

Identification	MRM transitions	Nitro fatty acid
NO ₂ -SA	328.3/46	Nitro-stearic acid
NO ₂ -OA	326.3/46	Nitro-oleic acid
NO ₂ -dihydro-CLA	326.3/46	Nitro-dihydro-conjugated linoleic acid
NO ₂ -CLA	324.3/46	Nitro-conjugated linoleic acid
NO ₂ -dihydro-LnA	324.3/46	Nitro-dihydro-linolenic acid
NO ₂ -LnA	322.3/46	Nitro-linolenic acid
Dinor NO ₂ -SA	300.3/46	Nitro-hexadecanoic acid
Dinor NO ₂ -OA	298.3/46	Nitro-hexadecenoic acid
Dinor NO ₂ -dihydro-CLA	298.3/46	Nitro-dihydro-hexadecadienoic acid
Dinor NO ₂ -CLA	296.3/46	Nitro-hexadecadienoic acid
Dinor NO ₂ -dihydro-LnA	296.3/46	Nitro-dihydro-hexadecatrienoic acid
Dinor NO ₂ -LnA	294.3/46	Nitro-hexadecatrienoic acid
Tetranor NO ₂ -SA	272.3/46	Nitro-tetradecanoic acid
Tetranor NO ₂ -OA	270.3/46	Nitro-tetradecenoic acid
Tetranor NO ₂ -LnA	266.3/46	Nitro-tetradecatrienoic acid
Hexanor NO ₂ -SA	244.3/46	Nitro-dodecanoic acid

Supplemental Table S1. Identification, MRM transitions and IUPAC nomenclature of nitro fatty acids in cellular media, adipocyte lipids and adipose tissue.

Tissue type	Tissue/organ	$\mu\text{g equivalents } 10\text{-NO}_2\text{-OA/g}$							
		1 h	6 h	24 h	48 h	72 h	120 h	168 h	336 h
Circulatory	Aorta	3.94	23.2	2.57	1.35	3.20	0.580	0.375	0.776
	Blood cells ^a	3.03	4.18	0.611	0.473	0.399	0.350	0.277	0.199
	Plasma ^a	11.2	19.6	1.48	0.625	0.338	0.207	0.122	BLQ
	Whole-blood (cardiac)	9.27	16.9	1.05	0.680	0.746	0.318	0.220	0.235
	Vena cava	4.49	13.5	1.79	2.30	1.53	0.578	0.501	0.615
Nervous	Brain	0.358	1.72	0.215	0.373	0.270	0.202	0.163	BLQ
	Cerebellum	0.320	1.09	0.232	0.407	0.276	0.204	0.160	BLQ
	Cerebrum	0.292	1.07	0.193	0.354	0.268	0.204	0.165	BLQ
	Olfactory lobe	0.513	1.43	0.268	0.532	0.251	0.288	0.239	BLQ
	Spinal cord	0.488	1.77	0.313	0.364	0.269	0.199	0.247	0.331
Ocular	Uveal tract/retina	0.765	2.89	0.987	0.997	0.439	1.58	0.519	0.722
	Eye (lens)	0.146	0.211	0.205	0.136	0.114	0.132	0.201	0.146
Visceral organs	Kidney cortex	15.6	28.0	2.58	1.81	1.37	0.719	0.571	1.33
	Kidney medulla	17.3	28.8	2.08	0.931	0.682	0.441	0.324	1.12
	Liver	16.7	28.5	4.48	1.97	1.19	0.741	0.509	0.299
	Lungs	4.16	17.2	1.52	1.62	0.783	0.450	0.351	0.275
	Heart (myocardium)	11.3	19.0	1.77	1.71	1.19	1.20	0.710	2.21
	Spleen	5.44	6.50	1.41	1.12	1.89	0.327	0.278	0.387
Glandular/secretory	Adrenal cortex	6.13	13.2	6.57	3.52	4.67	2.53	1.77	3.24
	Adrenal medulla	5.06	8.91	3.54	1.61	2.31	1.12	0.692	2.98
	Exorbital lacrimal gland	1.82	7.08	1.33	1.02	1.11	0.545	0.328	0.363
	Harderian gland	1.71	12.0	5.95	4.03	2.10	0.708	0.633	0.231
	Intra-orbital lacrimal gland	1.96	6.86	1.20	1.04	1.85	1.09	1.45	0.912
	Mandibular lymph node	0.961	7.84	1.54	0.915	1.39	0.631	0.506	0.463
	Mesenteric lymph nodes	3.91	10.7	2.81	3.25	3.08	0.603	0.998	0.677
	Nasal turbinates	1.83	3.23	0.917	0.833	0.503	0.448	0.524	0.319
	Pancreas	5.55	10.2	1.72	1.23	1.13	0.368	0.327	0.760
	Pineal gland	1.09	NS	0.655	0.775	0.773	BLQ	BLQ	BLQ
	Pituitary	0.938	9.22	0.893	0.457	0.562	BLQ	BLQ	BLQ
	Salivary gland	1.56	10.7	1.29	0.911	0.666	0.472	0.415	0.376
	Thymus	0.742	2.30	0.778	0.930	0.665	0.317	0.253	0.231
	Thyroid	1.20	10.7	1.29	3.82	1.02	0.491	0.531	0.349
Reproductive	Bulbourethral gland	1.51	10.4	1.07	1.26	0.757	0.380	0.437	BLQ
	Epididymis	0.668	12.5	7.40	3.84	0.971	0.294	0.302	0.267
	Preputial gland	1.40	24.6	0.893	2.41	3.29	1.45	0.754	0.415
	Prostate	0.750	5.42	1.29	0.813	0.629	0.582	0.321	8.16
	Seminal vesicles	0.279	9.92	0.714	1.89	1.06	0.463	0.323	0.488
	Testis	0.383	4.67	0.312	0.326	0.195	0.177	0.213	0.246
	Musculo-skeletal	Bone marrow	2.22	9.07	3.70	2.08	2.93	0.784	1.49
Bone surface ^b		3.28	4.03	0.590	0.758	0.640	0.743	0.720	0.940
Diaphragm		5.73	11.5	1.79	0.948	0.457	0.257	0.621	BLQ
Fat (abdominal) ^b		1.77	11.1	4.57	3.10	5.60	7.81	3.87	5.49
Fat (brown)		8.52	43.1	41.3	84.0	11.9	10.6	3.75	3.03
Fur		0.209	0.791	0.586	0.166	0.194	0.462	0.458	0.170
Muscle (skeletal)		0.931	1.64	0.356	0.291	0.307	0.211	0.233	0.202
Skin		0.888	3.37	1.45	0.826	2.74	0.768	1.92	0.943
Tongue		2.21	9.06	0.869	2.07	1.48	0.437	0.403	0.365
Excretory	Caecum wall	59.0	21.4	4.61	1.16	2.070	1.15	0.559	0.650
	Large intestine wall	1.10	4.22	13.0	1.14	0.619	0.344	0.367	0.457
	Oesophagus wall	9.12	25.3	1.66	3.47	0.781	0.257	0.488	BLQ
	Stomach wall (glandular)	9.49	14.7	1.50	0.894	0.771	0.654	0.268	0.347
	Stomach wall (non-glandular)	38.3	555^c	19.6	7.04	1.35	0.827	0.361	0.189
	Small intestine wall	80.6	31.6	2.73	2.97	3.57	1.76	0.304	0.715
	Urinary bladder wall	38.5	31.4	10.6	4.59	6.01	3.48	2.78	2.43

