

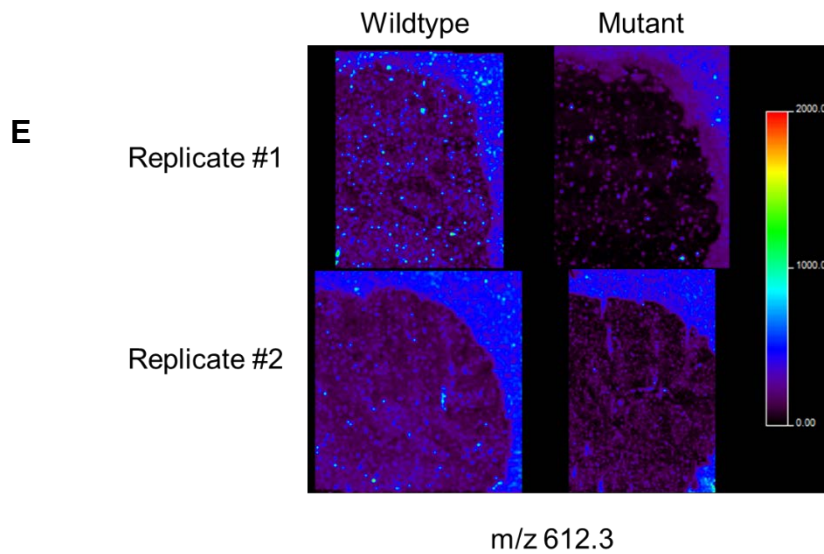
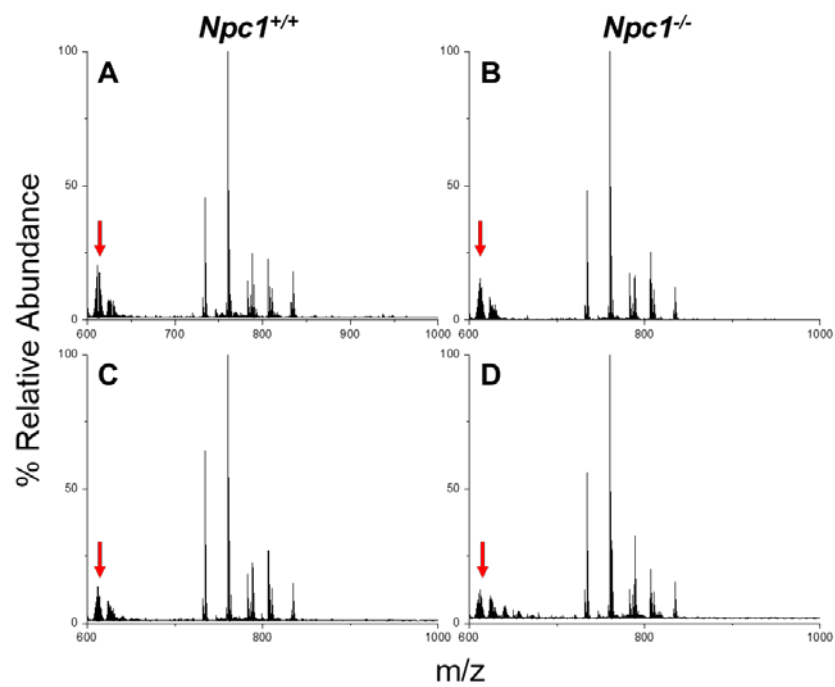
**Mass Spectrometry Imaging of Lipids: Generation of Untargeted Consensus Spectra
Reveals Spatial Distributions in Niemann-Pick Disease, Type C1**

