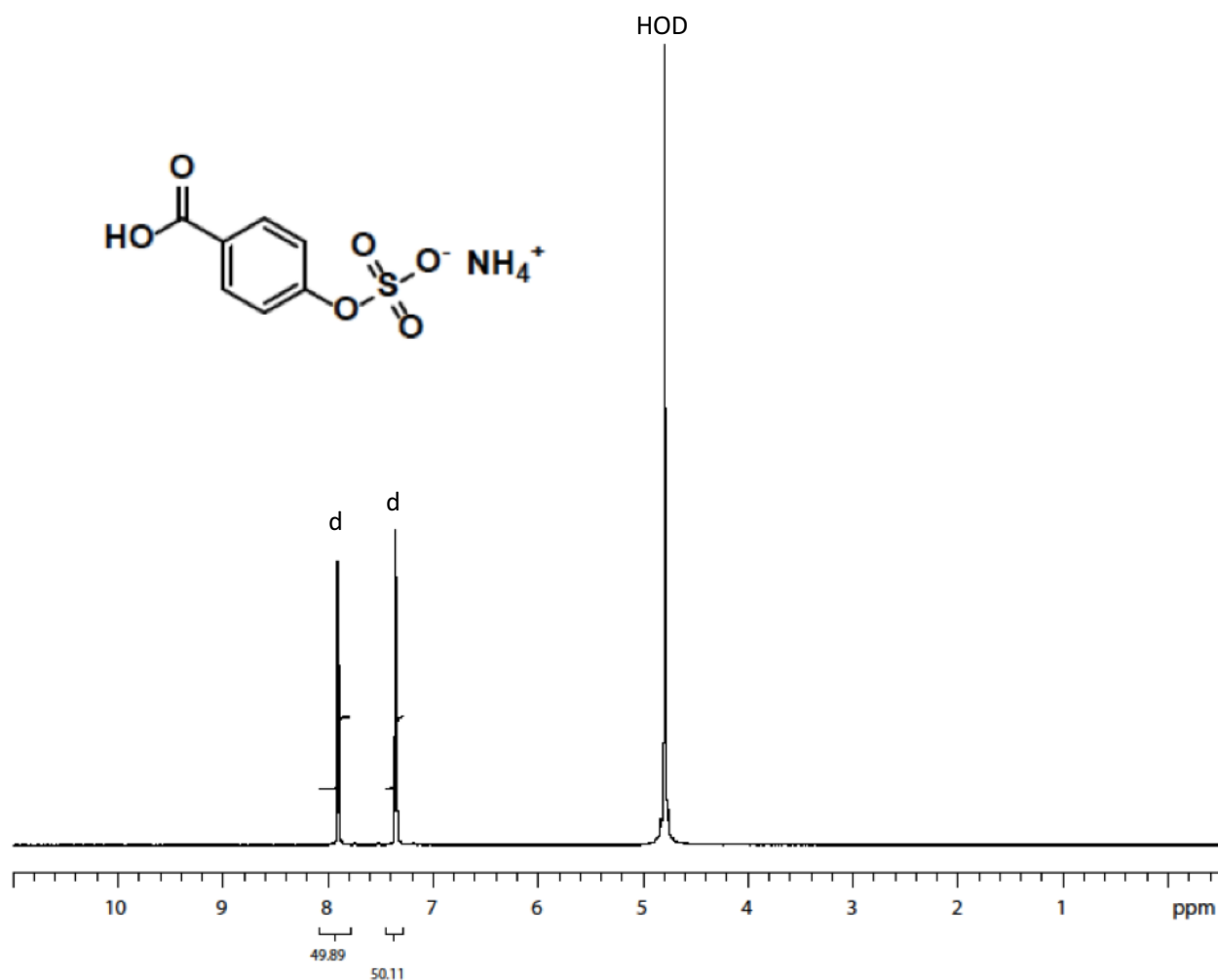


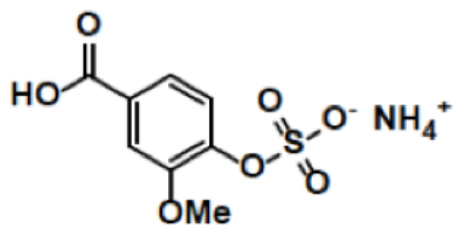
Supplementary Data

Supplementary Fig. 1. ^1H NMR analyses of (A) Benzoic acid 4-sulfate (B) Vanillic acid 4-sulfate and (C) Isovanillic acid 3-sulfate. All spectra were recorded on a Varian Unity-300 MHz at 25°C in D_2O . The chemical shifts (δ) of proton resonances are reported relative to HOD. Peak shapes in the NMR spectra are abbreviated with the symbols 's' (singlet), 'd' (doublet), and 'dd' (double doublet).

