32e-05	1		0.04389	1	
HDL Cholesterol	-0.0119	1	0.02816	1		0.005008	1		-0.07635	0.33133		-0.06182	0.84643	
FPG	0.009098	1	0.002226	1		-0.01433	1		-0.02324	1		0.04929	0.91742	
Age	0.04114	1	0.02759	1		-0.01451	1		-0.004999	1		-0.01349	1	
CrP	0.0235	1	0.08154	0.02804	*	-0.02218	1		-0.05613	0.44329		-0.03448	1	
Height	-0.001799	1	0.005229	1		0.01222	1		0.02433	1		-0.008981	1	
WHR	0.0002111	1	-0.01685	1		-0.09146	1		0.02013	1		-0.0283	1	
Body weight	-0.0179	1	-0.02562	1		0.008068	1		0.03885	1		0.02248	1	
BMI	-0.009851	1	-0.04056	1		0.01275	1		0.04055	1		0.02409	1	
Leptin	-0.02092	1	-0.03442	1		0.03457	1		0.04292	1		0.05474	1	
Adiponectin	0.1011	1	-0.1805	0.77973		0.1795	0.95108		0.1931	0.55411		0.08096	1	
Body fat	-0.0483	1	-0.2088	5.37x10 ⁻⁷	***	0.0742	0.91313		0.08896	0.33133		0.1465	0.0020438	**
FPI	-0.05427	1	-0.09567	0.5599		0.04173	1		0.07471	1		0.09524	0.57301	
HOMA-IR	-0.01597	1	-0.09229	0.77973		0.07197	1		0.11	0.33133		0.1215	0.17677	
Waist	-0.09384	1	-0.1292	0.48691		0.03765	1		0.2116	0.0058196	**	0.1799	0.039888	*

Phenotypes	Corr IL4RA	adj. P-value IL4RA	Corr STAT6	adj. P-value STAT6	Code STAT6	Corr SOCS1	adj. P-value SOCS1	Code SOCS1	Corr SOCS3	adj. P-value SOCS3	Code SOCS3
NEFA	0.1092	1	0.02005	1		0.2595	0.47868		0.2305	0.89508	
Cholesterol	-0.02213	1	-0.09164	0.063739	.	0.01553	1		0.03847	1	
LDL Cholesterol	0.0006553	1	-0.04502	1		0.02811	1		0.04604	1	
HbA1c	-0.04511	1	-0.05423	1		-0.08824	0.20059		-0.0003924	1	
Diabetes	0.005399	1	-0.04401	1		-0.04798	0.95616		0.01336	1	
HDL Cholesterol	-0.0119	1	-0.0142	1		-0.05246	1		-0.05923	1	
FPG	0.009098	1	-0.05436	0.63332		-0.005168	1		0.02636	1	
Age	0.04114	1	-0.01639	1		0.01739	1		-0.00813	1	
CrP	0.0235	1	-0.04186	1		-0.01027	1		0.009247	1	
Height	-0.001799	1	0.013	1		0.006587	1		0.005189	1	
WHR	0.0002111	1	-0.01756	1		0.04942	1		0.04963	1	
Body weight	-0.0179	1	0.03376	1		0.00606	1		0.01152	1	
BMI	-0.009851	1	0.03022	1		0.0116	1		0.01943	1	
Leptin	-0.02092	1	0.05424	1		-0.03097	1		0.07483	1	
Adiponectin	0.1011	1	0.271	0.063739	.	-0.155	1		-0.02871	1	
Body fat	-0.0483	1	0.1409	0.0037327	**	-0.07709	0.71984		-0.04153	1	
FPI	-0.05427	1	0.07514	1		-0.04117	1		-0.006601	1	
HOMA-IR	-0.01597	1	0.105	0.43108		-0.01946	1		0.00319	1	
Waist	-0.09384	1	0.04412	1		0.02423	1		0.2084	0.0071802	**

