Supplements

Table S1 Quantitative parameters of VOCs: Concentration ranges, limits of detection (LOD), limits of quantification (LOQ) and standard deviation (SD) of 11 substances detected in ASC and pure culture medium, respectively.

Substance	Concentration range in ASCs	SD [% at nmol/L]	Limit of detection [nmol/L]	Limit of quantification [nmol/L]
Acetaldehyde	<LOQ – 953.36	9 % (at 4.1 nmol/L)	0.63	0.95
Pentane	<LOQ. – 1.13	13 % (at 0.4 nmol/L)	0.15	0.22
1.3-Di-tert-butylbenzene	<LOQ – 0.13	28 % (at 0.4 nmol/L)	0.0006	0.0007
Ethylbenzene	<LOQ. – 0.04	2 % (at 0.4 nmol/L)	0.0008	0.014
Heptanal	0.042 – 0.28	4 % (at 0.6 nmol/L)	0.023	0.038
Benzaldehyde	<LOQ – 0.15	12 % (at 0.4 nmol/L)	0.007	0.01
Octanal	0.05 –0.27	6% (at 0.6 nmol/L)	0.03	0.04
Acetone	0.66 – 3.40	9 % (at 0.6 nmol/L)	0.14	0.2
Tert-Butanol	0.03 – 0.60	9 % (at 0.4 nmol/L)	0.005	0.007
2-Butanone	0.77 – 3.45	6 % (at 0.6 nmol/L)	0.02	0.03
2-Ethylhexanol	<LOD. – 0.78	17 % (at 0.4 nmol/L)	0.008	0.01

Table S2: P-values of statistical comparison between non- differentiating ASC (non-diff ASC) and adipogenically differentiating (adipo ASC). Statistical analysis was done by Kruskal-Wallis rank sum test and pairwise comparisons using Tukey and Kramer (Nemenyi) test. Non-significant P-values are stated with **n.s**. and significant P-values (<0.05) are stated with **<0.05**.

Acetaldehyde		Non-diff ASC				Adipo ASC		
		Day 1	Day 7	Day 14	Day 21	Day 1	Day 7	Day 14
Non-diff ASC	Day 7	n.s.	-	-	-	-	-	-
	Day 14	n.s.	n.s.	-	-	-	-	-
	Day 21	n.s.	n.s.	n.s.	-	-	-	-
Adipo ASC	Day 1	n.s.	n.s.	n.s.	n.s.	-	-	-
	Day 7	n.s.	<0.05	<0.05	n.s.	n.s.	-	-
	Day 14	n.s.	<0.05	<0.05	<0.05	n.s.	n.s.	-
	Day 21	n.s.	<0.05	<0.05	<0.05	n.s.	n.s.	n.s.

Pentane		Non-diff ASC				Adipo ASC		
		Day 1	Day 7	Day 14	Day 21	Day 1	Day 7	Day 14
Non-diff ASC	Day 7	n.s.	-	-	-	-	-	-
	Day 14	n.s.	n.s.	-	-	-	-	-
	Day 21	n.s.	n.s.	n.s.	-	-	-	-
Adipo ASC	Day 1	n.s.	n.s.	n.s.	n.s.	-	-	-
	Day 7	n.s.	<0.05	n.s.	n.s.	<0.05	-	-
	Day 14	n.s.	<0.05	n.s.	n.s.	<0.05	n.s.	-
	Day 21	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.

1.3 bis (1.1 dimethylethyl) Benzene		Non-diff ASC				Adipo ASC		
		Day 1	Day 7	Day 14	Day 21	Day 1	Day 7	Day 14
Non-diff ASC	Day 7	n.s.	-	-	-	-	-	-
	Day 14	n.s.	n.s.	-	-	-	-	-
	Day 21	n.s.	n.s.	n.s.	-	-	-	-
Adipo ASC	Day 1	n.s.	n.s.	n.s.	n.s.	-	-	-
	Day 7	n.s.	n.s.	n.s.	n.s.	n.s.	-	-
	Day 14	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	-
	Day 21	n.s.	<0.05	n.s.	<0.05	n.s.	n.s.	n.s.

Ethylbenzene		Non-diff ASC				Adipo ASC		
		Day 1	Day 7	Day 14	Day 21	Day 1	Day 7	Day 14
Non-diff ASC	Day 7	n.s.	-	-	-	-	-	-
	Day 14	n.s.	n.s.	-	-	-	-	-
	Day 21	n.s.	n.s.	n.s.	-	-	-	-

		Non-diff ASC				Adipo ASC		
		Day 1	Day 7	Day 14	Day 21	Day 1	Day 7	Day 14
Adipo ASC	**Day 1**	n.s.	n.s.	n.s.	n.s.	-	-	-
	Day 7	n.s.	n.s.	n.s.	n.s.	n.s.	-	-
	Day 14	n.s.	n.s.	n.s.	<0.05	n.s.	n.s.	-
	Day 21	n.s.	n.s.	n.s.	<0.05	n.s.	n.s.	<0.05.

