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Supplemental Information

Prediction of Adipose Browning

Capacity by Systematic Integration

of Transcriptional Profiles

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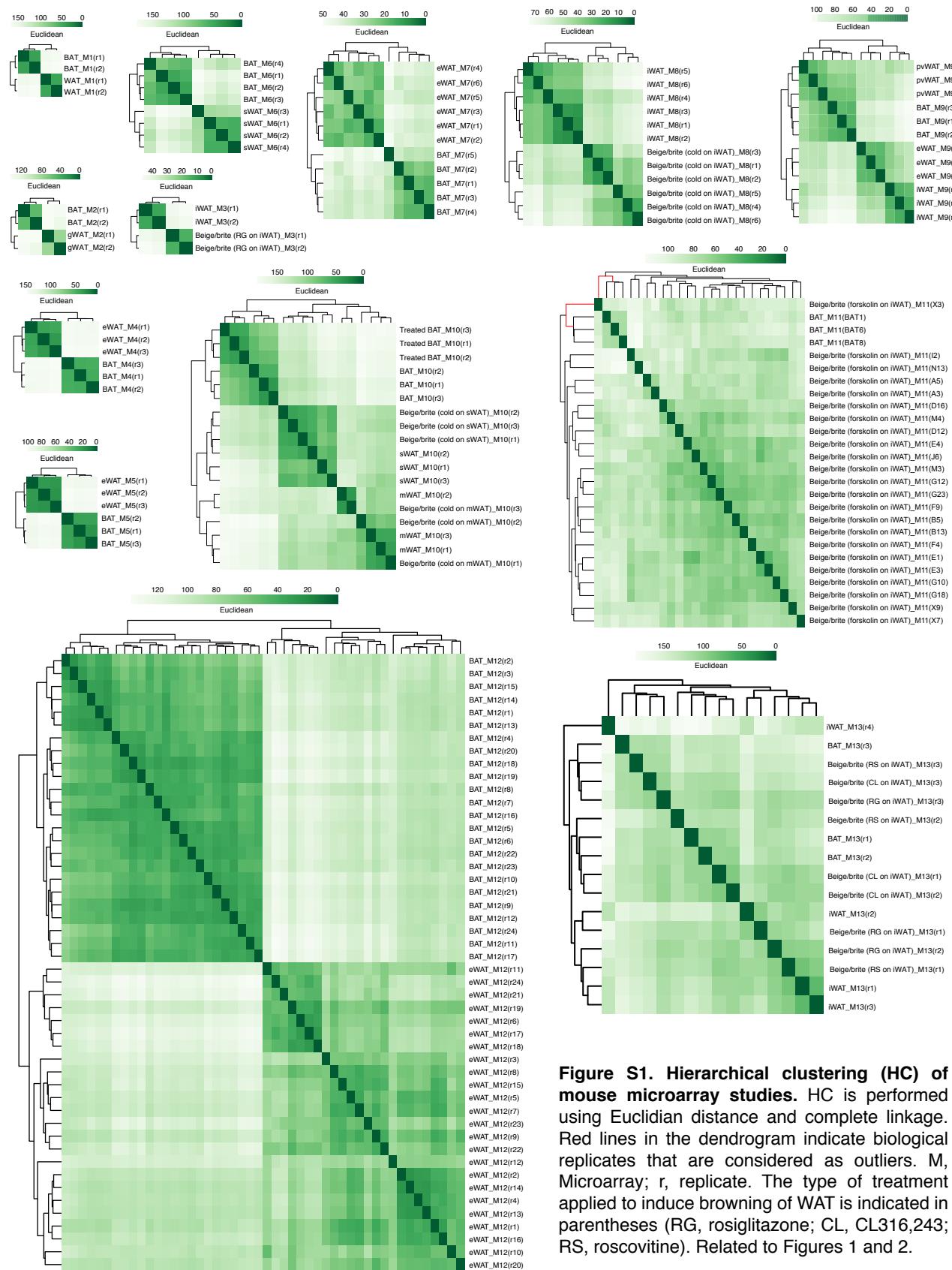


Figure S1. Hierarchical clustering (HC) of mouse microarray studies. HC is performed using Euclidian distance and complete linkage. Red lines in the dendrogram indicate biological replicates that are considered as outliers. M, Microarray; r, replicate. The type of treatment applied to induce browning of WAT is indicated in parentheses (RG, rosiglitazone; CL, CL316,243; RS, roscovitine). Related to Figures 1 and 2.

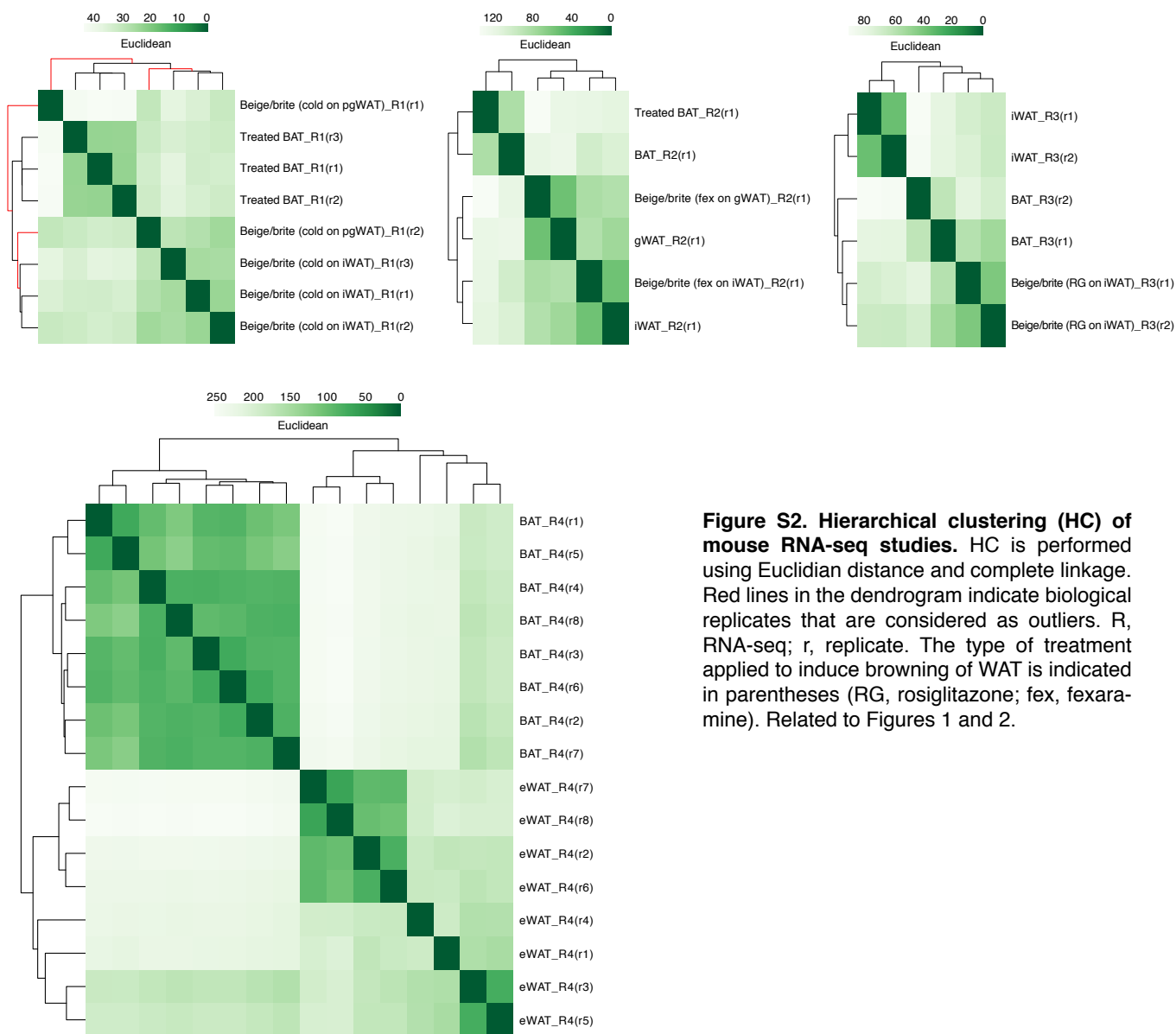


Figure S2. Hierarchical clustering (HC) of mouse RNA-seq studies. HC is performed using Euclidean distance and complete linkage. Red lines in the dendrogram indicate biological replicates that are considered as outliers. R, RNA-seq; r, replicate. The type of treatment applied to induce browning of WAT is indicated in parentheses (RG, rosiglitazone; fex, fexaramine). Related to Figures 1 and 2.

