

Table S2. Lipidomic analysis of four FRDA patiens

FATTY ACIDS	PATIENT 1		PATIENT 2		PATIENT 3		PATIENT 4		Controls (mean± std dev)	ANOVA	FDR≤0.05
	pre	post	pre	post	pre	post	pre	post			
Palmitic	24.8	27.9	27.2	28.7	24.5	26.2	24.9	27.6	24.7 ± 0.7	0.0013	YES
Palmitoleic	0.4	0.3	0.4	0.5	0.4	0.3	0.3	0.2	0.3 ± 0.1	0.0824	NO
Stearic	18.7	16.7	17.8	15.0	17.3	17.1	18.2	17.2	15.7 ± 1.6	0.0454	NO
Oleic	17.3	17.5	15.9	15.7	16.7	18.0	16.7	17.5	18.2 ± 1.3	0.0861	NO
Vaccenic	1.3	1.3	1.5	1.5	1.1	1.2	1.3	1.3	1.3 ± 0.1	0.8877	NO
Linoleic	12,0	13,8	11,9	12,5	12,8	12,7	12,1	12	13.9 ± 1.6	0.1002	NO
DGLA	2.4	2.0	3.1	3.4	1.7	1.7	1.8	2.0	2.3 ± 0.4	0.9898	NO
Arachidonic	17.8	14.9	16.9	16.4	18.6	16.8	20.3	17.8	15.9 ± 0.9	0.0086	YES
EPA	0.4	0.7	0.4	0.4	0.5	0.5	0.6	0.5	0.7 ± 0.1	0.0517	NO
DHA	4.7	5.0	4.8	5.8	6.1	5.3	3.6	3.7	6.3 ± 0.9	0.0325	NO
Tot. SFA	43.5	44.6	45.0	43.7	41.8	43.3	43.1	44.8	40.4 ± 1.3	0.0005	YES
Tot. MUFA	19.0	19.1	17.8	17.7	18.2	19.5	18.3	19.0	19.8 ± 1.3	0.1021	NO
Tot. PUFA	37.3	36.4	37.1	38.5	39.7	37.0	38.4	36.0	39.1 ± 0.8	0.0157	YES
Trans 18:1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1 ± 0	0.6354	NO
Trans AA	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1 ± 0	1	NO
Tot. Trans	0.2	0.0	0.2	0.2	0.2	0.2	0.2	0.3	0.2 ± 0.0	0.8514	NO
SFA/MUFA	2.3	2.3	2.5	2.5	2.3	2.2	2.4	2.4	2.1 ± 0.2	0.0056	YES
n-6/n-3	6.3	5.4	6.1	5.2	5.0	5.4	8.1	7.6	4.7 ± 0.7	0.006	YES
tot omega-3	5.1	5.7	5.2	6.2	6.6	5.8	4.2	4.2	7.0 ± 1	0.0228	NO
tot omega-6	32.2	30.7	31.9	32.3	33.1	31.2	34.2	31.8	32.1 ± 1	0.1723	NO
S.I.	1.1	1.0	1.1	1.0	1.0	1.0	1.1	1.0	0.9 ± 0.1	0.0071	YES
U.I.	151.6	145.8	149.3	155.3	162.4	151.5	153.7	144.9	140 ± 5.5	0.003	YES
P.I.	135.2	128.4	134.1	141.5	148.7	135.3	135.7	126.6	133.1 ± 12.6	0.6696	NO

Pre and *post* are referred to the 2-month treatment with tocotrienol. The content of individual fatty acids in erythrocyte membranes is expressed as percentages of the total fatty acids identified.

S.I. [Saturation Index] was calculated according to the formula: (18:0/18:1).

U.I. [Unsaturation Index] was calculated according to the formula: (% Monoenoic x 1) + (% Dienoic x 2) + (% Trienoic x 3) + (% Tetraenoic x 4) + (% Pentaenoic x 5) + (% Hexaenoic x 6).

P.I. [Peroxidation Index] was calculated according to the formula: (% Monoenoic x 0.025) + (% Dienoic x 1) + (% Trienoic x 2) + (% Tetraenoic x 4) + (% Pentaenoic x 6) + (% Hexaenoic x 8).