TABLE S1a.

Statistical Analysis for the PFAM Production Data from the $N_{18}TG_2$ Cells[a,b]

PFAM Precursor	f-value	df	p-value	0	12	24	48
Tridecanoic acid	16.0772	3,15	0.0002	A	A	A	B
N-Tridecanoylethanolamine	10.0030	3,15	0.0014	A	A	AB	B
Palmitoleoic acid	87.0423	3,12	<0.0001	A	A	B	C
Palmitic acid	15.1093	3,13	0.0005	A	A	A	B
Oleic acid	4.8179	3,13	0.0251	A	AB	B	AB
Elaidic acid	29.1613	3,15	<0.0001	A	A	A	B
Linoleic acid	26.7950	3,15	<0.0001	A	A	A	B

TABLE S1b.

Statistical Analysis for the PFAM Production Data from the $N_{18}TG_2$ Cell Conditioned Media[a,b]

PFAM Precursor	f-value	df	p-value	0	12	24	48
Tridecanoic acid	23.0869	3,15	<0.0001	A	AB	AB	C
N-Tridecanoylethanolamine	10.3890	3,15	0.0012	A	A	AB	B
Palmitoleoic acid	27.9906	3,11	0.0001	A	A	B	C
Palmitic acid	25.1372	3,14	<0.0001	A	A	A	B
Oleic acid	30.7763	3,13	<0.0001	A	B	C	C
Elaidic acid	387.4201	3,15	<0.0001	A	B	B	C
Linoleic acid	25.8075	3,15	<0.0001	A	B	B	C

[a]One-way ANOVA test was used to test for significant differences over the time course of the incubation with the indicated PFAM precursor. Post-hoc Tukey test was used to compare the differences between the means. The PFAM production data is contained in Table 4.

[b]PFAM amounts measured at a specific time interval from one specific PFAM precursor that do not share the same letter are significantly different with a p-value <0.05 (post ANOVA Tukey test). For example, the amount of PFAM produced at 0 hr and 12 hr are both labeled with "A", there is no significant difference between the amounts measured. If the amount of PFAM produced at 0 hr is labeled with "A" and that at 12 hr is labeled with "B", there is a significant difference between the amounts PFAM produced.

TABLE S2a.

Statistical Analysis for the PFAM Production Data from the SCP Cells[a,b]

PFAM Precursor	f-value	df	p-value	0	12	24	48
Tridecanoic acid	16.5546	3,15	<0.0001	A	B	B	B
N-Tridecanoylethanolamine	41.6328	3,14	<0.0001	A	AB	B	C
Palmitoleoic acid	5.2326	3,14	0.0173	A	AB	B	B
Palmitic acid	259.8576	3,14	<0.0001	A	A	A	B
Oleic acid	2.5508	3,15	0.1046	A	A	A	A
Elaidic acid	8.4551	3,13	0.0043	AB	B	B	B
Linoleic acid	25.7505	3,15	<0.0001	A	A	A	B

TABLE S2b.

Statistical Analysis for the PFAM Production Data from the SCP Cell Conditioned Media[a,b]

PFAM Precursor	f-value	df	p-value	0	12	24	48
Tridecanoic acid	20.4247	3,14	<0.0001	A	B	BC	C
N-Tridecanoylethanolamine	62.9980	3,15	<0.0001	A	A	B	C
Palmitoleoic acid	44.6218	3,14	<0.0001	A	B	B	C
Palmitic acid	24.4359	3,15	<0.0001	A	A	A	B
Oleic acid	15.8757	3,15	0.0002	A	A	B	B
Elaidic acid	44.4201	3,11	<0.0001	A	A	B	C
Linoleic acid	8.2368	3,14	0.0037	A	B	AB	B

[a]One-way ANOVA test was used to test for significant differences over the time course of the incubation with the indicated PFAM precursor. Post-hoc Tukey test was used to compare the differences between the means. The PFAM production data is contained in Table 4.