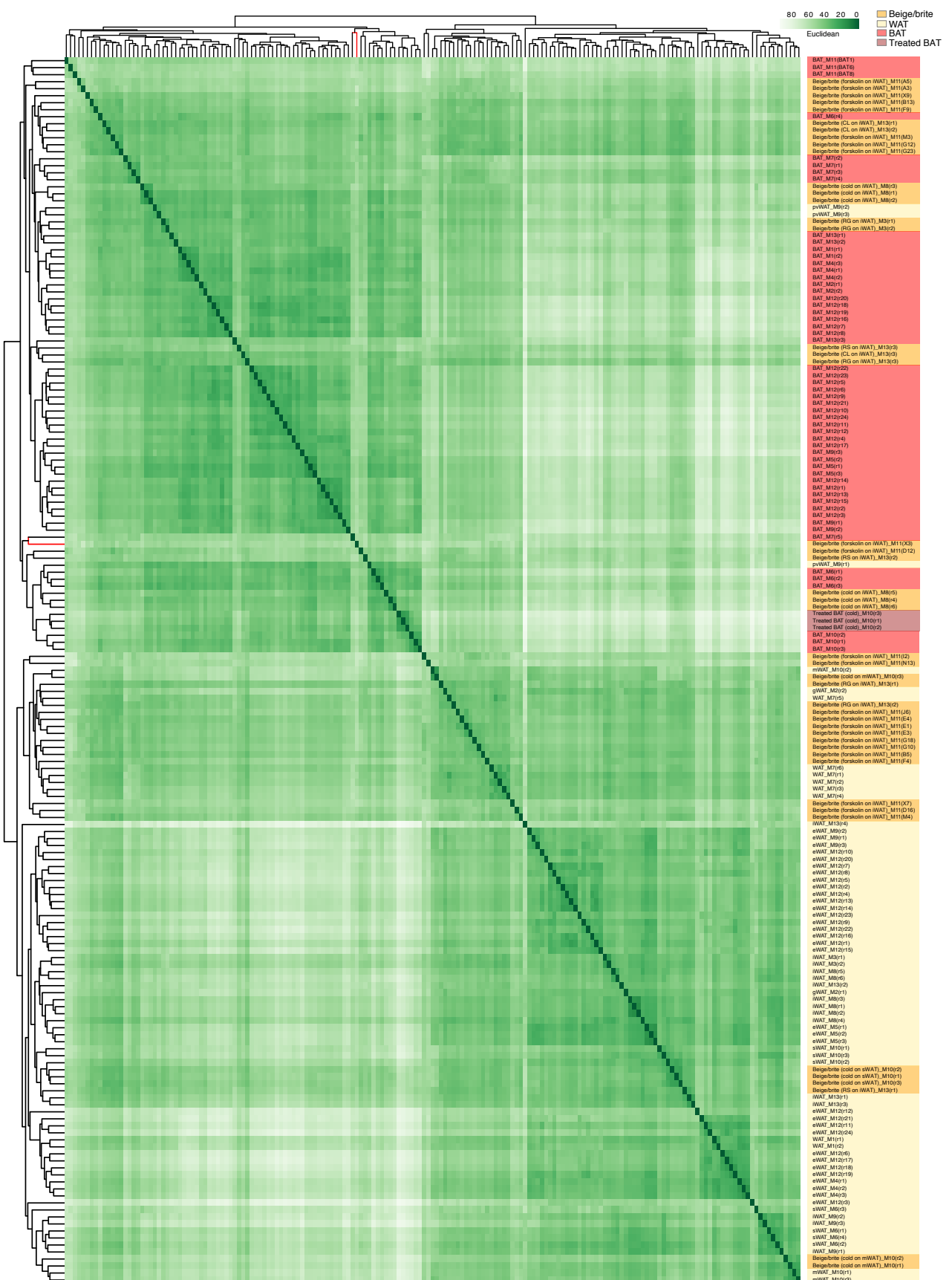


Figure S3. Hierarchical clustering of mouse samples across all microarray-based studies. Euclidean distance is used for sample correlation analysis and hierarchical clustering is performed using Euclidian values and complete linkage. See **Table S1** for detailed description of each sample. Related to Figures 1 and 2.



Figure S4. Hierarchical clustering of mouse samples across all RNA-seq-based studies. Euclidean distance is used for sample correlation analysis and hierarchical clustering is performed using Euclidian values and complete linkage. See **Table S1** for detailed description of each sample. Related to Figures 1 and 2.

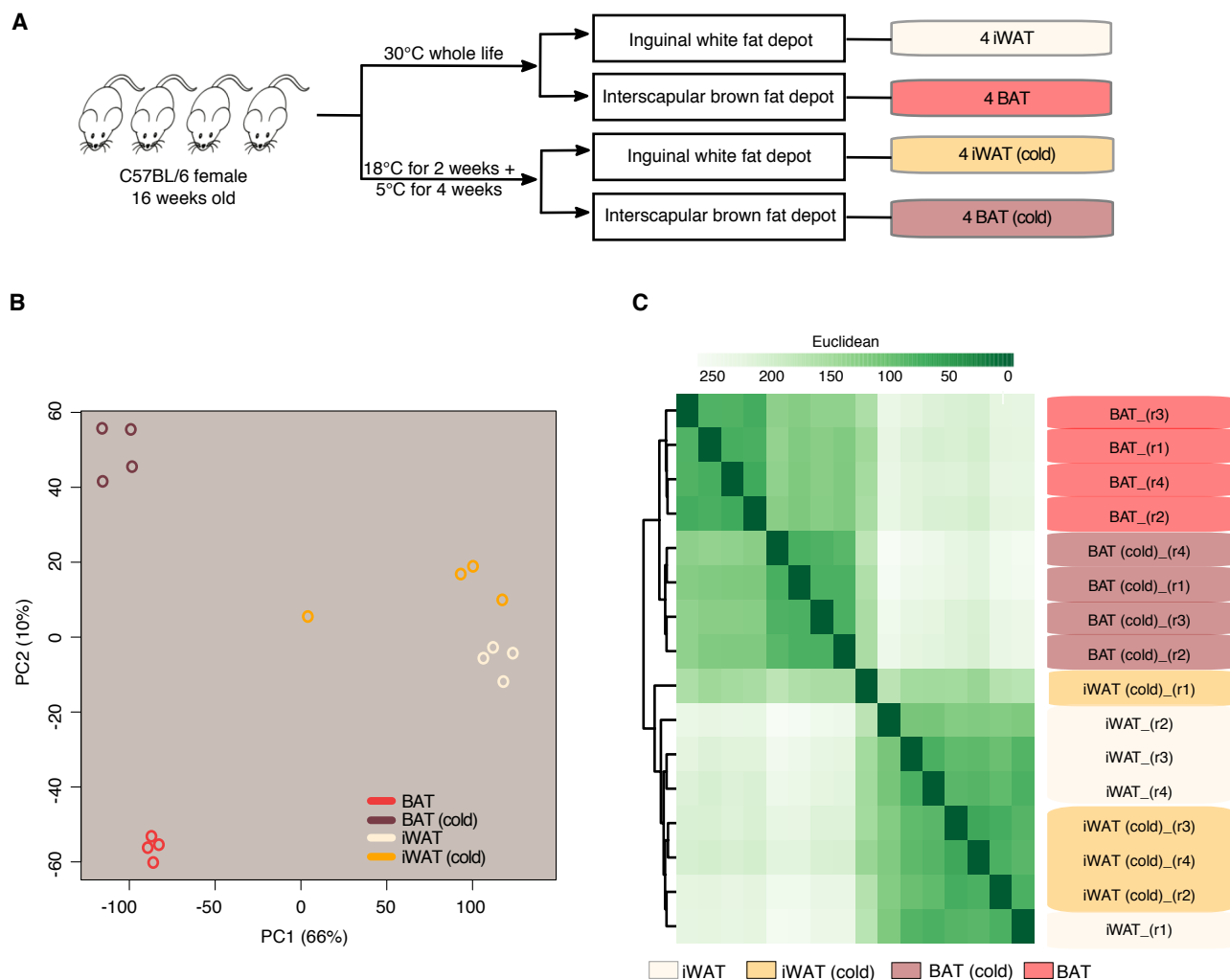
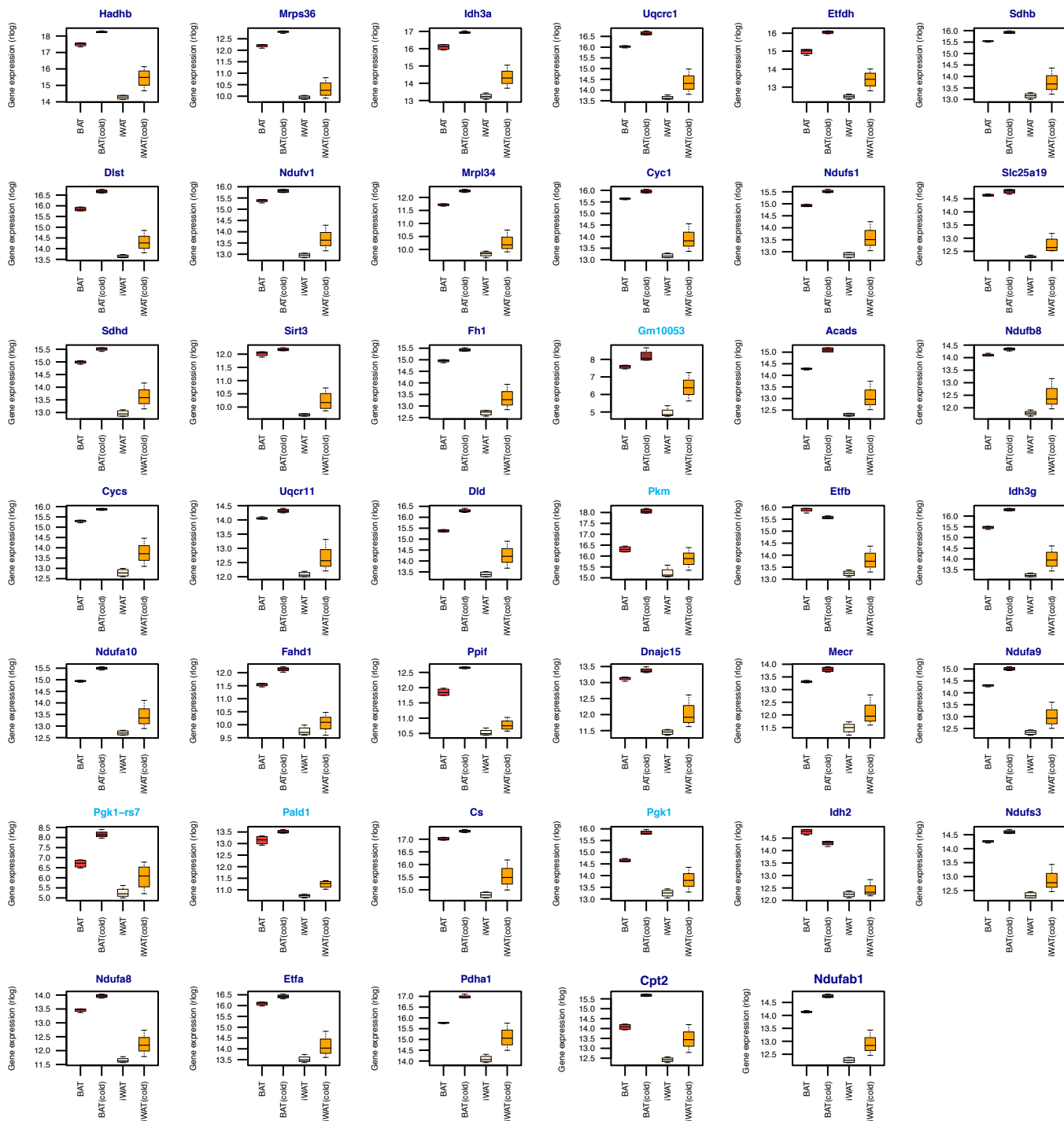
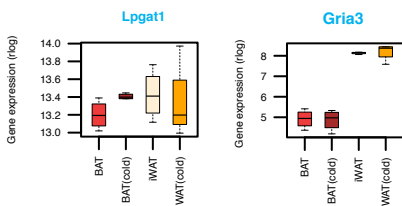


