

Supplementary Table S1: Spearman's correlation analysis of the variables, age, and cell numbers on day 0. Significant correlations are marked in green.

	CD80	MARCO	CD11c	CD163	CD206	PTGER3	PAX7	MyoD
r	0.2993	0.3652	-0.0177	0.4461	0.0814	0.3549	0.6888	0.5518
p	0.1999	0.1133	0.9410	0.0487	0.7331	0.1246	0.0008	0.0117

Supplementary Table S2: Unpaired t test and Mann Whitney U test of variables, sex, and cell numbers on day 0.

	CD80	MARCO	CD11c	CD163	CD206	PTGER3	PAX7	MyoD
p	0.9799	0.1328	0.2302	0.6645	0.9547	0.6738	0.6372	0.8950

Supplementary Table S3: Pearson's correlation analysis and Spearman's correlation analysis of variables, BMI, and cell numbers on day 0. Significant differences are marked in green.

	CD80	MARCO	CD11c	CD163	CD206	PTGER3	PAX7	MyoD
r	0.0680	0.1592	0.1212	0.2041	0.2326	0.5831	0.2383	0.2825
p	0.7757	0.5027	0.6108	0.3881	0.3237	0.0070	0.3116	0.2275

Supplementary Table S4: Expression levels of thirty cytokines/chemokines (pg) in human skeletal muscle tissue extracts (ml). Mean values of four reads are presented by a coefficient of variations (CV) <5%. Twelve cytokines/chemokines (green fields) were correlated with different cell phenotypes as shown in Table 2, figure 1, and 2 of the manuscript.

Participants	IL-1 α	IL-1RA	IL-4	IL-6	IL-8	IL-15	IL-17A	IL-21	MCP-1	RANTES	IL-22	CXCL12 α	Eotaxin	GRO- α	IFN α	MIP-1 α	TNF- β	IL-1 β	IL-2	IL-5	IL-7	IL-9	IL-13	IL-18	IL-23	IL-27	IL-31	IP-10	MIP-1 β	TNF- α
P3	0.09	1419.09	83.4	178.71	12.15	15.69	0.03	10.83	68.61	117.3	0.03	883.71	3	13.8	0.99	3.6	0.03	0.03	0	0.03	16.86	1.65	7.92	233.49	0.03	0.03	78.45	22.14	94.32	9.36
P4	0.13	324.55	9.98	39.95	2.2	29.15	0.27	0.01	61.38	57.91	0.01	624.34	4.02	1.87	0.21	0.32	0.01	0.1	0.01	0.01	2.13	0.01	0	12.83	0.01	0	0.01	20.77	36.52	0.04
P5	1.45	3408.88	9.98	36.38	24.77	1.87	1.94	0.01	112.63	63.7	0.01	667.18	10.98	45.07	0.42	2.27	1	0.83	0.01	0.01	5	0.39	1.59	70.66	0.01	5.51	0.01	17.21	202.73	1.33
P7	0.3	2693.18	11.75	37.59	22.32	1.67	1.49	0.15	104.22	95.2	0.42	698.87	7.98	68.71	0.36	7.62	0.87	3.05	8.42	133.63	5.45	0.92	3.14	27.86	17.92	20.54	0.43	86.42	196.64	1.83
P8	3.72	9960.9	31.68	100.71	194.31	9.36	1.98	4.23	1047.99	307.95	2.01	1257.9	15.27	241.26	3.75	17.61	0.03	32.37	37.26	0.03	13.47	3.36	0	23.64	0.03	0.03	38.58	50.97	254.19	29.13
P9	0.3	2461.8	31.68	112.77	34.35	70.05	1.35	39.09	161.73	257.76	5.85	1584.45	10.95	105.45	3.87	3.27	17.91	2.79	0.03	0.03	14.31	3.45	0	36.24	16.38	0.03	8.52	55.8	359.76	8.52
P10	0.21	7195.47	29.91	112.83	115.35	101.01	2.52	6.09	362.55	209.07	3.15	1609.02	9.6	183.39	0.81	6.33	0.03	32.94	0.03	0.03	17.34	3.45	4.77	102.21	19.38	6.09	11.97	36.66	483.78	4.8
P11	7.89	9729.93	0	50.88	39.99	38.04	7.32	0.03	238.44	132.21	0.03	826.77	17.94	76.59	2.91	4.02	0.03	2.22	0.03	0.03	10.71	6.27	0	26.4	0.03	121.65	0.03	28.89	116.67	26.58
P13	0.96	14250.84	29.94	90.84	394.74	126.96	2.22	0.03	1056.24	209.31	0.54	1941.87	21.09	206.7	2.13	54.27	1.83	23.7	15.63	0.03	9.87	7.11	7.92	174.3	0.03	6.09	0.06	96.12	836.37	9.81
P14	0.82	2522.2	9.39	29.43	69.27	11.02	0.64	0.19	181.34	82.26	1.85	326.47	3.21	30.43	0.52	7.41	0.01	3.86	5.21	15.81	5.22	0.92	0	32.48	0.01	0.01	9.94	18.18	100.91	2.1
P15	1.05	7109.25	28.17	77.1	73.92	29.55	1.92	0.03	784.26	248.7	0.03	2066.04	21.57	123.93	2.25	6.21	0.03	18.84	15.63	0.03	13.29	3.45	6.36	99.39	0.03	6.09	1.65	75.33	501.27	7.11
P16	0.06	1718.93	10.57	25.28	25.97	5.45	0.84	0.01	67.65	91.89	0.01	624.59	3.51	11.86	0.42	0.87	0.01	0.83	0.01	41.81	3.17	0.87	1.59	16.91	0.01	5.51	0	13.72	93.17	1.33
P17	0.07	136.88	9.68	20.26	1.88	3.32	0.27	0.01	16.11	91.31	0.01	682.36	1.85	4.8	0.29	0.71	1.58	0.93	0.01	0.01	3.63	0.01	0	2.86	0.01	0.01	2.84	5.29	56.01	0.53
P18	0.27	3412.05	26.43	53.19	58.47	46.35	32.7	0.03	335.46	253.5	0.03	2437.89	52.77	105.48	2.13	4.5	0.03	6	60.75	22.35	10.89	13.65	6.36	57.48	0.03	70.86	2.91	89.4	366.21	11.79