(A) Benzoic acid 4-sulfate



(B) Vanillic acid 4-sulfate



HOD

s

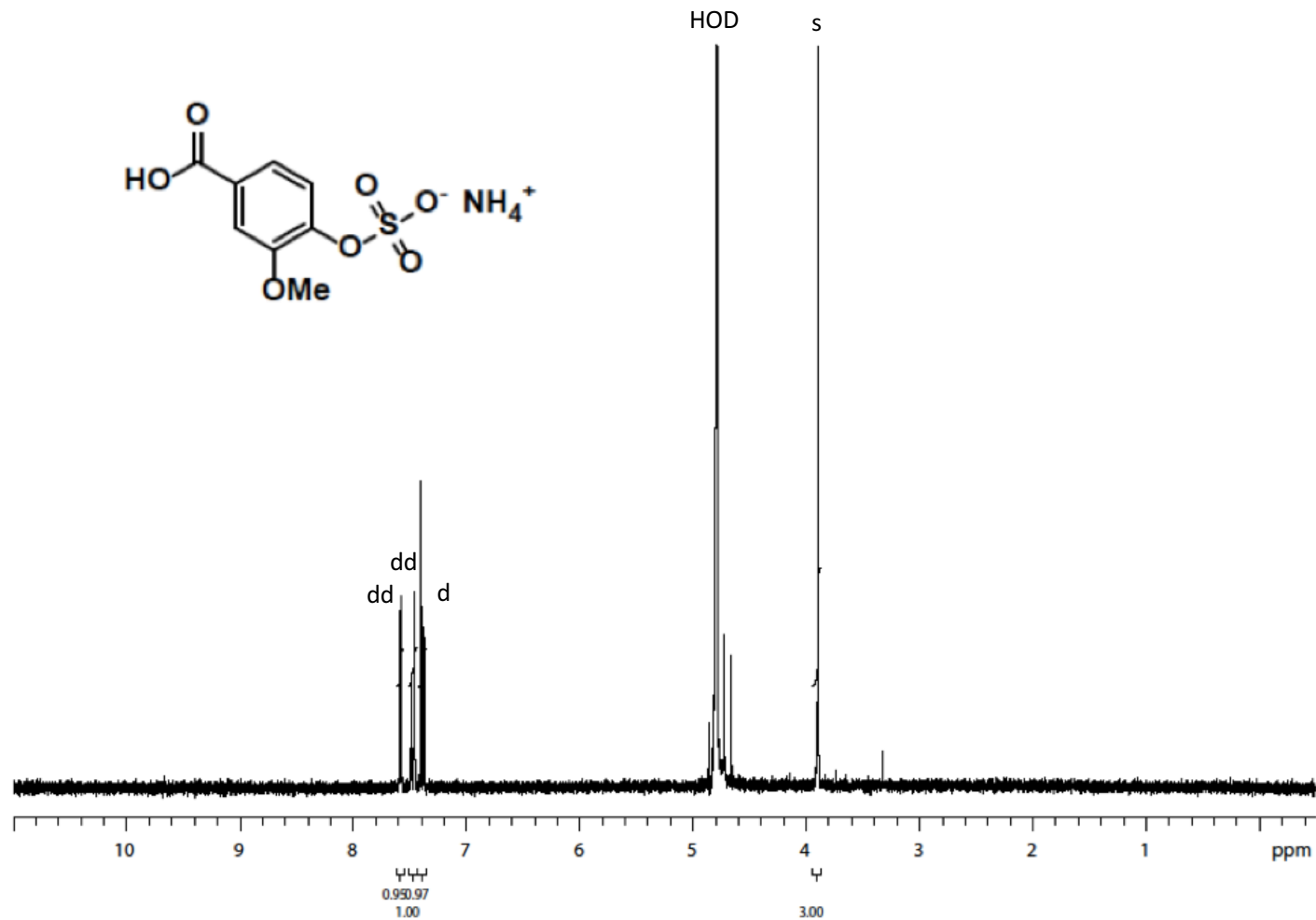
dd