Figure S5. In-house transcriptome analysis of BAT and WAT from wild-type and cold-exposed mice. (A) Experimental design. BAT and BAT (cold), interscapular brown adipose tissue from mice kept at either 30°C or in cold ($n \geq 4$), respectively; iWAT and iWAT (cold), inguinal white adipose tissue from mice kept at either 30°C or in cold ($n \geq 4$), respectively. (B) Principle component analysis of normalized gene expression data for all biological replicates. (C) Hierarchical clustering of all samples based on gene expression data. Euclidean distance is used for pairwise distance matrix and hierarchical clustering is performed with Euclidean distance and complete linkage. Related to Figure 3.



White fat markers

**Figure S6. Experimental validation of BAT and WAT marker genes.**

Gene names in blue and magenta indicate mitochondria and non-mitochondria localized markers, respectively. BAT and BAT (cold), interscapular brown adipose tissue from mice kept at either 30°C or in cold ($n \geq 4$), respectively; iWAT and iWAT (cold), inguinal white adipose tissue from mice kept at either 30°C or in cold ($n \geq 4$), respectively. Related to Figure 3.

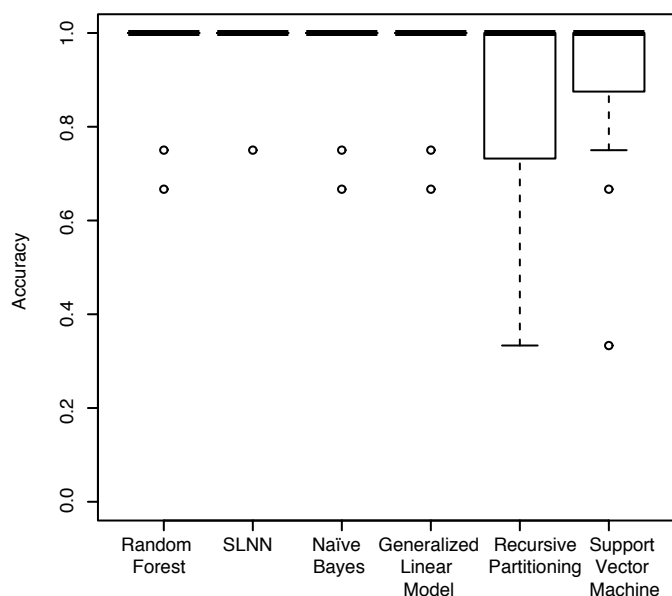
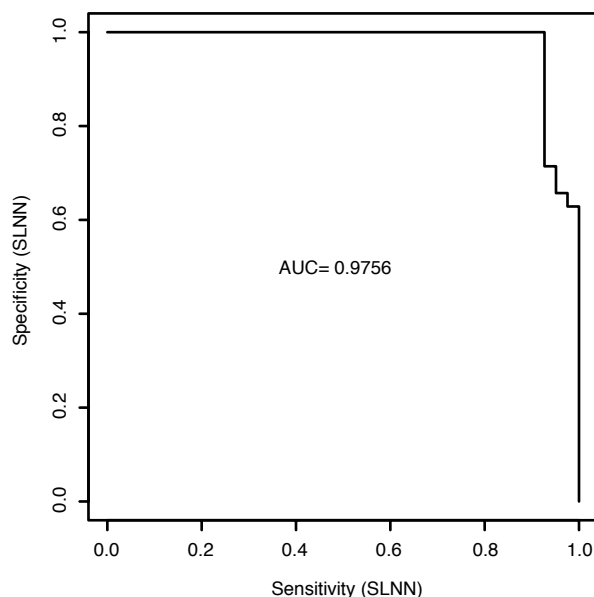
A**B**

Figure S7. Systematic comparison of the performance of machine learning algorithms for the prediction of browning capacity. (A) Accuracy of six machine learning algorithms (random forest, SLNN, naïve bayes, generalized linear model, recursive partitioning, support vector machine), trained using BAT and WAT-specific microarray and RNA-seq datasets from studies M1, M2, M4, M5, M6, M7, M12 and R4, in classifying BAT and WAT samples from an independent set of studies (M3, M8, M9, M10, M11, M13, R1, R2, R3). (B) Classification accuracy of SLNN. The accuracy is calculated as: $(TP+TN)/\text{total samples}$. A sample is a true positive if BAT was predicted with a probability > 0.5 . Related to Figure 4.

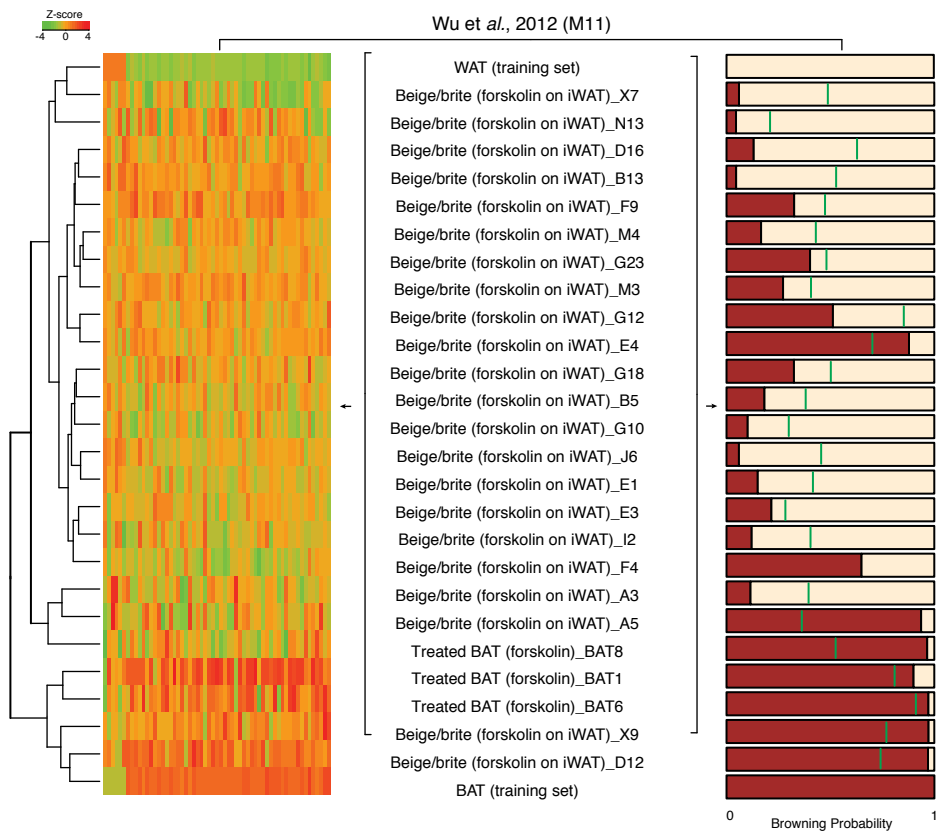


Figure S8. Prediction of browning capacity for study M11. Related to Figure 4.