Supplemental Information

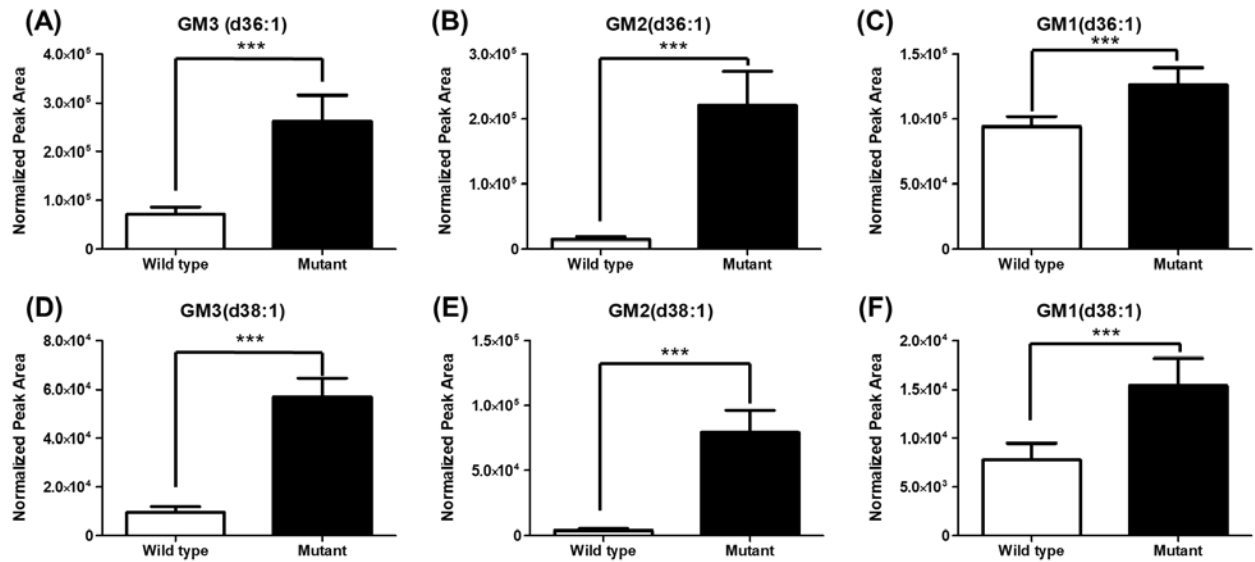
Authors and Affiliations

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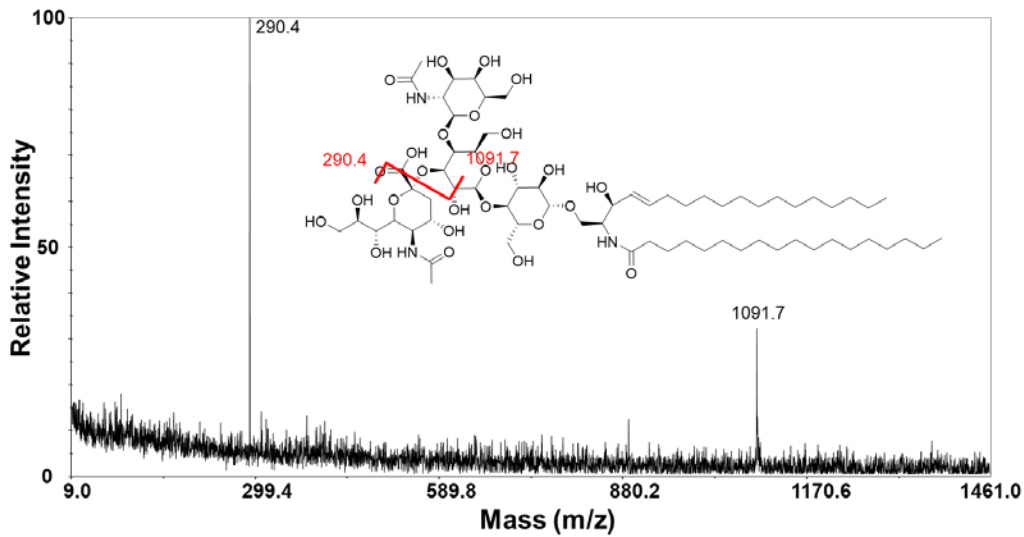
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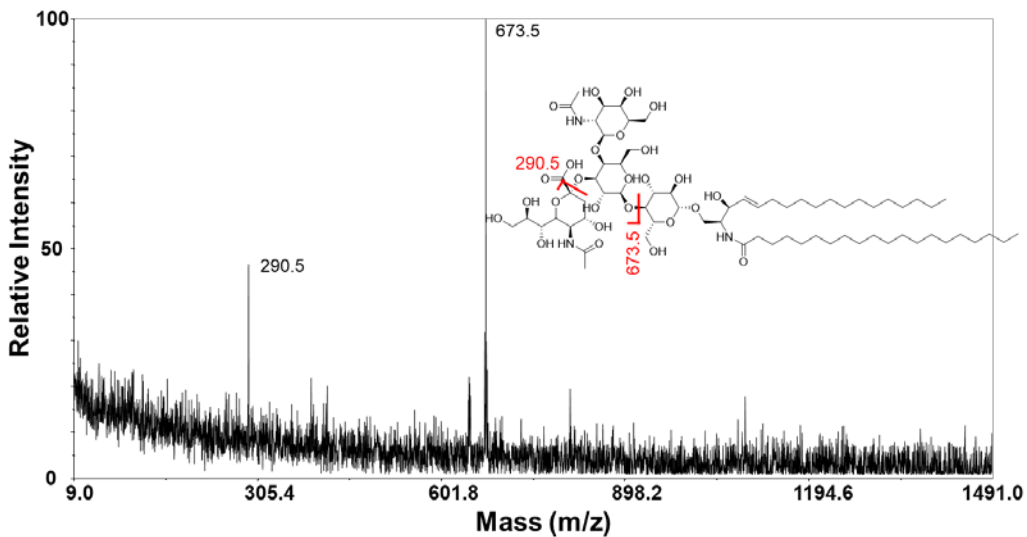
Supplemental Figure S1. Averaged mass spectra of the cerebellum in positive ion mode (m/z 600 – 1000) from two biological replicate sections of *Npc1*^{+/+} (panels A and C) and *Npc1*^{-/-} (panels B and D). Arrows indicate 1,5-DAN matrix cluster ions which indicate consistent coating due to their similar relative abundance.



