Supporting Information

Yi et al. 10.1073/pnas.0812432106

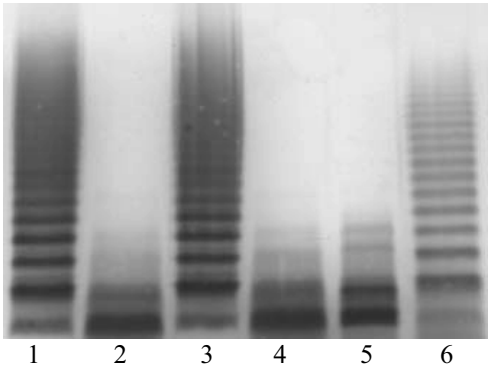


Fig. S1. Disruption of GDP-fucose de novo pathway and complementation with salvage pathway. Lane 1. LPS from wild-type *E. coli* O86; lane 2. Disruption of de novo pathway (gmd-fcl); lane 3. complementation of de novo pathway with pTRC99A-f; lane 4. complemented with salvage pathway (pET15b-fkp), grown in LB without sugar supplement; lane 5. complemented with salvage pathway (pET15b-fkp), grown in LB supplemented with 0.1% glucose; lane 6. complemented with salvage pathway (pET15b-fkp), grown in LB supplemented with 0.1% fucose.

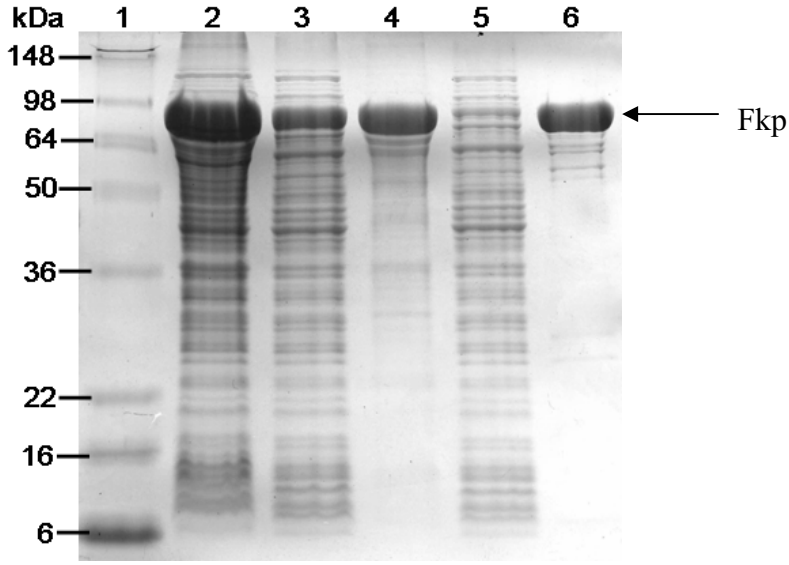


Fig. S2. Expression and purification of Fkp. Lane 1. Protein Standard; lane 2. Proteins in whole cell of Fkp-expressing BL21(DE3); lane 3. Soluble protein fractions; lane 4. Inclusion body; lane 5. Flow-through from Ni-affinity purification; lane 6. Eluted Fkp from Ni-affinity purification.