dd

d

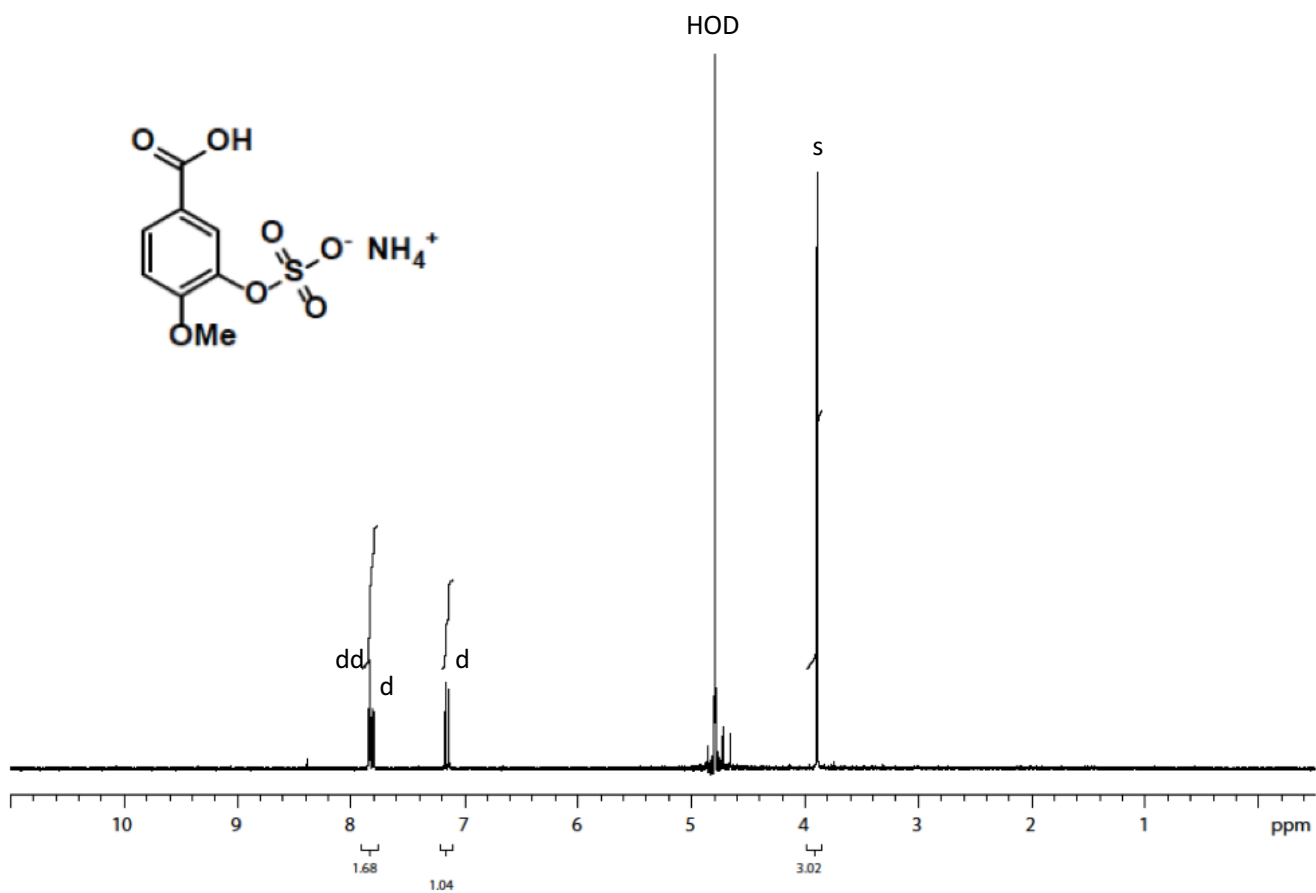
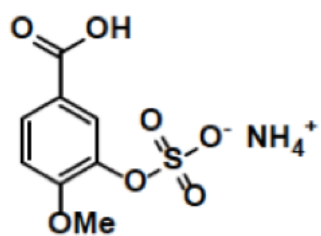
10 9 8 7 6 5 4 3 2 1 ppm