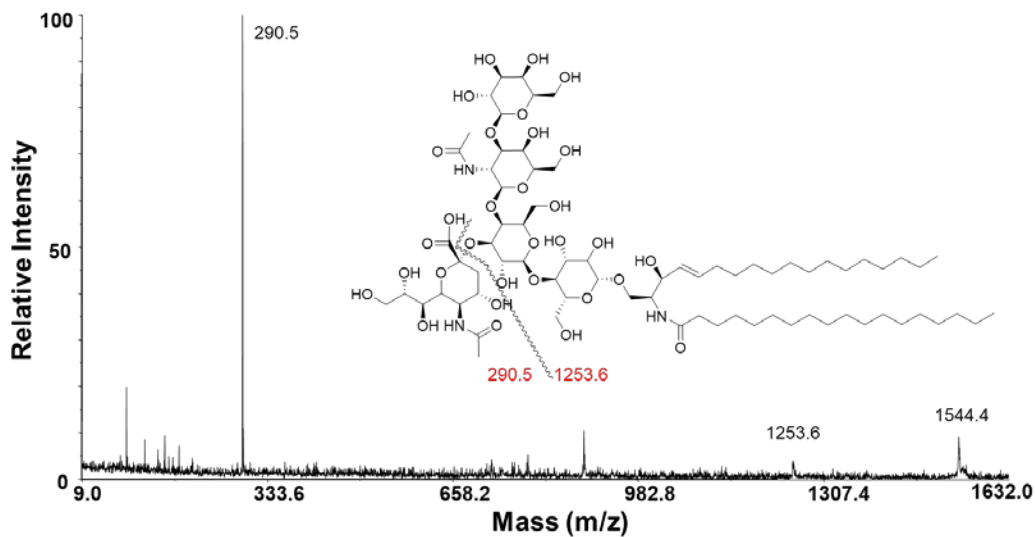
Supplemental Figure S2: LC-ESI-MS/MS of gangliosides (A) GM3(d36:1), (B) GM3(d38:1), (C) GM2(d36:1), (D) GM2(d38:1) and (E) GM1(d36:1), (F) GM1(d38:1) detected from MALDI-MSI from whole cerebellar lipid extracts, n = 3 with replicate injections, p-value < 0.0001, ***. Significance was calculated using an unpaired t-test. Each analysis has been normalized to the protein concentration.



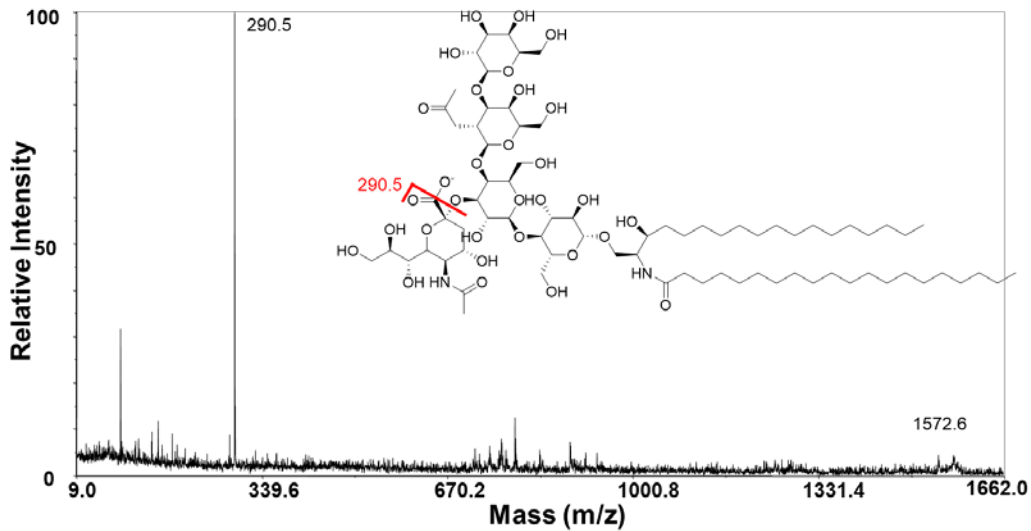
Supplemental Figure S3. On tissue MS/MS collected for m/z 1382.9 assigned to GM2(d36:1). The two major fragment ions observed are noted in red on the provided structure and labeled in red.