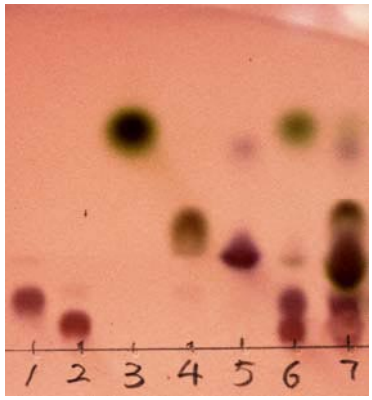
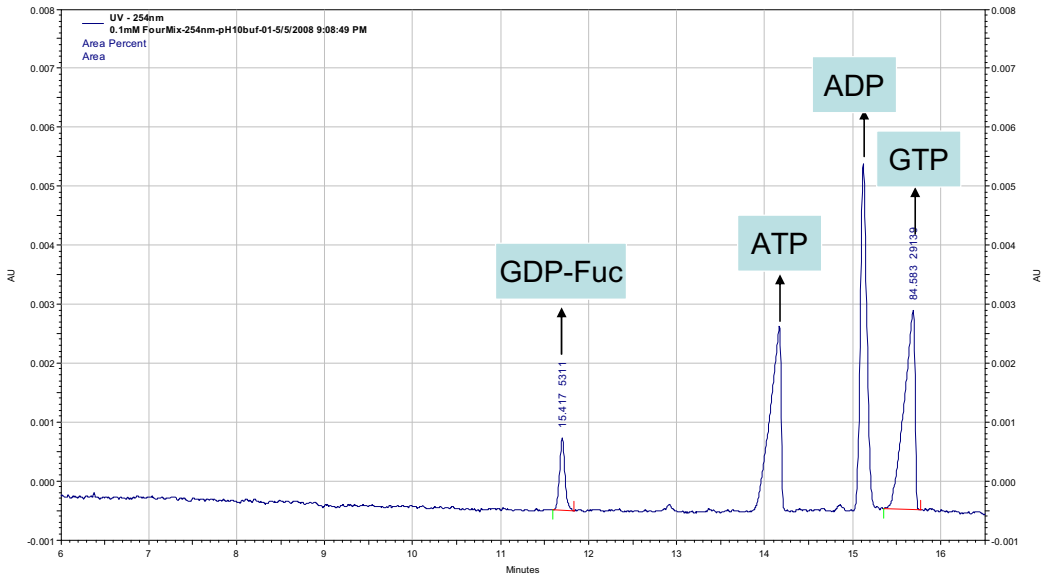


Fig. S3. In vitro Fkp reaction with fucose as substrate. Lane 1. ATP; lane 2. GTP; lane 3. L-fucose; lane 4. GDP-fucose; lane 5. ADP; lane 6. starting point of GDP-fucose synthesis reaction; lane 7. GDP-fucose synthesis reaction after 30 min.

A. Fucose, compound **1**, product MS (ESI): 588.2



[1]

B. compound **2,** product MS (ESI): 574.1

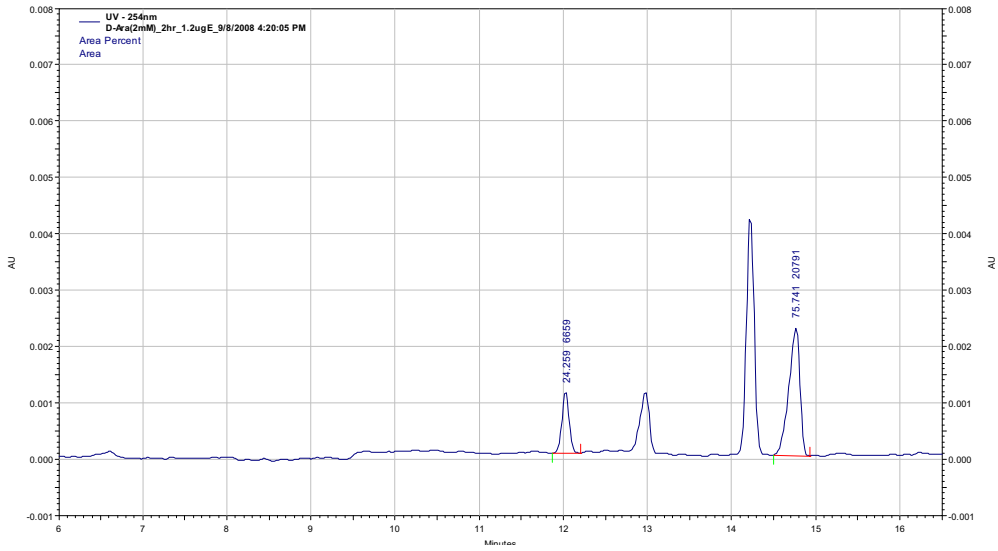
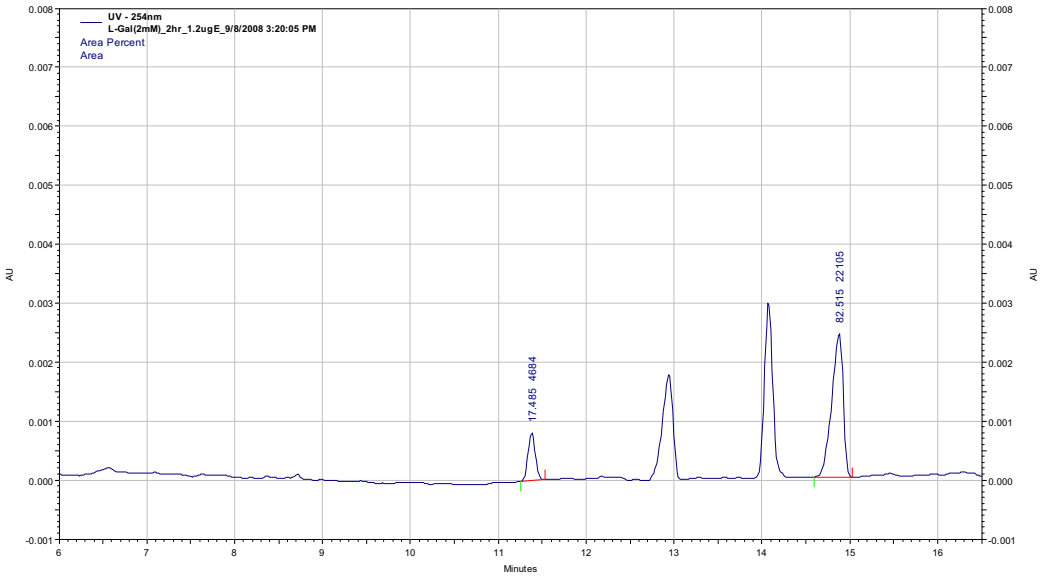


