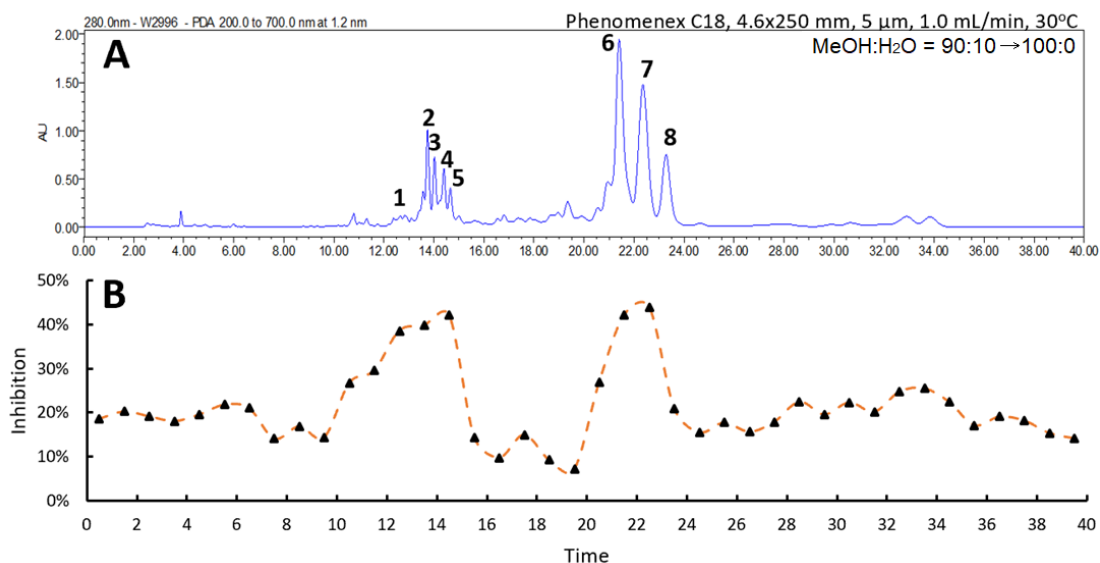




**Supplementary Figure S1. HPLC analysis of fraction 5.** (A) HPLC chromatogram detected at 280 nm. (B) PL inhibition of each HPLC fraction.

**Supplementary Table S1. Compositions of the experimental diets.**

| Ingredient                        | Normal diet (ND)            |       | High-fat diet (HFD)          |       |
|-----------------------------------|-----------------------------|-------|------------------------------|-------|
|                                   | gm%                         | kcal% | gm%                          | kcal% |
| Protein                           | 20                          | 20.3  | 26                           | 20    |
| Carbohydrate                      | 64                          | 63.9  | 26                           | 20    |
| Fat                               | 7                           | 15.8  | 35                           | 60    |
| kcal/gm                           | 4                           |       | 5.26                         |       |
| Daily kcals consumption per mouse | 11.34 ± 0.1460<br>(ND mice) |       | 13.26 ± 0.2106<br>(HFD mice) |       |

**Supplementary Table S2. Primer sequences for real-time PCR.**

| Gene  | Forward (5'-3')         | Reverse (5'-3')       |
|-------|-------------------------|-----------------------|
| IL-6  | TAGTCCTTCCTACCCCAATTTCC | TTGGTCCTTAGCCACTCCTTC |
| NF-κB | GGAGGCATGTTCTGGTAGTGG   | CCCTGCGTTGGATTTCGTG   |
| TNFα  | GACAGTGACCTGGACTGTGG    | TGAGACAGAGGCAACCTGAC  |
| PAPRα | CAGGAGAGCAGGGATTGCA     | CCTACGCTCAGCCCTCTTCAT |

|       |                       |                         |
|-------|-----------------------|-------------------------|
| CPT1  | CTCAGTGGGAGCGACTCTTCA | GGCCTCTGTGGTACACGACAA   |
| GAPDH | AGGTCGGTGTGAACGGATTTG | TGTAGACCATGTAGTTGAGGTCA |