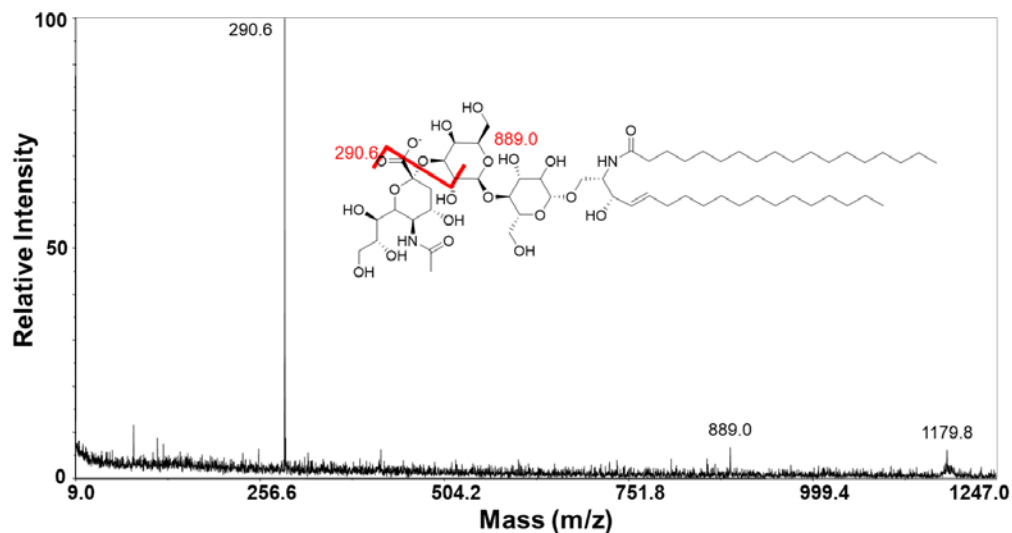
Supplemental Figure S4. On tissue MS/MS of m/z 1410.8 assigned to GM2(d18:1/20:0). The two signature fragment ions indicating the head group assignment are labeled on the structure in red.



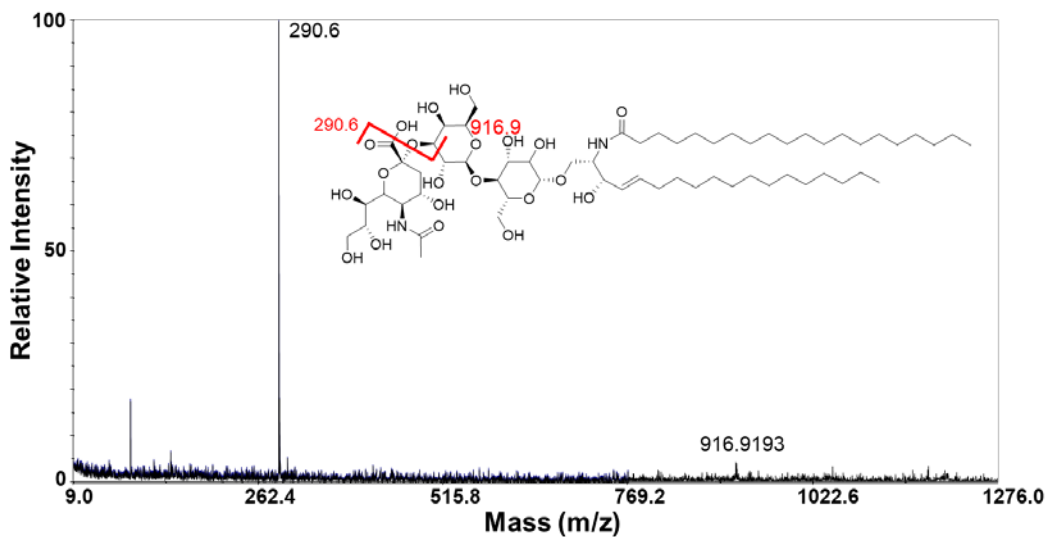
Supplemental Figure S5. On tissue MS/MS of m/z 1544.8 assigned to GM1(d18:1/18:0). The two notable fragment ions of the lipid head group observed are provided in red and labeled on the proposed structure.



Supplemental Figure S6. On tissue MS/MS of m/z 1572.8 assigned to GM1(d18:1/20:0). Only one discernable fragment ion was assigned at 290.5Da indicating cleavage of the sugar head group. The putative structure is included for reference.



Supplemental Figure S7. On tissue MS/MS of parent ion assigned to GM3(d18:1/18:0) observed at m/z 1179.8. Two prominent fragment ions were observed and labeled on the structure provided.



Supplemental Figure S8. On tissue MS/MS of ganglioside GM3(d18:1/20:0) observed at m/z 1207.8. The two indicative fragment ions are noted in red on the structure provided.