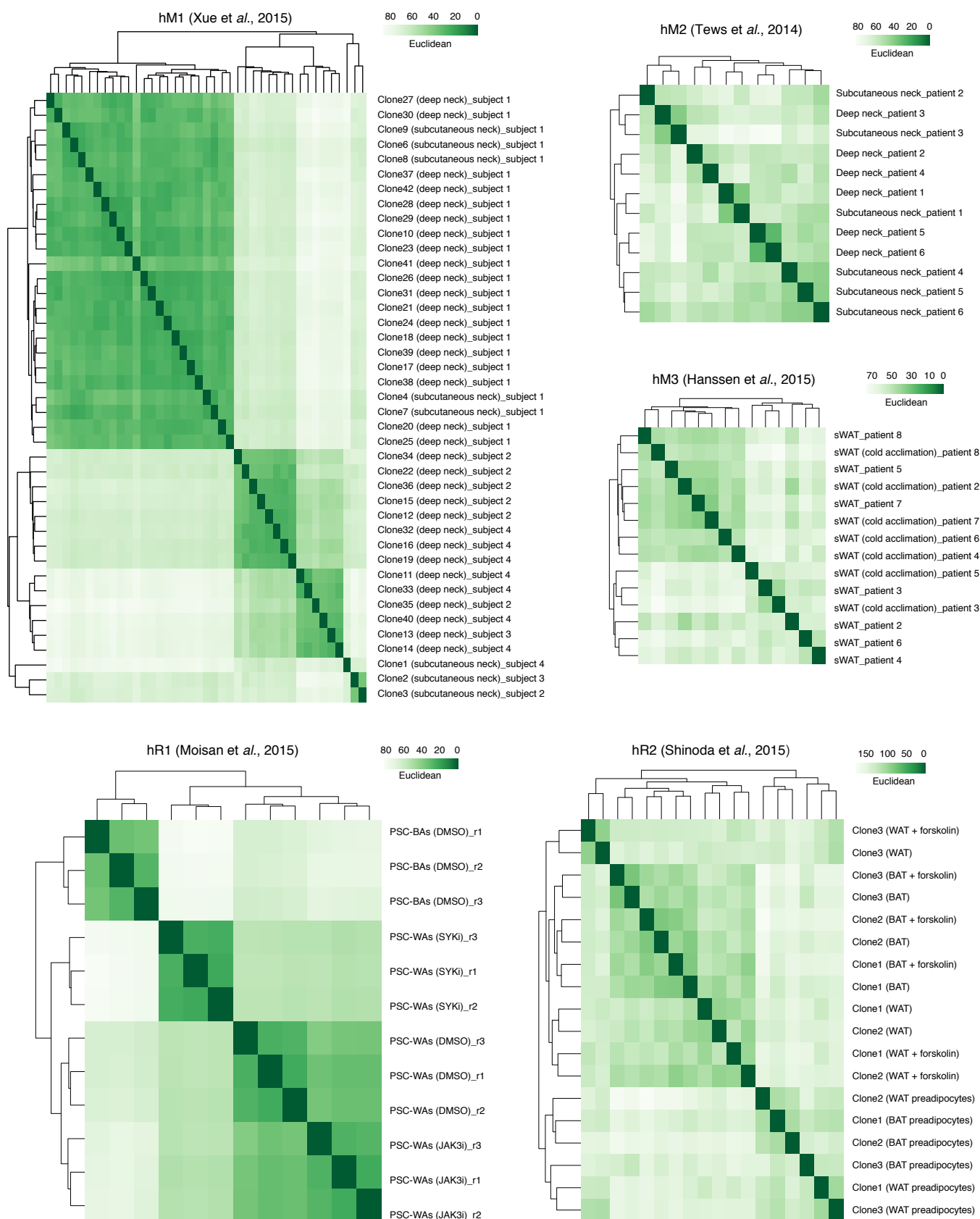


Figure S9. Hierarchical clustering (HC) of samples within each human microarray and RNA-seq study. HC is performed using Euclidian distance and complete linkage. hM, microarray on human samples; hR, RNA-seq on human samples; r, replicate. Related to Figure 5.

Supplementary Table 1. Mouse and human adipose tissue-centered gene expression atlas. WAT, white adipose tissue; IWAT, inguinal white adipose tissue; gWAT, gonadal white adipose tissue; eWAT, epididymal white adipose tissue; sWAT, subcutaneous white adipose tissue; mWAT, mesenteric white adipose tissue; pWAT, perivascular white adipose tissue; BAT, brown adipose tissue; (RG), rosiglitazone; (RS), roscovitine; fex, fexofenadine; CL, CL316.243; DID, diet-induced obesity; N/A, not available. M, microarrays; R, RNA-seq; r, biological replicate; hM, human Microarray; hR, human RNA-Seq; SVF, stromal vascular fraction; PSC, pluripotent stem cells; iBAT, brown adipocytes; WAs, white adipocytes; MSCs, mesenchymal progenitor cells. Related to Figures 1-5.

