

## Description of Additional Supplementary Files

File Name: Supplementary Movie 1

Description: CellRox green live imaging in H460 cells treated with vehicle for 72 hours.

File Name: Supplementary Movie 2

Description: CellRox live green imaging in H460 cells treated with TVB-3664 (0.2  $\mu$ M) for 72 hours.

File Name: Supplementary Movie 3

Description: CellRox live green imaging in H460 cells treated with TVB-3664 (0.2  $\mu$ M) and 16:0-18:1 PC (50  $\mu$ M) for 72 hours.

File Name: Supplementary Data 1

Description: Tentative lipid assignment of MALDI data.

File Name: Supplementary Data 2

Description: MALDI annotation and relative quantification in TetO-KM mice

File Name: Supplementary Data 3

Description: MALDI annotation and relative quantification in LC PDXs.

File Name: Supplementary Data 4

Description: MALDI annotation and relative quantification in primary human LC specimens.

File Name: Supplementary Data 5

Description: Clinical annotation, genotype and FASN immunoreactive score quantification of YTMA310 and TMA4.

File Name: Supplementary Data 6

Description: Differentially expressed genes identified via RNA-seq.

File Name: Supplementary Data 7

Description: Mutational status of the lung cancer cell lines used.

File Name: Supplementary Data 8

Description: MALDI annotation and relative quantification in A549 mouse xenografts.

File Name: Supplementary Data 9

Description: siRNAs, primer sequences and statistics of the siRNA screening in fig.5h,g.