Correlation analysis of genes from human visceral adipose tissue samples with metabolic parameters (N=287). For correlation analysis a Pearson's correlation coefficient was used and adjusted for multiple comparisons using the Holm method; *p-value <0.05; **p-value <0.01; ***p-value <0.001

Table S3: Correlation values in subcutaneous adipose tissue from genes with metabolic data

Phenotypes	Corr IL4	adj. P-value IL4	Code IL4	Corr IL13	adj. P-value IL13	Code IL13	Corr TIMP1	adj. P-value TIMP1	Code TIMP1	Corr FN1	adj. P-value FN1	Code FN1
Waist	0.09441	1		0.09075	1		0.06009	1		-0.09262	1	
CrP	0.0627	0.28587		0.05578	0.52016		-0.0222	1		-0.06598	0.19977	
WHR	0.05514	1		0.06689	1		0.06086	1		0.01719	1	
Diabetes	0.03706	1		-0.03238	1		0.02416	1		0.03374	1	
HbA1c	0.03296	1		0.008822	1		0.05109	1		0.03355	1	
FPG	0.02032	1		0.02396	1		0.01847	1		0.005457	1	
Leptin	0.01716	1		0.03092	1		0.04912	1		-0.04535	1	
Body fat	0.008673	1		0.06195	1		0.1437	0.0027585	**	0.08287	0.49371	
BMI	0.006404	1		0.03588	1		0.01892	1		-0.02649	1	
Body weight	-0.005308	1		0.02636	1		0.02326	1		-0.01921	1	
Height	-0.008995	1		-0.02387	1		-0.000252	1		-0.005138	1	
LDL Cholesterol	-0.01106	1		-0.07542	0.44013		0.007585	1		0.03457	1	
Age	-0.01693	1		-0.04278	1		0.006048	1		0.01736	1	
HDL Cholesterol	-0.01717	1		-0.02856	1		-0.0379	1		-0.01377	1	
HOMA-IR	-0.02094	1		0.02865	1		0.0701	1		0.05673	1	
FPI	-0.02294	1		0.02666	1		0.06393	1		0.05746	1	
Cholesterol	-0.03046	1		-0.07639	0.29111		-0.0105	1		0.01196	1	
NEFA	-0.06581	1		0.05777	1		0.1658	1		0.1366	1	
Adiponectin	-0.1818	0.95207		0.006323	1		0.1736	1		0.2213	0.32334	

Phenotypes	Corr LOX	adj. P-value LOX	Code LOX	Corr LOXL2	adj. P-value LOXL2	Code LOXL2	Corr CCN2	adj. P-value CCN2	Code CCN2	Corr TGFβ1	adj. P-value TGFβ1	Code TGFβ1
Waist	-0.06845	1		0.2004	0.011471	*	0.06265	1		0.1273	0.52906	
CrP	-0.03066	1		-0.04694	0.89529		-0.01018	1		0.05267	0.61781	
WHR	-0.01296	1		0.1362	0.94542		0.008139	1		-0.01681	1	
Diabetes	-0.03185	1		-0.03266	1		0.0188	1		0.01563	1	
HbA1c	-0.01976	1		0.01721	1		-0.003748	1		0.04377	1	
FPG	-0.0442	1		-0.02286	1		-0.01662	1		0.03392	1	
Leptin	0.05995	1		0.1602	0.0024345	**	0.04428	1		0.03673	1	
Body fat	0.03192	1		0.1252	0.015915	*	-0.1656	0.00021952	***	0.2307	1.47x10 ⁻⁸	***
BMI	-0.009559	1		0.04499	0.91601		-0.003537	1		0.03253	1	
Body weight	0.008256	1		0.05761	0.34449		0.008985	1		0.03018	1	
Height	0.0247	1		0.02698	1		0.02472	1		-0.02468	1	
LDL Cholesterol	0.09927	0.054517		0.05488	1		0.09779	0.059469		-0.07181	0.52906	
Age	0.002733	1		-0.01793	1		0.003754	1		-0.03841	1	
HDL Cholesterol	0.05506	1		0.002693	1		-0.0278	1		-0.01872	1	
HOMA-IR	-0.01505	1		0.1215	0.15579		-0.04436	1		0.02041	1	
FPI	0.01384	1		0.1496	0.015915	*	-0.02781	1		0.01033	1	
Cholesterol	0.09547	0.046051	*	0.02476	1		0.1249	0.0012666	**	-0.1006	0.025083	*
NEFA	0.1594	1		0.1383	1		0.2984	0.16541		0.0008025	1	
Adiponectin	0.1239	1		0.1289	1		-0.09528	1		-0.01139	1	