Upper and lower limits of quantification = 528 and 0.120 $\mu\text{g equiv } 10\text{-NO}_2\text{-OA/g}$ of tissue, respectively

For plasma and blood cells the lower limit of quantification = 0.034 – 0.043 $\mu\text{g equiv } 10\text{-NO}_2\text{-OA/g}$

NS Tissue not sectioned

BLQ Tissue radioactivity concentration below the lower limit of quantification

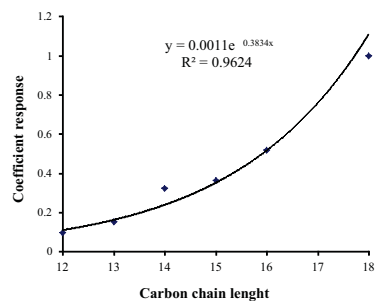
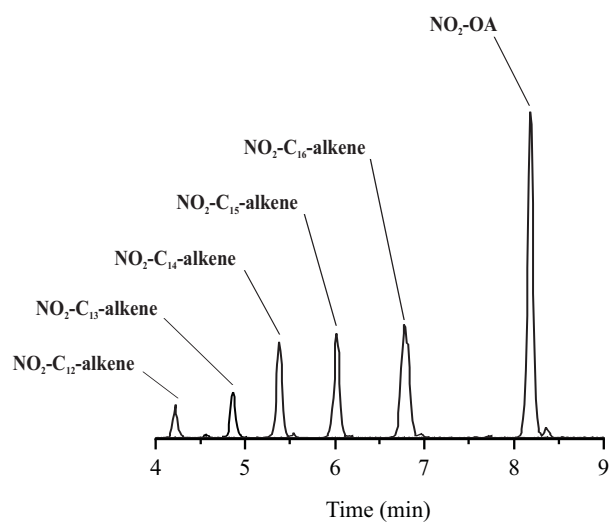
^a Determined by liquid scintillation analysis

^b Tissue corrected for quenching

^c Value should be treated as an estimate as above the upper limit of quantification

Values in bold represent maximum tissue concentrations (C_{max})

Supplemental Table S2. Concentrations of radioactivity in rat tissues determined by QWBA after a single oral administration of 30mg/Kg 10-NO₂-[¹⁴C]OA (labeled at carbon 10). N=1 for each time point.



Supplemental Fig. S1. Chromatogram of nitro-alkene and nitro-alkane standards and normalization of the effect of nitro fatty acid chain lengths on the mass spectrometry response intensity.