Benzaldehyde		Non-diff ASC				Adipo ASC		
		Day 1	Day 7	Day 14	Day 21	Day 1	Day 7	Day 14
Non-diff ASC	**Day 7**	n.s.	-	-	-	-	-	-
	Day 14	n.s.	n.s.	-	-	-	-	-
	Day 21	n.s.	n.s.	n.s.	-	-	-	-
Adipo ASC	**Day 1**	<0.05	n.s.	n.s.	n.s.	-	-	-
	Day 7	<0.05	n.s.	<0.05	<0.05	n.s.	-	-
	Day 14	<0.05	n.s.	<0.05	<0.05	n.s.	n.s.	-
	Day 21	<0.05.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.

Heptanal		Non-diff ASC				Adipo ASC		
		Day 1	Day 7	Day 14	Day 21	Day 1	Day 7	Day 14
Non-diff ASC	**Day 7**	n.s.	-	-	-	-	-	-
	Day 14	n.s.	n.s.	-	-	-	-	-
	Day 21	<0.05	n.s.	n.s.	-	-	-	-
Adipo ASC	**Day 1**	n.s.	n.s.	n.s.	n.s.	-	-	-
	Day 7	<0.05.	n.s.	n.s.	n.s.	n.s.	-	-
	Day 14	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	-
	Day 21	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.

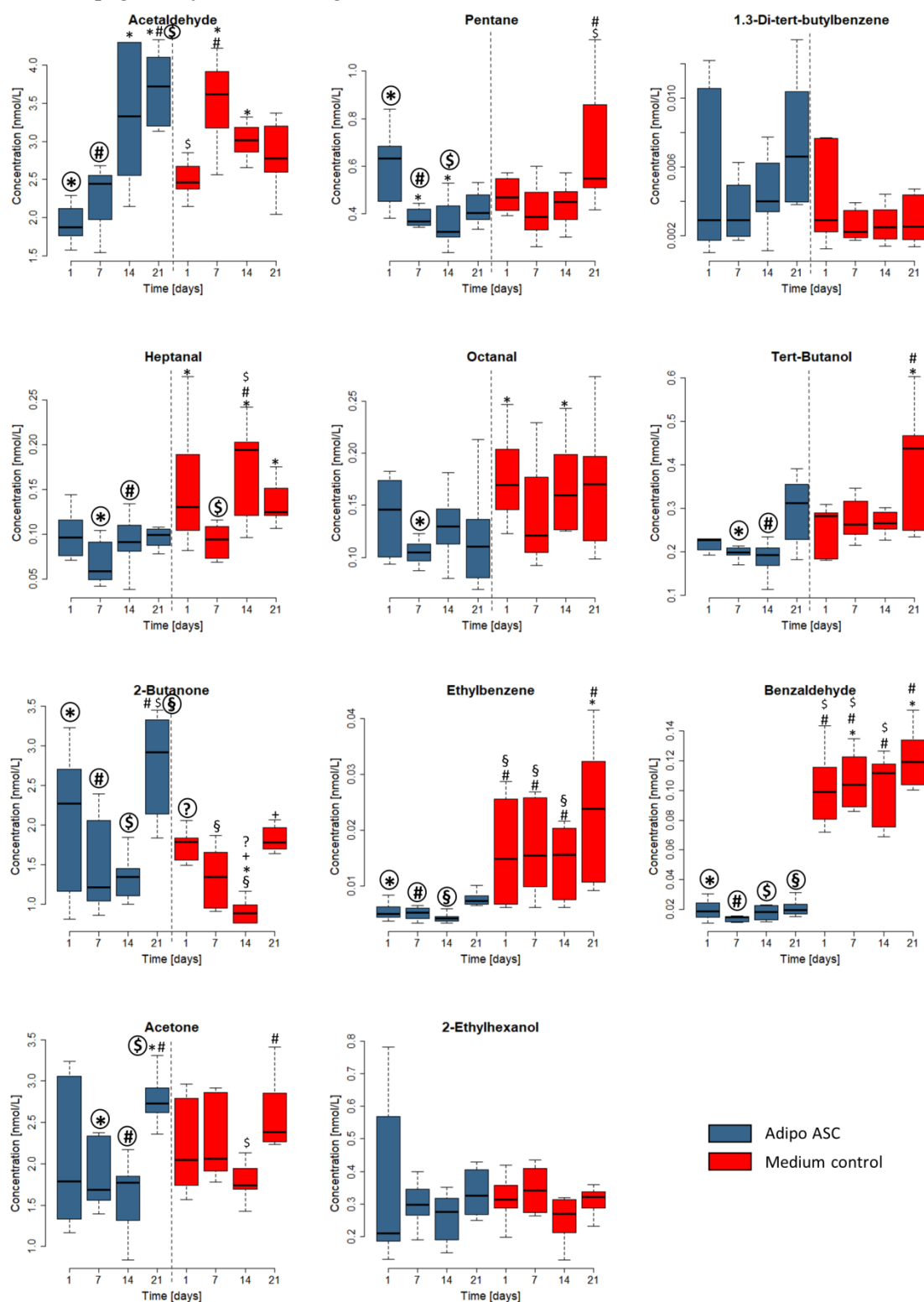**VOCs from adipogenically differentiating ASC**