Fig. S4. Capillary electrophoresis analysis of Fkp reactions with various fucose analogs.

C. compound **3**, product MS (ESI): 604.2



D. compound **4**, product MS (ESI): 629.1

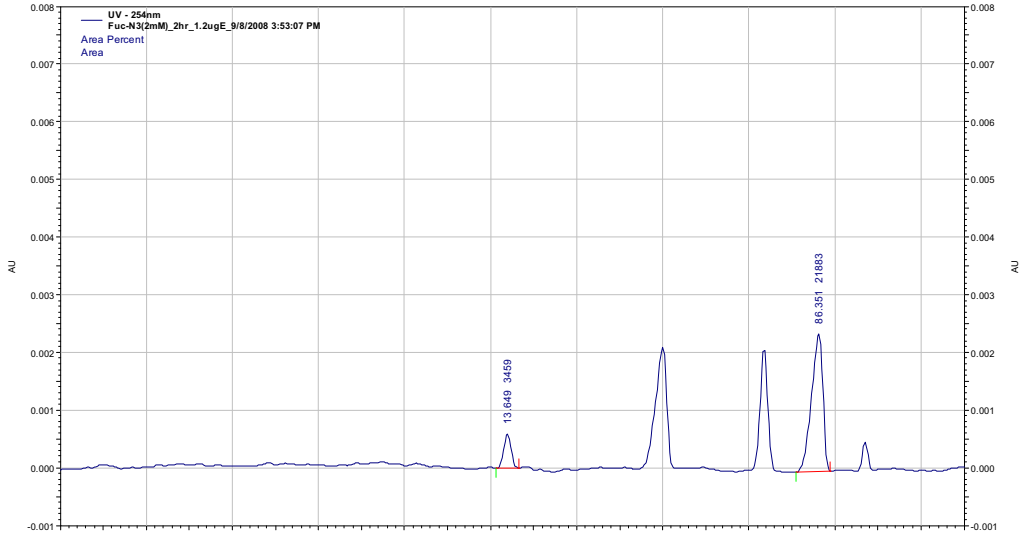
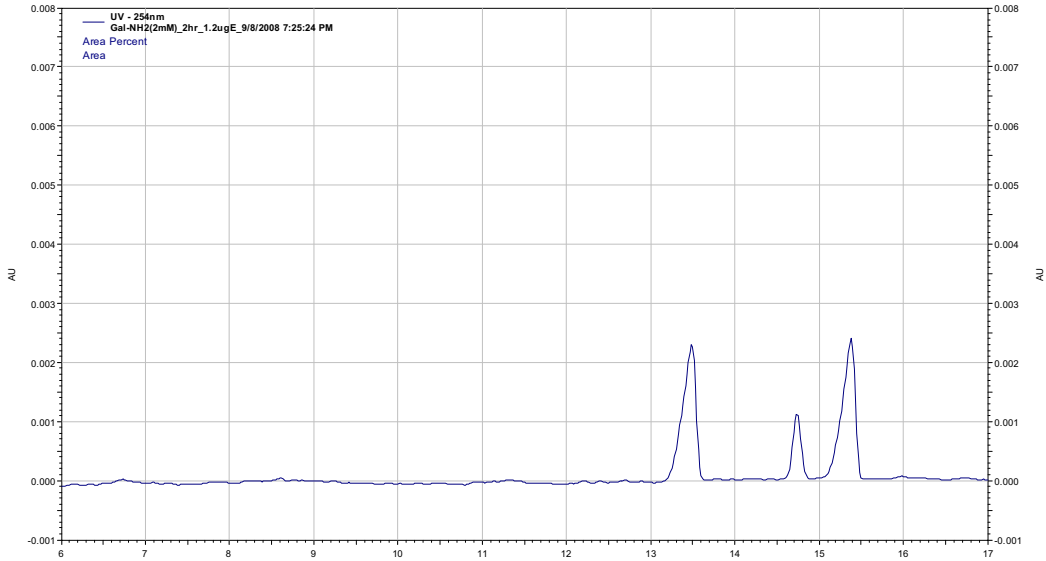