Study ID	Dataset ID	Pubmed ID	Database ID	Sample ID	Sample type	Age	Sample origin	Tissue type	Treatment	Annotation
M1	BAT_M1(r1)	15075390	GSE10246	GSM258611	Tissue	8-10 weeks	C57BL6, male	N/A	None	BAT
M1	BAT_M1(r2)	15075390	GSE10246	GSM258612	Tissue	8-10 weeks	C57BL6, male	N/A	None	BAT
M1	WAT_M1(r1)	15075390	GSE10246	GSM258613	Tissue	8-10 weeks	C57BL6, male	N/A	None	WAT
M1	WAT_M1(r2)	15075390	GSE10246	GSM258614	Tissue	8-10 weeks	C57BL6, male	N/A	None	WAT
M2	BAT_M2(r1)	20679227	GSE19757	GSM493479	Tissue	N/A	N/A	Interscapular brown adipose tissue	None	BAT
M2	BAT_M2(r2)	20679227	GSE19757	GSM493480	Tissue	N/A	N/A	Interscapular brown adipose tissue	None	BAT
M2	gWAT_M2(r1)	20679227	GSE19757	GSM493477	Tissue	N/A	N/A	Gonadal white adipose tissue	None	WAT
M2	gWAT_M2(r2)	20679227	GSE19757	GSM493478	Tissue	N/A	N/A	Gonadal white adipose tissue	None	WAT
M3	iWAT_M3(r1)	22405074	GSE35011	GSM806020	Primary adipocytes	N/A	C57BL6, male	Inguinal white adipose tissue	None	WAT
M3	iWAT_M3(r2)	22405074	GSE35011	GSM806021	Primary adipocytes	N/A	C57BL6, male	Inguinal white adipose tissue	None	WAT
M3	Beige/brite (RG on iWAT_M3(r1))	22405074	GSE35011	GSM806022	Primary adipocytes	N/A	C57BL6, male	Inguinal white adipose tissue	Rosiglitazone (1µM)	Beige/brite
M3	Beige/brite (RG on iWAT_M3(r2))	22405074	GSE35011	GSM806023	Primary adipocytes	N/A	C57BL6, male	Inguinal white adipose tissue	Rosiglitazone (1µM)	Beige/brite
M4	BAT_M4(r1)	21035761	GSE20165	GSM506030	Tissue	20 weeks	SV129, male	Interscapular brown adipose tissue	None	BAT
M4	BAT_M4(r2)	21035761	GSE20165	GSM506031	Tissue	20 weeks	SV129, male	Interscapular brown adipose tissue	None	BAT
M4	BAT_M4(r3)	21035761	GSE20165	GSM506032	Tissue	20 weeks	SV129, male	Interscapular brown adipose tissue	None	BAT
M4	eWAT_M4(r1)	21035761	GSE20165	GSM506024	Tissue	20 weeks	SV129, male	Epididymal white adipose tissue	None	WAT
M4	eWAT_M4(r2)	21035761	GSE20165	GSM506025	Tissue	20 weeks	SV129, male	Epididymal white adipose tissue	None	WAT
M4	eWAT_M4(r3)	21035761	GSE20165	GSM506026	Tissue	20 weeks	SV129, male	Epididymal white adipose tissue	None	WAT
M5	BAT_M5(r1)	17618855	GSE8044	GSM198456	Tissue	10-12 weeks	C57BL6, male	Interscapular brown adipose tissue	None	BAT
M5	BAT_M5(r2)	17618855	GSE8044	GSM198457	Tissue	10-12 weeks	C57BL6, male	Interscapular brown adipose tissue	None	BAT
M5	BAT_M5(r3)	17618855	GSE8044	GSM198458	Tissue	10-12 weeks	C57BL6, male	Interscapular brown adipose tissue	None	BAT
M5	eWAT_M5(r1)	17618855	GSE8044	GSM198456	Tissue	10-12 weeks	C57BL6, male	Epididymal white adipose tissue	None	WAT
M5	eWAT_M5(r2)	17618855	GSE8044	GSM198523	Tissue	10-12 weeks	C57BL6, male	Epididymal white adipose tissue	None	WAT
M5	eWAT_M5(r3)	17618855	GSE8044	GSM198545	Tissue	10-12 weeks	C57BL6, male	Epididymal white adipose tissue	None	WAT
M6	BAT_M6(r1)	26019005	GSE67389	GSM1646139	Tissue	N/A	LACA, male	Interscapular brown adipose tissue	None	BAT
M6	BAT_M6(r2)	26019005	GSE67389	GSM1646141	Tissue	N/A	LACA, male	Interscapular brown adipose tissue	None	BAT
M6	BAT_M6(r3)	26019005	GSE67389	GSM1646143	Tissue	N/A	LACA, male	Interscapular brown adipose tissue	None	BAT
M6	BAT_M6(r4)	26019005	GSE67389	GSM1646145	Tissue	N/A	LACA, male	Interscapular brown adipose tissue	None	BAT
M6	eWAT_M6(r1)	26019005	GSE67389	GSM1646131	Tissue	N/A	LACA, male	Subcutaneous white adipose tissue	None	WAT
M6	eWAT_M6(r2)	26019005	GSE67389	GSM1646133	Tissue	N/A	LACA, male	Subcutaneous white adipose tissue	None	WAT
M6	eWAT_M6(r3)	26019005	GSE67389	GSM1646135	Tissue	N/A	LACA, male	Subcutaneous white adipose tissue	None	WAT
M6	eWAT_M6(r4)	26019005	GSE67389	GSM1646137	Tissue	N/A	LACA, male	Subcutaneous white adipose tissue	None	WAT
M7	BAT_M7(r1)	17360536	GSE7032	GSM162537	Primary adipocytes	3-4 weeks	NMR1	Interscapular brown adipose tissue	None	BAT
M7	BAT_M7(r2)	17360536	GSE7032	GSM162538	Primary adipocytes	3-4 weeks	NMR1	Interscapular brown adipose tissue	None	BAT
M7	BAT_M7(r3)	17360536	GSE7032	GSM162539	Primary adipocytes	3-4 weeks	NMR1	Interscapular brown adipose tissue	None	BAT
M7	BAT_M7(r4)	17360536	GSE7032	GSM162540	Primary adipocytes	3-4 weeks	NMR1	Interscapular brown adipose tissue	None	BAT
M7	BAT_M7(r5)	17360536	GSE7032	GSM162541	Primary adipocytes	3-4 weeks	NMR1	Interscapular brown adipose tissue	None	BAT
M7	eWAT_M7(r1)	17360536	GSE7032	GSM162550	Primary adipocytes	3-4 weeks	NMR1	Epididymal white adipose tissue	None	WAT
M7	eWAT_M7(r2)	17360536	GSE7032	GSM162551	Primary adipocytes	3-4 weeks	NMR1	Epididymal white adipose tissue	None	WAT
M7	eWAT_M7(r3)	17360536	GSE7032	GSM162552	Primary adipocytes	3-4 weeks	NMR1	Epididymal white adipose tissue	None	WAT
M7	eWAT_M7(r4)	17360536	GSE7032	GSM162553	Primary adipocytes	3-4 weeks	NMR1	Epididymal white adipose tissue	None	WAT
M7	eWAT_M7(r5)	17360536	GSE7032	GSM162554	Primary adipocytes	3-4 weeks	NMR1	Epididymal white adipose tissue	None	WAT
M7	eWAT_M7(r6)	17360536	GSE7032	GSM162555	Primary adipocytes	3-4 weeks	NMR1	Epididymal white adipose tissue	None	WAT
M8	iWAT_M8(r1)	19117550	GSE13432	GSM338989	Tissue	5 weeks	C57BL6, male	Inguinal white adipose tissue	30 °C (5 weeks)	WAT
M8	iWAT_M8(r2)	19117550	GSE13432	GSM338990	Tissue	5 weeks	C57BL6, male	Inguinal white adipose tissue	30 °C (5 weeks)	WAT