Figure S1 VOCs during the adipogenic differentiation. Concentrations are shown on the y axis in nmol/L. The x-axis shows the time point of measurements. Cell cultures with adipogenically differentiating ASC (Adipo ASC, blue), media samples without cells (medium control, red). Boxplots represent data of three independent differentiation experiments. Significance was tested within all groups. Symbols (*, #, $, §, +, ?) indicate significant differences to the corresponding highlighted group (p-values < 0.05).
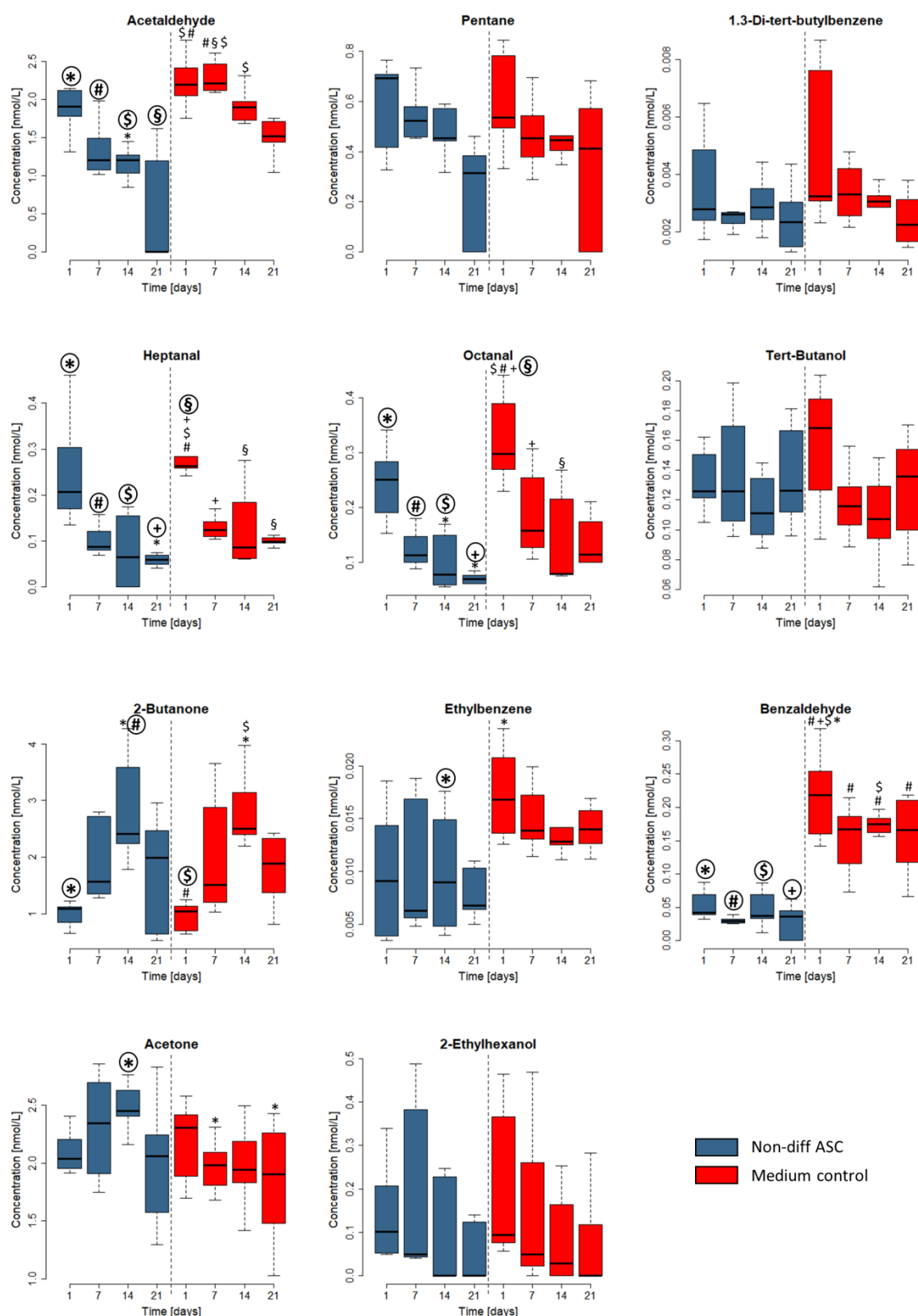
VOCs from non-differentiating ASC

Figure S2 VOCs of non-differentiating ASC. The concentration is shown on the y axis in nmol/L. The x-axis shows the measurement time point. Red boxplots indicate the data from pure medium samples and blue box plots indicate the data from the cell culture. The boxplots represent the data of three independent differentiation experiments. Significance was tested within all groups. Symbols (*, #, $,+, §) indicate significant differences to the corresponding highlighted group (*p*-values < 0.05).