Phenotypes	Corr MMP3	adj. P-value MMP3	Code MMP3	Corr MMP9	adj. P-value MMP9	Code MMP9	Corr MMP12	adj. P-value MMP12	Code MMP12	Corr MMP13	adj. P-value MMP13	Code MMP13
Waist	0.04147	1		0.1079	0.81867		-0.0253	1		0.04177	1	
CrP	0.02421	1		0.001189	1		0.06568	0.18479		0.03251	1	
WHR	0.1355	1		0.1379	0.89648		0.009627	1		0.1573	0.79941	
Diabetes	0.02426	1		0.1038	0.00080252	***	0.0008792	1		-0.01316	1	
HbA1c	0.09018	0.16123		0.09005	0.13142		0.03738	1		0.02586	1	
FPG	0.04064	1		0.08099	0.04164	*	0.0138	1		0.01505	1	
Leptin	0.04366	1		-0.008564	1		0.03753	1		-0.0003729	1	
Body fat	0.005602	1		0.06617	0.89648		0.06535	1		-0.1175	0.036714	*
BMI	-0.001568	1		-0.001514	1		0.01118	1		0.007851	1	
Body weight	-0.00137	1		0.007407	1		0.009966	1		0.003721	1	
Height	-0.02006	1		0.005514	1		-0.001097	1		0.002995	1	
LDL Cholesterol	0.0171	1		0.03078	1		0.01203	1		-0.01414	1	
Age	-0.03292	1		-0.0167	1		-0.0293	1		-0.01701	1	
HDL Cholesterol	0.03506	1		-0.1342	0.00061833	***	-0.02068	1		-0.04186	1	
HOMA-IR	0.05361	1		0.1243	0.13142		0.09974	0.5347		0.04129	1	
FPI	0.04937	1		0.1245	0.095799		0.1031	0.3673		0.02746	1	
Cholesterol	0.03664	1		0.01996	1		-0.001061	1		-0.003705	1	
NEFA	0.2099	1		0.2188	0.81867		0.3829	0.014876	*	-0.03278	1	
Adiponectin	-0.3645	0.0012739	**	0.0008992	1		-0.3116	0.014065	*	-0.2083	0.47022	

Phenotypes	Corr MMP14	adj. P-value MMP14	Code MMP14	Corr COL1A1	adj. P-value COL1A1	Code COL1A1	Corr COL3A1	adj. P-value COL3A1	Code COL3A1	Corr COL6A1	adj. P-value COL6A1	Code COL6A1
Waist	-0.278	3.27x10 ⁻⁵	***	0.01097	1		-0.0639	1		-0.00455	1	
CrP	0.01132	1		-0.07939	0.035165	*	-0.06548	0.21114		-0.05361	0.64099	
WHR	-0.01853	1		-0.07409	1		-0.01652	1		-0.003216	1	
Diabetes	0.06741	0.11725		0.02507	1		-0.002823	1		0.02359	1	
HbA1c	0.04689	1		0.03358	1		-0.0002045	1		0.03255	1	
FPG	0.01207	1		0.014	1		-0.01602	1		0.009597	1	
Leptin	-0.1044	0.16696		0.01131	1		0.04246	1		-0.01101	1	
Body fat	-0.00506	1		0.1465	0.0020332	**	0.07519	0.76341		0.1091	0.076437	
BMI	-0.06747	0.11725		-0.01754	1		-0.01409	1		-0.01278	1	
Body weight	-0.04753	0.76531		-0.00824	1		-0.001229	1		-0.005783	1	
Height	0.01345	1		-0.007489	1		0.003345	1		-0.002873	1	
LDL Cholesterol	0.000324	1		0.008321	1		0.07775	0.3665		0.04677	1	
Age	0.029	1		0.01806	1		0.005963	1		0.01368	1	
HDL Cholesterol	0.03163	1		0.01484	1		0.0195	1		0.008201	1	
HOMA-IR	-0.1751	0.0035611	**	0.01425	1		0.04581	1		-0.0004362	1	
FPI	-0.1711	0.0027048	**	0.01544	1		0.0592	1		0.0112	1	
Cholesterol	-0.006444	1		-0.002093	1		0.05205	1		0.04401	1	
NEFA	-0.07008	1		-0.02023	1		0.1026	1		0.05959	1	
Adiponectin	0.3221	0.0075991	**	0.3331	0.0052731	**	0.2043	0.49692		0.2131	0.41135	