M8	iWAT_M8(r3)	19117550	GSE13432	GSM338991	Tissue	5 weeks	C57BL6, male	Inguinal white adipose tissue	30 °C (5 weeks)	WAT
M8	iWAT_M8(r4)	19117550	GSE13432	GSM338993	Tissue	5 weeks	C57BL6, male	Inguinal white adipose tissue	30 °C (1 week)	WAT
M8	iWAT_M8(r5)	19117550	GSE13432	GSM338994	Tissue	5 weeks	C57BL6, male	Inguinal white adipose tissue	30 °C (1 week)	WAT
M8	iWAT_M8(r6)	19117550	GSE13432	GSM338995	Tissue	5 weeks	C57BL6, male	Inguinal white adipose tissue	30 °C (1 week)	WAT
M8	Beige/brite (cold on iWAT_M8(r1))	19117550	GSE13432	GSM338992	Tissue	5 weeks	C57BL6, male	Inguinal white adipose tissue	4 °C (5 weeks)	Beige/brite
M8	Beige/brite (cold on iWAT_M8(r2))	19117550	GSE13432	GSM338993	Tissue	5 weeks	C57BL6, male	Inguinal white adipose tissue	4 °C (5 weeks)	Beige/brite
M8	Beige/brite (cold on iWAT_M8(r3))	19117550	GSE13432	GSM338994	Tissue	5 weeks	C57BL6, male	Inguinal white adipose tissue	4 °C (5 weeks)	Beige/brite
M8	Beige/brite (cold on iWAT_M8(r4))	19117550	GSE13432	GSM338995	Tissue	5 weeks	C57BL6, male	Inguinal white adipose tissue	4 °C (1 week)	Beige/brite
M8	Beige/brite (cold on iWAT_M8(r5))	19117550	GSE13432	GSM338997	Tissue	5 weeks	C57BL6, male	Inguinal white adipose tissue	4 °C (1 week)	Beige/brite
M8	Beige/brite (cold on iWAT_M8(r6))	19117550	GSE13432	GSM338988	Tissue	5 weeks	C57BL6, male	Inguinal white adipose tissue	4 °C (1 week)	Beige/brite
M9	BAT_M9(r1)	21765057	GSE28440	GSM703077	Tissue	20 weeks	C57BL6, male	Interscapular brown adipose tissue	None	BAT
M9	BAT_M9(r2)	21765057	GSE28440	GSM703078	Tissue	20 weeks	C57BL6, male	Interscapular brown adipose tissue	None	BAT
M9	BAT_M9(r3)	21765057	GSE28440	GSM703079	Tissue	20 weeks	C57BL6, male	Interscapular brown adipose tissue	None	BAT
M9	eWAT_M9(r1)	21765057	GSE28440	GSM703086	Tissue	20 weeks	C57BL6, male	Epididymal white adipose tissue	None	WAT
M9	eWAT_M9(r2)	21765057	GSE28440	GSM703087	Tissue	20 weeks	C57BL6, male	Epididymal white adipose tissue	None	WAT
M9	eWAT_M9(r3)	21765057	GSE28440	GSM703088	Tissue	20 weeks	C57BL6, male	Epididymal white adipose tissue	None	WAT
M9	pWAT_M9(r1)	21765057	GSE28440	GSM703080	Tissue	20 weeks	C57BL6, male	Perivascular white adipose tissue	None	WAT
M9	pWAT_M9(r2)	21765057	GSE28440	GSM703081	Tissue	20 weeks	C57BL6, male	Perivascular white adipose tissue	None	WAT
M9	pWAT_M9(r3)	21765057	GSE28440	GSM703082	Tissue	20 weeks	C57BL6, male	Perivascular white adipose tissue	None	WAT
M9	iWAT_M9(r1)	21765057	GSE28440	GSM703083	Tissue	20 weeks	C57BL6, male	Inguinal white adipose tissue	None	WAT
M9	iWAT_M9(r2)	21765057	GSE28440	GSM703084	Tissue	20 weeks	C57BL6, male	Inguinal white adipose tissue	None	WAT
M9	iWAT_M9(r3)	21765057	GSE28440	GSM703085	Tissue	20 weeks	C57BL6, male	Inguinal white adipose tissue	None	WAT
M10	BAT_M10(r1)	24549398	GSE51080	GSM1237806	Tissue	10 weeks	SV129, female	Interscapular brown adipose tissue	28 °C (10 days)	BAT
M10	BAT_M10(r2)	24549398	GSE51080	GSM1237794	Tissue	10 weeks	SV129, female	Interscapular brown adipose tissue	28 °C (10 days)	BAT
M10	BAT_M10(r3)	24549398	GSE51080	GSM1237795	Tissue	10 weeks	SV129, female	Interscapular brown adipose tissue	28 °C (10 days)	BAT
M10	Treated BAT (cold_M10(r1))	24549398	GSE51080	GSM1237792	Tissue	10 weeks	SV129, female	Interscapular brown adipose tissue	6 °C (10 days)	Treated BAT
M10	Treated BAT (cold_M10(r2))	24549398	GSE51080	GSM1237800	Tissue	10 weeks	SV129, female	Interscapular brown adipose tissue	6 °C (10 days)	Treated BAT
M10	Treated BAT (cold_M10(r3))	24549398	GSE51080	GSM1237803	Tissue	10 weeks	SV129, female	Interscapular brown adipose tissue	6 °C (10 days)	Treated BAT
M10	eWAT_M10(r1)	24549398	GSE51080	GSM1237797	Tissue	10 weeks	SV129, female	Subcutaneous white adipose tissue	28 °C (10 days)	WAT
M10	eWAT_M10(r2)	24549398	GSE51080	GSM1237798	Tissue	10 weeks	SV129, female	Subcutaneous white adipose tissue	28 °C (10 days)	WAT
M10	eWAT_M10(r3)	24549398	GSE51080	GSM1237793	Tissue	10 weeks	SV129, female	Subcutaneous white adipose tissue	28 °C (10 days)	WAT
M10	Beige/brite (cold on eWAT_M10(r1))	24549398	GSE51080	GSM1237790	Tissue	10 weeks	SV129, female	Subcutaneous white adipose tissue	6 °C (10 days)	Beige/brite
M10	Beige/brite (cold on eWAT_M10(r2))	24549398	GSE51080	GSM1237796	Tissue	10 weeks	SV129, female	Subcutaneous white adipose tissue	6 °C (10 days)	Beige/brite
M10	Beige/brite (cold on eWAT_M10(r3))	24549398	GSE51080	GSM1237801	Tissue	10 weeks	SV129, female	Subcutaneous white adipose tissue	6 °C (10 days)	Beige/brite
M10	mWAT_M10(r1)	24549398	GSE51080	GSM1237801	Tissue	10 weeks	SV129, female	Mesenteric white adipose tissue	28 °C (10 days)	WAT
M10	mWAT_M10(r2)	24549398	GSE51080	GSM1237802	Tissue	10 weeks	SV129, female	Mesenteric white adipose tissue	28 °C (10 days)	WAT
M10	mWAT_M10(r3)	24549398	GSE51080	GSM1237791	Tissue	10 weeks	SV129, female	Mesenteric white adipose tissue	28 °C (10 days)	WAT
M10	Beige/brite (cold on mWAT_M10(r1))	24549398	GSE51080	GSM1237804	Tissue	10 weeks	SV129, female	Mesenteric white adipose tissue	6 °C (10 days)	Beige/brite
M10	Beige/brite (cold on mWAT_M10(r2))	24549398	GSE51080	GSM1237805	Tissue	10 weeks	SV129, female	Mesenteric white adipose tissue	6 °C (10 days)	Beige/brite
M10	Beige/brite (cold on mWAT_M10(r3))	24549398	GSE51080	GSM1237807	Tissue	10 weeks	SV129, female	Mesenteric white adipose tissue	6 °C (10 days)	Beige/brite