0.950.97
1.00

3.00

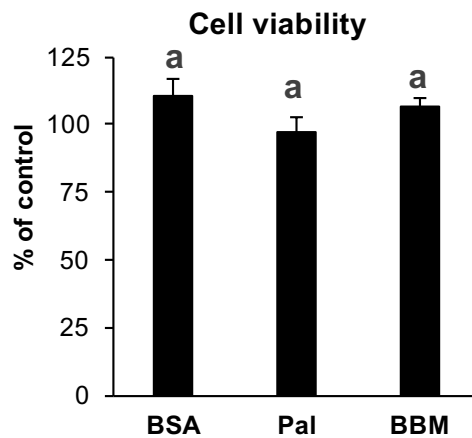


(C) Isovanillic acid 3-sulfate

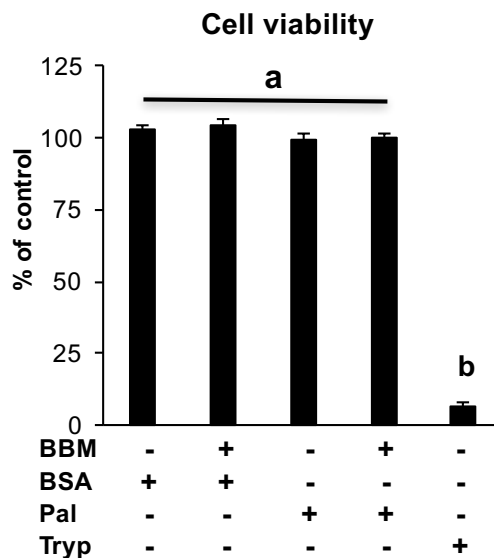


Supplementary Fig 2. Blueberry metabolites and/or palmitate treatment at the dosage and duration used in this study did not affect the cell viability. **(A)** HAEC treated \pm blueberry metabolites (BBM) or palmitate (Pal) or BSA for 6 h. Cell viability was estimated as [(number of cells per field before treatment – number of cells per field after treatment) / (number of cells per field before treatment)] x 100. **(B)** HAEC treated \pm BBM \pm DMSO for 6 h and with or without palmitate-BSA (Pal) or vehicle (BSA) for the last 5 h. Cell viability was assessed using cell titer blue (Promega, Madison, WI) based on manufacturer’s instruction. Trypsin (Tryp) was used as positive control. Values are mean \pm SEM, $n=4$ (means of triplicate). Means without a common letter differ, $P < 0.05$.

A



B



Supplementary Table. Aorta segments were incubated for 16 h with BSA + vehicle (BSA), palmitate-BSA (Pal), or palmitate + blueberry metabolites (Pal + BBM) and used to assess vascular function. Values are mean \pm SEM, $n=8$ aorta segments per condition.

| Vessel characteristics | | | | |
|------------------------|--------------------------|-------------------------------|------------------------------|---|
| Groups | Length (μM) | Start width (μM) | Resting tension at Lmax (mg) | Tension developed at Lmax/ Vessel length (mg/ μM) |
| BSA | 1838 \pm 121 | 394 \pm 32 | 2084 \pm 177 | 0.698 \pm 0.071 |
| Pal | 1788 \pm 124 | 369 \pm 28 | 2045 \pm 185 | 0.533 \pm 0.072 |
| Pal + BBM | 1863 \pm 53 | 388 \pm 23 | 2178 \pm 237 | 0.507 \pm 0.070 |