[b]PFAM amounts measured at a specific time interval from one specific PFAM precursor that do not share the same letter are significantly different with a p-value <0.05 (post ANOVA Tukey test). For example, the amount of PFAM produced at 0 hr and 12 hr are both labeled with "A", there is no significant difference between the amounts measured. If the amount of PFAM produced at 0 hr is labeled with "A" and that at 12 hr is labeled with "B", there is a significant difference between the amounts PFAM produced.

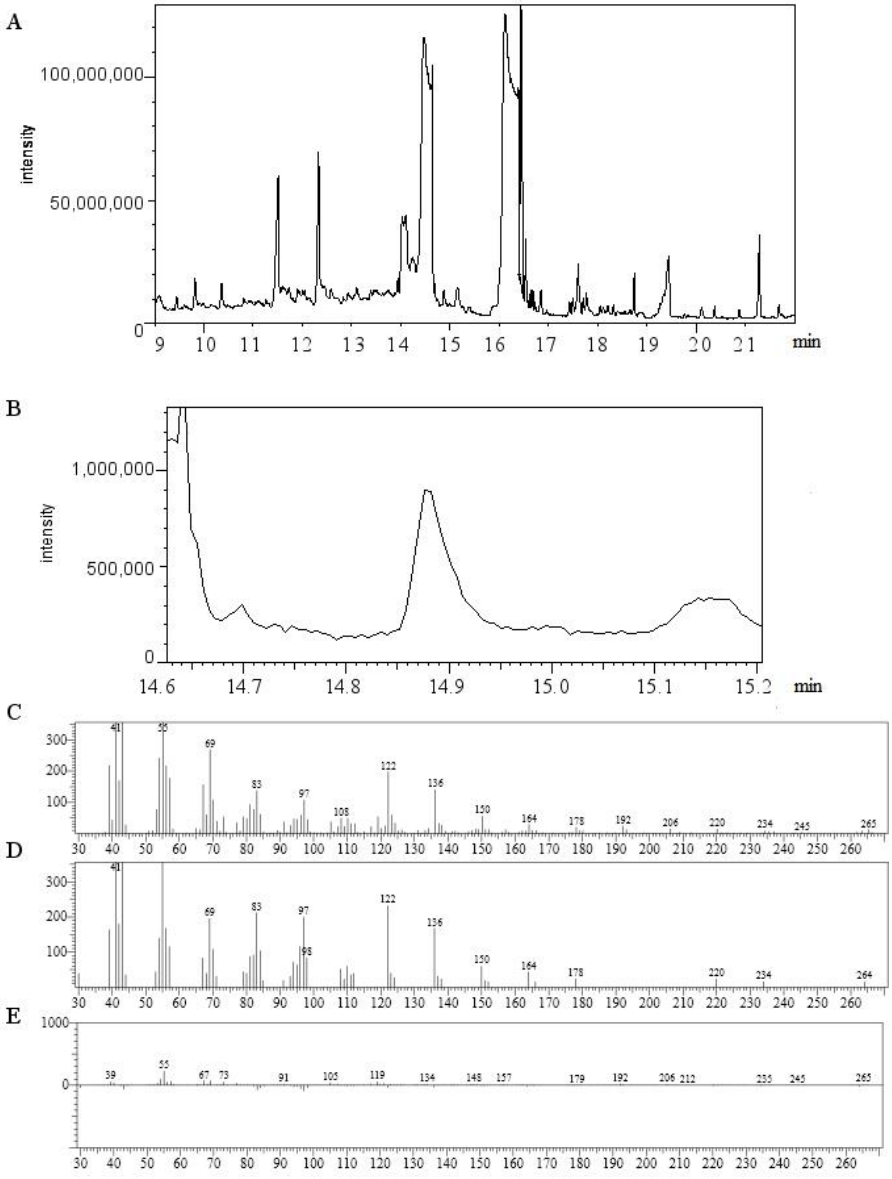

Figure S1. GC-MS of the $N_{18}TG_2$ Cell Extract after Incubation with Oleic Acid (48 hr). Oleamide was extracted from the cells, derivitized with BSTFA, and quantified by GC-MS as described in the Methods. Panel A: The gas chromatogram from 9-22 min of the $N_{18}TG_2$ cell extract. Panel B: The gas chromatograph from14.6-15.2 min of the $N_{18}TG_2$ cell extract highlighting the peak for oleonitrile. Panel C: The total ion chromatogram mass spectrum of the oleonitrile peak. Panel D: Standard mass spectrum for oleonitrile from the library database. Panel E: The difference between the panels C and D.