Phenotypes	Corr IL4RA	adj. P-value IL4RA	Code IL4RA	Corr IL13RA2	adj. P-value IL13RA2	Code IL13RA2	Corr IL13RA1	adj. P-value IL13RA1	Code IL13RA1	Corr JAK1	adj. P-value JAK1	Code JAK1
Waist	0.23	0.0016027	**	-0.01793	1		-0.1936	0.017604	*	-0.1898	0.023404	*
CrP	0.03946	1		-0.008146	1		-0.05646	0.45801		-0.04703	0.88804	
WHR	0.1321	1		0.021	1		-0.0226	1		0.01666	1	
Diabetes	0.06218	0.24928		0.01184	1		0.00234	1		-0.007771	1	
HbA1c	0.03681	1		0.06716	0.93253		-0.0596	1		-0.06198	0.88804	
FPG	0.05559	0.60427		0.02224	1		-0.0482	1		-0.07924	0.051667	
Leptin	0.04884	1		-0.02211	1		-0.1028	0.24313		-0.06179	1	
Body fat	-0.0634	1		0.05651	1		-0.04446	1		-0.09164	0.2203	
BMI	0.007464	1		-0.02139	1		-0.04508	1		-0.04174	1	
Body weight	0.00005764	1		-0.02202	1		-0.04211	1		-0.02425	1	
Height	-0.001156	1		-0.006053	1		0.009237	1		0.02551	1	
LDL Cholesterol	-0.06221	0.95383		0.03557	1		0.05076	1		0.1021	0.041291	*
Age	-0.02027	1		0.007806	1		0.05274	0.56539		0.03005	1	
HDL Cholesterol	-0.1112	0.010453	*	-0.01312	1		0.02991	1		0.04575	1	
HOMA-IR	0.03774	1		0.02137	1		-0.04914	1		-0.06539	1	
FPI	0.02434	1		0.002242	1		-0.03136	1		-0.03771	1	
Cholesterol	-0.04961	1		0.05015	1		0.02792	1		0.08898	0.075502	
NEFA	0.1185	1		0.1585	1		-0.1092	1		-0.08925	1	
Adiponectin	-0.0008344	1		-0.2837	0.042287	*	0.3389	0.0042981	**	0.2342	0.18223	

