Description of Additional Supplementary Files

File Name: Supplementary Movie 1

Description: Time-lapse phase contrast microscopy of BT-549 cells treated with 25 μ M aESA at time 0. Elapsed time in hours:min is given within the frame.

File Name: Supplementary Movie 2 Description: Time-lapse phase contrast microscopy of BT-549 cells treated with 0.5 μ M ML162 at time 0. Elapsed time in hours:min is given within the frame.

File Name: Supplementary Movie 3 Description: Time-lapse phase contrast microscopy of BT-549 cells treated with 0.5 μ M staurosporine at time 0. Elapsed time in hours:min is given within the frame

File Name: Supplementary Data 1

Description: Supplementary Table 1. Lipidomic assessment of aESA incorporation into lipids in MDA-MB-231

File Name: Supplementary Data 2

Description: Supplementary Table 2. Lipidome changes associated with ACSL1 deficiency (vehicletreated), Supplementary Table 3. Lipidome changes associated with ACSL1 deficiency (aESA-treated), Supplementary Table 4. Comparison of lipidome changes associated with ACSL1 deficiency compared to ACSL1 overexpression, and Supplementary Table 5. Alterations in mole percent of 18:3containing lipids associated with ACSL1 deficiency.

File Name: Supplementary Data 3 Description: Supplementary Table 6. Lipidomic analysis of oxidized triacylglycerols in BT-549 cells.

File Name: Supplementary Data 4 Description: Lipidomic analysis of oxidized triacylglycerols in BT-549 cells