**Supplementary Table S3. Observed masses and possible structure of resin glycosides in fraction 5.**

| Peak | t <sub>R</sub><br>(min) | -MS<br>(m/z) | -MS <sup>2</sup> (m/z)                                                                                                                        | Compound<br>Assignment                 | Ref.   |
|------|-------------------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|--------|
| 1    | 12.8                    | 1319         | 1165 [M - H - C <sub>10</sub> H <sub>18</sub> O] <sup>-</sup> , 1137 [M - H - C <sub>12</sub> H <sub>22</sub> O] <sup>-</sup> , 1037, 983     | Simonin IV                             | [1]    |
| 2    | 13.7                    | 1267         | 1197 [M - H - C <sub>4</sub> H <sub>6</sub> O] <sup>-</sup> , 1139, 1183 [M - H - C <sub>5</sub> H <sub>8</sub> O] <sup>-</sup> , 1069, 1017  | Batataoside I/II /<br>Batatoside A     | [2, 3] |
| 3    | 14.0                    | 1267         | 1197 [M - H - C <sub>4</sub> H <sub>6</sub> O] <sup>-</sup> , 1139, 1183 [M - H - C <sub>5</sub> H <sub>8</sub> O] <sup>-</sup> , 1039, 1017  |                                        |        |
| 4    | 14.4                    | 1281         | 1197 [M - H - C <sub>5</sub> H <sub>8</sub> O] <sup>-</sup> , 1153, 963, 417                                                                  | Batatoside III /<br>Pescaprein XXVII   | [4, 5] |
| 5    | 14.7                    | 1281         | 1197 [M - H - C <sub>5</sub> H <sub>8</sub> O] <sup>-</sup> , 1153, 1067, 981                                                                 |                                        |        |
| 6    | 21.4                    | 1379         | 1295 [M - H - C <sub>5</sub> H <sub>8</sub> O] <sup>-</sup> , 1251, 1197 [M - H - C <sub>12</sub> H <sub>22</sub> O] <sup>-</sup> , 1085, 417 | Batatinoside I /<br>Batatoside C/D/E/F | [2, 6] |
| 7    | 22.4                    | 1379         | 1295 [M - H - C <sub>5</sub> H <sub>8</sub> O] <sup>-</sup> , 1250, 1197 [M - H - C <sub>12</sub> H <sub>22</sub> O] <sup>-</sup> , 831, 417  |                                        |        |
| 8    | 23.4                    | 1395         | 1311 [M - H - C <sub>5</sub> H <sub>8</sub> O] <sup>-</sup> , 1247, 1213 [M - H - C <sub>12</sub> H <sub>22</sub> O] <sup>-</sup> , 1065, 417 | Batatoside H/I                         | [7]    |

### References for Supplementary Table S3:

1. Noda, N., et al., *Resin glycosides. XV. Simonins IV, ether-soluble resin glycosides (jalapins) from the roots of Ipomoea batatas (cv. Simon)*. Chemical and Pharmaceutical bulletin, 1992. **40**(12): p. 3163-3168.
2. Yin, Y., Y. Li, and L. Kong, *Pentasaccharide glycosides from the tubers of sweet potato (Ipomoea batatas)*. Journal of agricultural and food chemistry, 2008. **56**(7): p. 2363-2368.
3. Yin, Y.-Q. and L.-Y. Kong, *Ether-soluble resin glycosides from the roots of Ipomoea batatas*. Journal of Asian natural products research, 2008. **10**(3): p. 233-238.
4. Yin, Y.-Q., et al., *Three new pentasaccharide resin glycosides from the roots of sweet potato (Ipomoea batatas)*. Chemical and Pharmaceutical Bulletin, 2008. **56**(12): p. 1670-1674.
5. Yu, B.-W., et al., *Pentasaccharide resin glycosides from Ipomoea pes-caprae*. Journal of natural products, 2011. **74**(4): p. 620-628.
6. Escalante-Sánchez, E. and R. Pereda-Miranda, *Batatins I and II, ester-type dimers of acylated pentasaccharides from the resin glycosides of sweet potato*. Journal of natural products, 2007. **70**(6): p. 1029-1034.
7. Yin, Y.-Q., et al., *Novel acylated lipo-oligosaccharides from the tubers of Ipomoea batatas*. Carbohydrate research, 2009. **344**(4): p. 466-473.