Phenotypes	Corr JAK2	adj. P-value JAK2	Code JAK2	Corr JAK3	adj. P-value JAK3	Code JAK3	Corr TYK2	adj. P-value TYK2	Code TYK2	Corr STAT1	adj. P-value STAT1	Code STAT1
Waist	-0.2051	0.0089634	**	0.2249	0.0023129	**	0.1468	0.21789		-0.1785	0.045569	*
CrP	-0.01586	1		0.04878	0.88025		-0.03734	1		-0.04117	1	
WHR	-0.0283	1		-0.02183	1		0.0297	1		-0.04413	1	
Diabetes	0.007907	1		-0.001971	1		-0.002256	1		0.008365	1	
HbA1c	0.01157	1		0.0128	1		-0.01565	1		-0.02868	1	
FPG	-0.0426	1		0.04184	1		-0.02332	1		-0.04336	1	
Leptin	-0.09804	0.31279		0.07456	1		-0.00901	1		-0.0246	1	
Body fat	-0.09942	0.14906		0.02026	1		0.07363	0.7879		-0.01188	1	
BMI	-0.05774	0.32029		0.03887	1		0.02646	1		-0.03242	1	
Body weight	-0.04377	1		0.01984	1		0.02469	1		-0.0139	1	
Height	0.02068	1		-0.02195	1		-0.00613	1		0.02291	1	
LDL Cholesterol	0.07806	0.31279		-0.08738	0.1548		-0.07233	0.49547		0.0651	0.88722	
Age	0.03404	1		-0.02559	1		-0.004658	1		0.02244	1	
HDL Cholesterol	0.05582	1		-0.0815	0.18954		-0.03752	1		0.02982	1	
HOMA-IR	-0.07394	1		0.04456	1		0.02514	1		-0.01951	1	
FPI	-0.05833	1		0.03502	1		0.02073	1		-0.001228	1	
Cholesterol	0.09105	0.068975		-0.09838	0.031935	*	-0.08148	0.17441		0.0545	1	
NEFA	0.1264	1		0.03903	1		-0.04987	1		0.05951	1	
Adiponectin	-0.1255	1		-0.1134	1		0.4249	4.67x10 ⁻⁵	***	0.2135	0.40627	

Phenotypes	Corr STAT3	adj. P-value STAT3	Code STAT3	Corr STAT6	adj. P-value STAT6	Code STAT6	Corr SOCS1	adj. P-value SOCS1	Code SOCS1	Corr SOCS3	adj. P-value SOCS3	Code SOCS3
Waist	0.1625	0.11033		-0.1369	0.34538		0.08156	1		0.07787	1	
CrP	-0.01028	1		-0.03439	1		0.01929	1		0.02502	1	
WHR	0.06148	1		-0.01267	1		0.04089	1		0.09906	1	
Diabetes	0.009128	1		0.02764	1		0.0009642	1		0.05453	0.48571	
HbA1c	0.01728	1		0.0101	1		-0.01107	1		0.03783	1	
FPG	-0.03305	1		-0.009991	1		-0.03964	1		-0.004114	1	
Leptin	0.05658	1		-0.09971	0.31598		-0.002603	1		0.01128	1	
Body fat	-0.06022	1		-0.04424	1		-0.04721	1		-0.2538	2.2x10 ⁻¹⁰	***
BMI	0.00798	1		-0.03554	1		-0.002206	1		-0.004315	1	
Body weight	0.009783	1		-0.03404	1		0.0105	1		0.0006594	1	
Height	0.01883	1		0.01029	1		0.002477	1		0.02755	1	
LDL Cholesterol	0.01993	1		-0.01287	1		0.001105	1		0.04617	1	
Age	-0.002127	1		0.029	1		-0.003018	1		0.002167	1	
HDL Cholesterol	-0.04852	1		-0.002972	1		0.004543	1		-0.08008	0.2145	
HOMA-IR	0.05714	1		-0.03742	1		-0.03002	1		-0.0206	1	
FPI	0.06572	1		-0.03195	1		-0.01994	1		-0.01409	1	
Cholesterol	0.008884	1		-0.03176	1		0.03542	1		0.08352	0.13613	
NEFA	0.03794	1		-0.2538	0.48447		0.4006	0.0084633	**	0.4715	0.00045831	***
Adiponectin	0.1637	1		0.3099	0.015073	*	-0.1238	1		-0.1934	0.54963	

Correlation analysis of genes from human subcutaneous adipose tissue samples with metabolic parameters (N=287). For correlation analysis a Pearson's correlation coefficient was used and adjusted for multiple comparisons using the Holm method; *p-value <0.05; **p-value <0.01; ***p-value <0.001