R2	BAT_R2(r1)	2559344	SRA188644	SRR1625955	Tissue	14 weeks	C57BL6 DIO	Interscapular brown adipose tissue	Vehicle		BAT
R2	Treated BAT (lex_R2(r1)	2559344	SRA188644	SRR1602556	Tissue	14 weeks	C57BL6 DIO	Interscapular brown adipose tissue	Vehicle		Treated BAT
R2	/iWAT_R2(r1)	2559344	SRA188644	SRR1597458	Tissue	14 weeks	C57BL6 DIO	Inguinal white adipose tissue	Flex		WAT
R2	Beige/brite (flex on iWAT_R2(r1)	2559344	SRA188644	SRR1597454	Tissue	14 weeks	C57BL6 DIO	Inguinal white adipose tissue	Flex		Beige/brite
R2	gWAT_R2(r1)	2559344	SRA188644	SRR1596699	Tissue	14 weeks	C57BL6 DIO	Gonadal white adipose tissue	Vehicle		WAT
R2	Beige/brite (flex on gWAT_R2(r1)	2559344	SRA188644	SRR1597452	Tissue	14 weeks	C57BL6 DIO	Gonadal white adipose tissue	Flex		Beige/brite
R3	BAT_R3(r1)	2316672	E-MTAB-2624	ERS472803	Primary adipocytes	N/A	N/A	Interscapular brown adipose tissue	None		BAT
R3	BAT_R3(z2)	2316672	E-MTAB-2624	ERS472808	Primary adipocytes	N/A	N/A	Interscapular brown adipose tissue	None		BAT
R3	/iWAT_R3(r1)	2316672	E-MTAB-2624	ERS472804	Primary adipocytes	N/A	N/A	Inguinal white adipose tissue	None		WAT
R3	/iWAT_R3(z2)	2316672	E-MTAB-2624	ERS472806	Primary adipocytes	N/A	N/A	Inguinal white adipose tissue	None		WAT
R3	Beige/brite (RG on iWAT_R3(r1)	2316672	E-MTAB-2624	ERS472807	Primary adipocytes	N/A	N/A	Inguinal white adipose tissue	Rosiglitazone (1µM)		Beige/brite
R3	Beige/brite (RG on iWAT_R3(z2)	2316672	E-MTAB-2624	ERS472805	Primary adipocytes	N/A	N/A	Inguinal white adipose tissue	Rosiglitazone (1µM)		Beige/brite
R4	BAT_R4(r1)	2534387	GSE54651	GSM1321302	Tissue	6 weeks	C57BL6, male	Interscapular brown adipose tissue	None		BAT
R4	BAT_R4(z2)	2534387	GSE54651	GSM1321303	Tissue	6 weeks	C57BL6, male	Interscapular brown adipose tissue	None		BAT
R4	BAT_R4(r3)	2534387	GSE54651	GSM1321304	Tissue	6 weeks	C57BL6, male	Interscapular brown adipose tissue	None		BAT
R4	BAT_R4(r4)	2534387	GSE54651	GSM1321305	Tissue	6 weeks	C57BL6, male	Interscapular brown adipose tissue	None		BAT
R4	BAT_R4(r5)	2534387	GSE54651	GSM1321306	Tissue	6 weeks	C57BL6, male	Interscapular brown adipose tissue	None		BAT
R4	BAT_R4(r6)	2534387	GSE54651	GSM1321307	Tissue	6 weeks	C57BL6, male	Interscapular brown adipose tissue	None		BAT
R4	BAT_R4(r7)	2534387	GSE54651	GSM1321308	Tissue	6 weeks	C57BL6, male	Interscapular brown adipose tissue	None		BAT
R4	BAT_R4(r8)	2534387	GSE54651	GSM1321309	Tissue	6 weeks	C57BL6, male	Interscapular brown adipose tissue	None		BAT
R4	eWAT_R4(r1)	2534387	GSE54651	GSM1321366	Tissue	6 weeks	C57BL6, male	Epididymal white adipose tissue	None		WAT
R4	eWAT_R4(z2)	2534387	GSE54651	GSM1321367	Tissue	6 weeks	C57BL6, male	Epididymal white adipose tissue	None		WAT
R4	eWAT_R4(z3)	2534387	GSE54651	GSM1321368	Tissue	6 weeks	C57BL6, male	Epididymal white adipose tissue	None		WAT
R4	eWAT_R4(r4)	2534387	GSE54651	GSM1321369	Tissue	6 weeks	C57BL6, male	Epididymal white adipose tissue	None		WAT
R4	eWAT_R4(r5)	2534387	GSE54651	GSM1321370	Tissue	6 weeks	C57BL6, male	Epididymal white adipose tissue	None		WAT
R4	eWAT_R4(r6)	2534387	GSE54651	GSM1321371	Tissue	6 weeks	C57BL6, male	Epididymal white adipose tissue	None		WAT
R4	eWAT_R4(r7)	2534387	GSE54651	GSM1321372	Tissue	6 weeks	C57BL6, male	Epididymal white adipose tissue	None		WAT
R4	eWAT_R4(r8)	2534387	GSE54651	GSM1321373	Tissue	6 weeks	C57BL6, male	Epididymal white adipose tissue	None		WAT
NM1	C1one1 (subcutaneous neck)_subject 4	2607636	GSE85854	GSM1674867	SVF cells from subcutaneous and subclavicular neck	N/A	Subject 4	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one2 (subcutaneous neck)_subject 3	2607636	GSE85854	GSM1674868	SVF cells from subcutaneous and subclavicular neck	N/A	Subject 3	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one3 (subcutaneous neck)_subject 2	2607636	GSE85854	GSM1674869	SVF cells from subcutaneous and subclavicular neck	N/A	Subject 2	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one4 (subcutaneous neck)_subject 1	2607636	GSE85854	GSM1674870	SVF cells from subcutaneous and subclavicular neck	N/A	Subject 1	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one5 (subcutaneous neck)_subject 1	2607636	GSE85854	GSM1674871	SVF cells from subcutaneous and subclavicular neck	N/A	Subject 1	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one7 (subcutaneous neck)_subject 1	2607636	GSE85854	GSM1674872	SVF cells from subcutaneous and subclavicular neck	N/A	Subject 1	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one8 (subcutaneous neck)_subject 1	2607636	GSE85854	GSM1674873	SVF cells from subcutaneous and subclavicular neck	N/A	Subject 1	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one9 (subcutaneous neck)_subject 1	2607636	GSE85854	GSM1674874	SVF cells from subcutaneous and subclavicular neck	N/A	Subject 1	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one10 (deep neck)_subject 1	2607636	GSE85854	GSM1674875	SVF cells from deep neck	N/A	Subject 1	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one11 (deep neck)_subject 4	2607636	GSE85854	GSM1674876	SVF cells from deep neck	N/A	Subject 4	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one12 (deep neck)_subject 2	2607636	GSE85854	GSM1674877	SVF cells from deep neck	N/A	Subject 2	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one13 (deep neck)_subject 3	2607636	GSE85854	GSM1674878	SVF cells from deep neck	N/A	Subject 3	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one14 (deep neck)_subject 4	2607636	GSE85854	GSM1674879	SVF cells from deep neck	N/A	Subject 4	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one15 (deep neck)_subject 2	2607636	GSE85854	GSM1674880	SVF cells from deep neck	N/A	Subject 2	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one16 (deep neck)_subject 4	2607636	GSE85854	GSM1674881	SVF cells from deep neck	N/A	Subject 4	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one17 (deep neck)_subject 1	2607636	GSE85854	GSM1674882	SVF cells from deep neck	N/A	Subject 1	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one18 (deep neck)_subject 1	2607636	GSE85854	GSM1674883	SVF cells from deep neck	N/A	Subject 1	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one19 (deep neck)_subject 4	2607636	GSE85854	GSM1674884	SVF cells from deep neck	N/A	Subject 4	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one20 (deep neck)_subject 1	2607636	GSE85854	GSM1674885	SVF cells from deep neck	N/A	Subject 1	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one21 (deep neck)_subject 1	2607636	GSE85854	GSM1674886	SVF cells from deep neck	N/A	Subject 1	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one22 (deep neck)_subject 2	2607636	GSE85854	GSM1674887	SVF cells from deep neck	N/A	Subject 2	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one23 (deep neck)_subject 1	2607636	GSE85854	GSM1674888	SVF cells from deep neck	N/A	Subject 1	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one24 (deep neck)_subject 1	2607636	GSE85854	GSM1674889	SVF cells from deep neck	N/A	Subject 1	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one25 (deep neck)_subject 1	2607636	GSE85854	GSM1674890	SVF cells from deep neck	N/A	Subject 1	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one26 (deep neck)_subject 1	2607636	GSE85854	GSM1674891	SVF cells from deep neck	N/A	Subject 1	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one27 (deep neck)_subject 1	2607636	GSE85854	GSM1674892	SVF cells from deep neck	N/A	Subject 1	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one28 (deep neck)_subject 1	2607636	GSE85854	GSM1674893	SVF cells from deep neck	N/A	Subject 1	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one29 (deep neck)_subject 1	2607636	GSE85854	GSM1674894	SVF cells from deep neck	N/A	Subject 1	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one30 (deep neck)_subject 1	2607636	GSE85854	GSM1674895	SVF cells from deep neck	N/A	Subject 1	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one31 (deep neck)_subject 1	2607636	GSE85854	GSM1674896	SVF cells from deep neck	N/A	Subject 1	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one32 (deep neck)_subject 4	2607636	GSE85854	GSM1674897	SVF cells from deep neck	N/A	Subject 4	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one33 (deep neck)_subject 4	2607636	GSE85854	GSM1674898	SVF cells from deep neck	N/A	Subject 4	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one34 (deep neck)_subject 2	2607636	GSE85854	GSM1674899	SVF cells from deep neck	N/A	Subject 2	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one35 (deep neck)_subject 2	2607636	GSE85854	GSM1674900	SVF cells from deep neck	N/A	Subject 2	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one36 (deep neck)_subject 1	2607636	GSE85854	GSM1674901	SVF cells from deep neck	N/A	Subject 1	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one37 (deep neck)_subject 1	2607636	GSE85854	GSM1674902	SVF cells from deep neck	N/A	Subject 1	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one38 (deep neck)_subject 1	2607636	GSE85854	GSM1674903	SVF cells from deep neck	N/A	Subject 1	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one39 (deep neck)_subject 1	2607636	GSE85854	GSM1674904	SVF cells from deep neck	N/A	Subject 1	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one40 (deep neck)_subject 4	2607636	GSE85854	GSM1674905	SVF cells from deep neck	N/A	Subject 4	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one41 (deep neck)_subject 1	2607636	GSE85854	GSM1674906	SVF cells from deep neck	N/A	Subject 1	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM1	C1one42 (deep neck)_subject 1	2607636	GSE85854	GSM1674907	SVF cells from deep neck	N/A	Subject 1	Immortalized human clonal preadipocytes	Immortalization, culture, differentiation		N/A
NM2	Deep neck_patient 1	2510227	GSE54280	GSM1311783	Deep neck	N/A	Patient 1	Primary human adipocytes	None		N/A
NM2	Deep neck_patient 2	2510227	GSE54280	GSM1311785	Deep neck	N/A	Patient 2	Primary human adipocytes	None		N/A
NM2	Deep neck_patient 3	2510227	GSE54280	GSM1311787	Deep neck	N/A	Patient 3	Primary human adipocytes	None		N/A
NM2	Deep neck_patient 4	2510227	GSE54280	GSM1311789	Deep neck	N/A	Patient 4	Primary human adipocytes	None		N/A
NM2	Deep neck_patient 5	2510227	GSE54280	GSM1311791	Deep neck	N/A	Patient 5	Primary human adipocytes	None		N/A
NM2	Deep neck_patient 6	2510227	GSE54280	GSM1311793	Deep neck	N/A	Patient 6	Primary human adipocytes	None		N/A
NM2	Subcutaneous neck_patient 1	2510227	GSE54280	GSM1311784	Subcutaneous neck	N/A	Patient 1	Primary human adipocytes	None		N/A
NM2	Subcutaneous neck_patient 2	2510227	GSE54280	GSM1311786	Subcutaneous neck	N/A	Patient 2	Primary human adipocytes	None		N/A
NM2	Subcutaneous neck_patient 3	2510227	GSE54280	GSM1311788	Subcutaneous neck	N/A	Patient 3	Primary human adipocytes	None		N/A
NM2	Subcutaneous neck_patient 4	2510227	GSE54280	GSM1311790	Subcutaneous neck	N/A	Patient 4	Primary human adipocytes	None		N/A
NM2	Subcutaneous neck_patient 5	2510227	GSE54280	GSM1311792	Subcutaneous neck	N/A	Patient 5	Primary human adipocytes	None		N/A
NM2	Subcutaneous neck_patient 6	2510227	GSE54280	GSM1311794	Subcutaneous neck	N/A	Patient 6	Primary human adipocytes	None		N/A
NM3	sWAT (cold acclimation)_patient 2	2614760	GSE67297	GSM164008	Abdominal subcutaneous fat	N/A	Patient 2	Primary adipocytes from human type 2 diabetic patients	After 10 days of cold acclimation		N/A