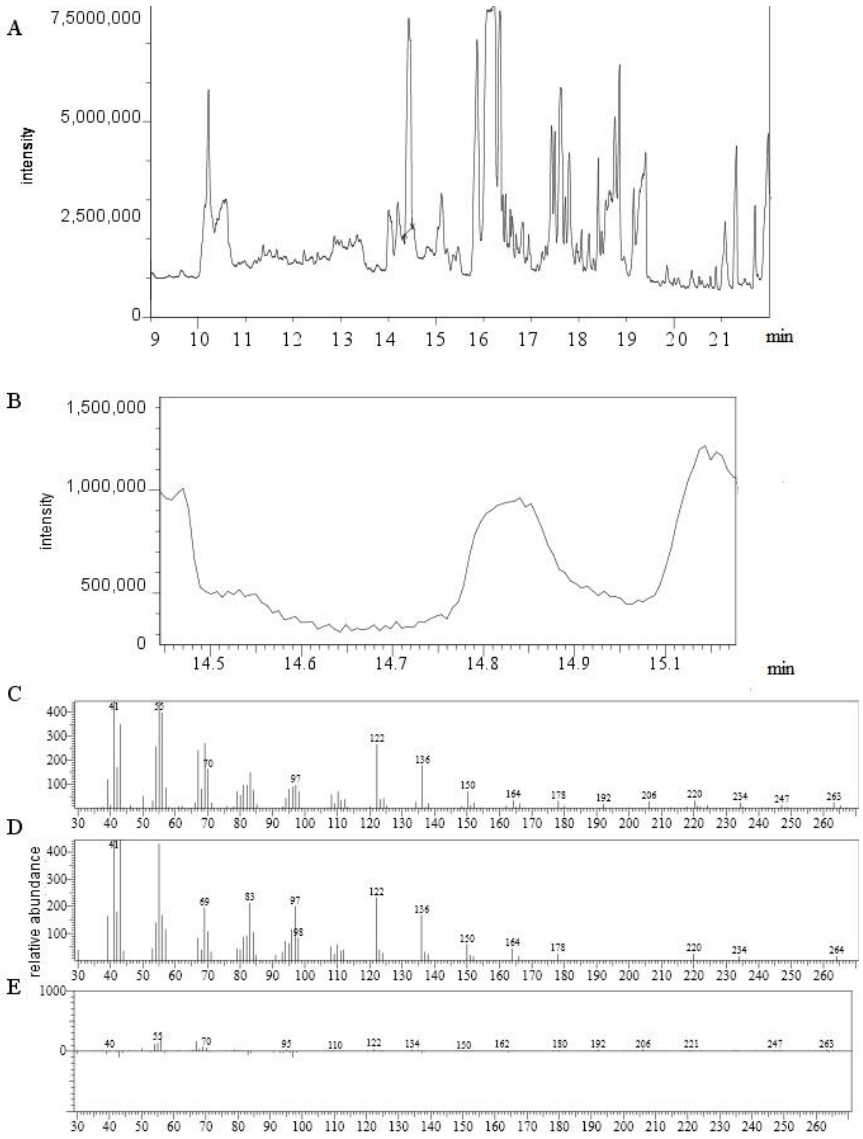

Figure S2. GC-MS of the SCP Cells Extract after Incubation with Oleic Acid (48 hr). Oleamide was extracted from the cells, derivitized with BSTFA, and quantified by GC-MS as described in the Methods. Panel A: The gas chromatogram from 9-22 min of the SCP cell extract. Panel B: The gas chromatograph from14.4-15.2 min of the SCP extract highlighting the peak for oleonitrile. Panel C: The total ion chromatogram mass spectrum of the oleonitrile peak. Panel D: Standard mass spectrum for oleonitrile from the library database. Panel E: The difference between the panels C and D.