Fig. S4. (continued).

E. compound **5**, product MS (ESI): 603.2



F. compound **6**, product MS (ESI): 602.1

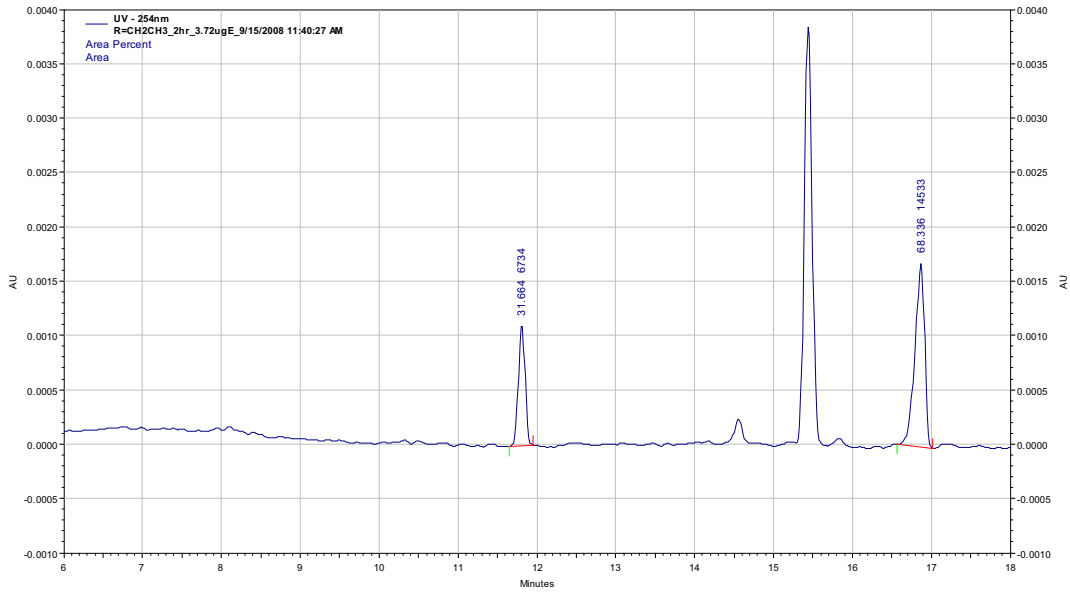
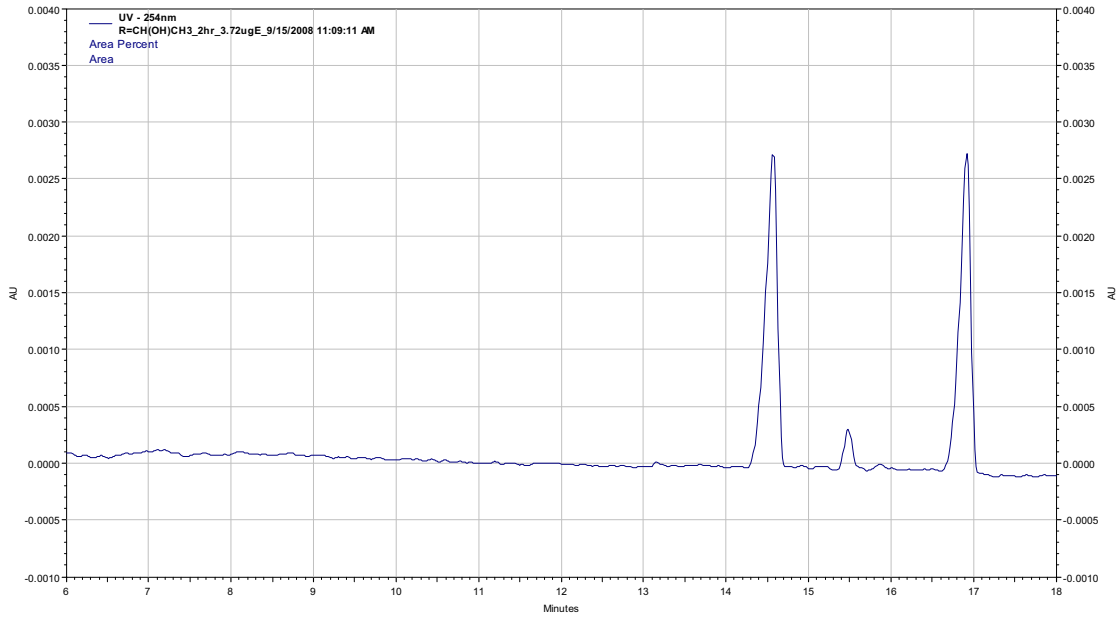