HM3	sWAT (cold acclimation)_patient 3	26147760	GSE67297	GSM1644012	Abdominal subcutaneous fat	N/A	Patient 3	Primary adipocytes from human type 2 diabetic patients	After 10 days of cold acclimation	N/A
HM3	sWAT (cold acclimation)_patient 4	26147760	GSE67297	GSM1644016	Abdominal subcutaneous fat	N/A	Patient 4	Primary adipocytes from human type 2 diabetic patients	After 10 days of cold acclimation	N/A
HM3	sWAT (cold acclimation)_patient 5	26147760	GSE67297	GSM1644005	Abdominal subcutaneous fat	N/A	Patient 5	Primary adipocytes from human type 2 diabetic patients	After 10 days of cold acclimation	N/A
HM3	sWAT (cold acclimation)_patient 6	26147760	GSE67297	GSM1644009	Abdominal subcutaneous fat	N/A	Patient 6	Primary adipocytes from human type 2 diabetic patients	After 10 days of cold acclimation	N/A
HM3	sWAT (cold acclimation)_patient 7	26147760	GSE67297	GSM1644013	Abdominal subcutaneous fat	N/A	Patient 7	Primary adipocytes from human type 2 diabetic patients	After 10 days of cold acclimation	N/A
HM3	sWAT (cold acclimation)_patient 8	26147760	GSE67297	GSM1644017	Abdominal subcutaneous fat	N/A	Patient 8	Primary adipocytes from human type 2 diabetic patients	After 10 days of cold acclimation	N/A
HM3	sWAT_patient 2	26147760	GSE67297	GSM1644006	Abdominal subcutaneous fat	N/A	Patient 2	Primary adipocytes from human type 2 diabetic patients	Before cold acclimation	N/A
HM3	sWAT_patient 3	26147760	GSE67297	GSM1644010	Abdominal subcutaneous fat	N/A	Patient 3	Primary adipocytes from human type 2 diabetic patients	Before cold acclimation	N/A
HM3	sWAT_patient 4	26147760	GSE67297	GSM1644014	Abdominal subcutaneous fat	N/A	Patient 4	Primary adipocytes from human type 2 diabetic patients	Before cold acclimation	N/A
HM3	sWAT_patient 5	26147760	GSE67297	GSM1644004	Abdominal subcutaneous fat	N/A	Patient 5	Primary adipocytes from human type 2 diabetic patients	Before cold acclimation	N/A
HM3	sWAT_patient 6	26147760	GSE67297	GSM1644007	Abdominal subcutaneous fat	N/A	Patient 6	Primary adipocytes from human type 2 diabetic patients	Before cold acclimation	N/A
HM3	sWAT_patient 7	26147760	GSE67297	GSM1644011	Abdominal subcutaneous fat	N/A	Patient 7	Primary adipocytes from human type 2 diabetic patients	Before cold acclimation	N/A
HM3	sWAT_patient 8	26147760	GSE67297	GSM1644015	Abdominal subcutaneous fat	N/A	Patient 8	Primary adipocytes from human type 2 diabetic patients	Before cold acclimation	N/A
HR1	PSC-BAs (DMSO)_r1	25487280	SRP042186	GSM1396748	ventilated from PPARG2-CEBPB	N/A	Replicate 1	Human pluripotent stem-cell derived brown adipose cells	DMSO (after 7 days of induction/differentiation)	N/A
HR1	PSC-BAs (DMSO)_r2	25487280	SRP042186	GSM1396749	ventilated from PPARG2-CEBPB	N/A	Replicate 2	Human pluripotent stem-cell derived brown adipose cells	DMSO (after 7 days of induction/differentiation)	N/A
HR1	PSC-BAs (DMSO)_r3	25487280	SRP042186	GSM1396750	ventilated from PPARG2-CEBPB	N/A	Replicate 3	Human pluripotent stem-cell derived brown adipose cells	DMSO (after 7 days of induction/differentiation)	N/A
HR1	PSC-WAs (DMSO)_r1	25487280	SRP042186	GSM1396736	and differentiated from PPARG	N/A	Replicate 1	Human pluripotent stem-cell derived white adipose cells	DMSO (after 7 days of induction/differentiation)	N/A
HR1	PSC-WAs (DMSO)_r2	25487280	SRP042186	GSM1396737	and differentiated from PPARG	N/A	Replicate 2	Human pluripotent stem-cell derived white adipose cells	DMSO (after 7 days of induction/differentiation)	N/A
HR1	PSC-WAs (DMSO)_r3	25487280	SRP042186	GSM1396738	and differentiated from PPARG	N/A	Replicate 3	Human pluripotent stem-cell derived white adipose cells	DMSO (after 7 days of induction/differentiation)	N/A
HR1	PSC-WAs (JAK3)_r1	25487280	SRP042186	GSM1396741	and differentiated from PPARG	N/A	Replicate 1	Human pluripotent stem-cell derived white adipose cells	JAK3 inhibitor tofacitinib (2 µM), (after 7 days of induction/differentiation)	N/A
HR1	PSC-WAs (JAK3)_r2	25487280	SRP042186	GSM1396739	and differentiated from PPARG	N/A	Replicate 2	Human pluripotent stem-cell derived white adipose cells	JAK3 inhibitor tofacitinib (2 µM), (after 7 days of induction/differentiation)	N/A
HR1	PSC-WAs (JAK3)_r3	25487280	SRP042186	GSM1396740	and differentiated from PPARG	N/A	Replicate 3	Human pluripotent stem-cell derived white adipose cells	JAK3 inhibitor tofacitinib (2 µM), (after 7 days of induction/differentiation)	N/A
HR1	PSC-WAs (SYK)_r1	25487280	SRP042186	GSM1396742	and differentiated from PPARG	N/A	Replicate 1	Human pluripotent stem-cell derived white adipose cells	SYK inhibitor R406 (1 µM), (after 7 days of induction/differentiation)	N/A
HR1	PSC-WAs (SYK)_r2	25487280	SRP042186	GSM1396743	and differentiated from PPARG	N/A	Replicate 2	Human pluripotent stem-cell derived white adipose cells	SYK inhibitor R406 (1 µM), (after 7 days of induction/differentiation)	N/A
HR1	PSC-WAs (SYK)_r3	25487280	SRP042186	GSM1396744	and differentiated from PPARG	N/A	Replicate 3	Human pluripotent stem-cell derived white adipose cells	SYK inhibitor R406 (1 µM), (after 7 days of induction/differentiation)	N/A
HR2	Clone1 (BAT preadipocytes)	25774848	E-MTAB-2602	ERR022178	SVF cells from suprascapular BAT	N/A	Replicate 1	Immortalized human clonal brown preadipocytes	None	N/A
HR2	Clone2 (BAT preadipocytes)	25774848	E-MTAB-2602	ERR022180	SVF cells from suprascapular BAT	N/A	Replicate 2	Immortalized human clonal brown preadipocytes	None	N/A
HR2	Clone3 (BAT preadipocytes)	25774848	E-MTAB-2602	ERR022169	SVF cells from suprascapular BAT	N/A	Replicate 3	Immortalized human clonal brown preadipocytes	None	N/A
HR2	Clone1 (BAT)	25774848	E-MTAB-2602	ERR022176	SVF cells from suprascapular BAT	N/A	Replicate 1	Immortalized and differentiated human clonal brown adipocytes	None	N/A
HR2	Clone2 (BAT)	25774848	E-MTAB-2602	ERR022186	SVF cells from suprascapular BAT	N/A	Replicate 2	Immortalized and differentiated human clonal brown adipocytes	None	N/A
HR2	Clone3 (BAT)	25774848	E-MTAB-2602	ERR022185	SVF cells from suprascapular BAT	N/A	Replicate 3	Immortalized and differentiated human clonal brown adipocytes	None	N/A
HR2	Clone1 (BAT + forskolin)	25774848	E-MTAB-2602	ERR022172	SVF cells from suprascapular BAT	N/A	Replicate 1	Immortalized and differentiated human clonal brown adipocytes	Forskolin (10 µM, 4 hours)	N/A
HR2	Clone2 (BAT + forskolin)	25774848	E-MTAB-2602	ERR022184	SVF cells from suprascapular BAT	N/A	Replicate 2	Immortalized and differentiated human clonal brown adipocytes	Forskolin (10 µM, 4 hours)	N/A
HR2	Clone3 (BAT + forskolin)	25774848	E-MTAB-2602	ERR022173	SVF cells from suprascapular BAT	N/A	Replicate 3	Immortalized and differentiated human clonal brown adipocytes	Forskolin (10 µM, 4 hours)	N/A
HR2	Clone1 (sWAT preadipocytes)	25774848	E-MTAB-2602	ERR022170	SVF cells from subcutaneous WAT	N/A	Replicate 1	Immortalized human clonal white preadipocytes	None	N/A
HR2	Clone2 (sWAT preadipocytes)	25774848	E-MTAB-2602	ERR022181	SVF cells from subcutaneous WAT	N/A	Replicate 2	Immortalized human clonal white preadipocytes	None	N/A
HR2	Clone3 (sWAT preadipocytes)	25774848	E-MTAB-2602	ERR022175	SVF cells from subcutaneous WAT	N/A	Replicate 3	Immortalized human clonal white preadipocytes	None	N/A
HR2	Clone1 (sWAT)	25774848	E-MTAB-2602	ERR022174	SVF cells from subcutaneous WAT	N/A	Replicate 1	Immortalized and differentiated human clonal white adipocytes	None	N/A
HR2	Clone2 (sWAT)	25774848	E-MTAB-2602	ERR022182	SVF cells from subcutaneous WAT	N/A	Replicate 2	Immortalized and differentiated human clonal white adipocytes	None	N/A
HR2	Clone3 (sWAT)	25774848	E-MTAB-2602	ERR022179	SVF cells from subcutaneous WAT	N/A	Replicate 3	Immortalized and differentiated human clonal white adipocytes	None	N/A
HR2	Clone1 (sWAT + forskolin)	25774848	E-MTAB-2602	ERR022177	SVF cells from subcutaneous WAT	N/A	Replicate 1	Immortalized and differentiated human clonal white adipocytes	Forskolin (10 µM, 4 hours)	N/A
HR2	Clone2 (sWAT + forskolin)	25774848	E-MTAB-2602	ERR022183	SVF cells from subcutaneous WAT	N/A	Replicate 2	Immortalized and differentiated human clonal white adipocytes	Forskolin (10 µM, 4 hours)	N/A
HR2	Clone3 (sWAT + forskolin)	25774848	E-MTAB-2602	ERR022171	SVF cells from subcutaneous WAT	N/A	Replicate 3	Immortalized and differentiated human clonal white adipocytes	Forskolin (10 µM, 4 hours)	N/A