Supplementary Table S5: Average fold change of cell numbers by FA stimulation. Data points of the diagrams of figure 3a-h are shown.

		Average fold change of cell number	Standard deviation	<i>P</i> value
CD80	U-FA	1.74	0.74	<0.0001
	S-FA	1.29	0.66	0.1077
MARCO	U-FA	1.42	0.61	0.0033
	S-FA	1.20	0.47	0.1288
CD11c	U-FA	1.55	1.32	0.0737
	S-FA	1.15	0.73	0.7916
CD163	U-FA	1.58	0.67	0.0016
	S-FA	1.38	0.65	0.0161
CD206	U-FA	1.44	0.61	0.0047
	S-FA	1.61	0.71	0.0050
PTGER3	U-FA	1.58	0.45	<0.0001
	S-FA	1.95	2.41	0.0214
PAX7	U-FA	2.16	1.78	<0.0001
	S-FA	1.76	1.36	0.1072
MyoD	U-FA	1.75	1.84	0.0459
	S-FA	1.38	0.97	0.2293

Supplementary Table S6: Unpaired t test and Mann Whitney U test of differences between male and female participants in the number of cells (untreated) or the relative fold change in cell numbers in response to unsaturated (U-FA) or saturated fatty acids (S-FA) on day 9. Significant differences are marked in green.

		CD80	MARCO	CD11c	CD163	CD206	PTGER3	PAX7	MyoD
<i>p</i>	untreated	0.3431	0.8129	0.1349	0.4849	0.8888	0.4269	0.6784	0.2304
	U-FA	0.4784	0.5448	0.4920	0.9000	0.1549	0.9678	0.4920	0.8852
	S-FA	0.1679	0.4727	0.2295	0.0586	0.2529	0.0727	0.0245	0.0727