Fig. S4. (continued).

G. compound **7**, product MS (ESI): 618.2



H. compound **8**, product MS (ESI): 616.1

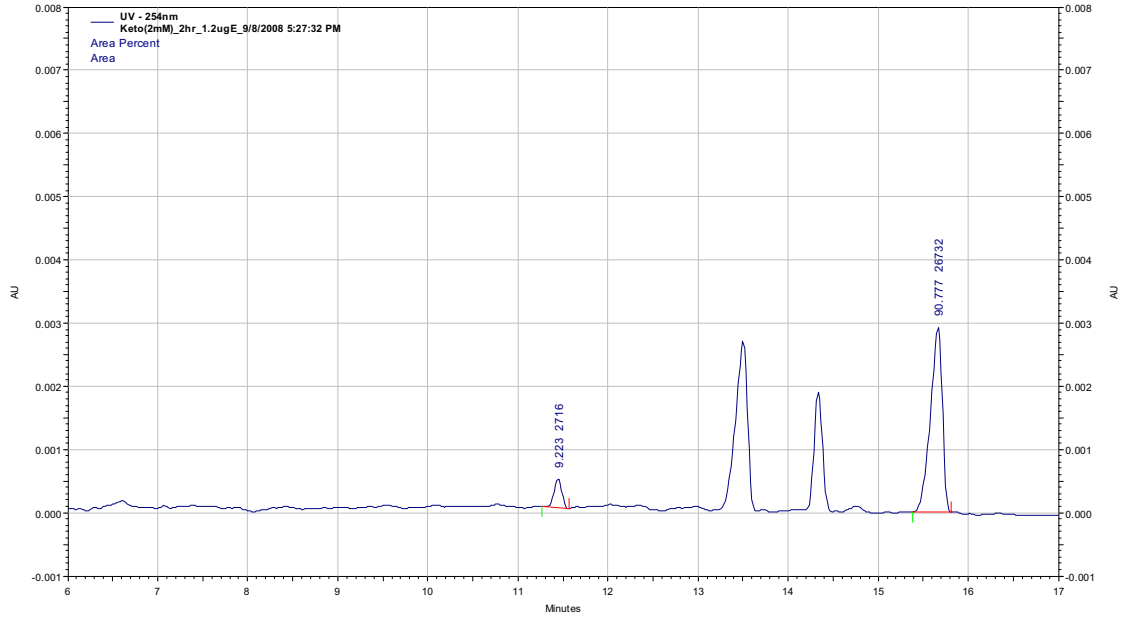
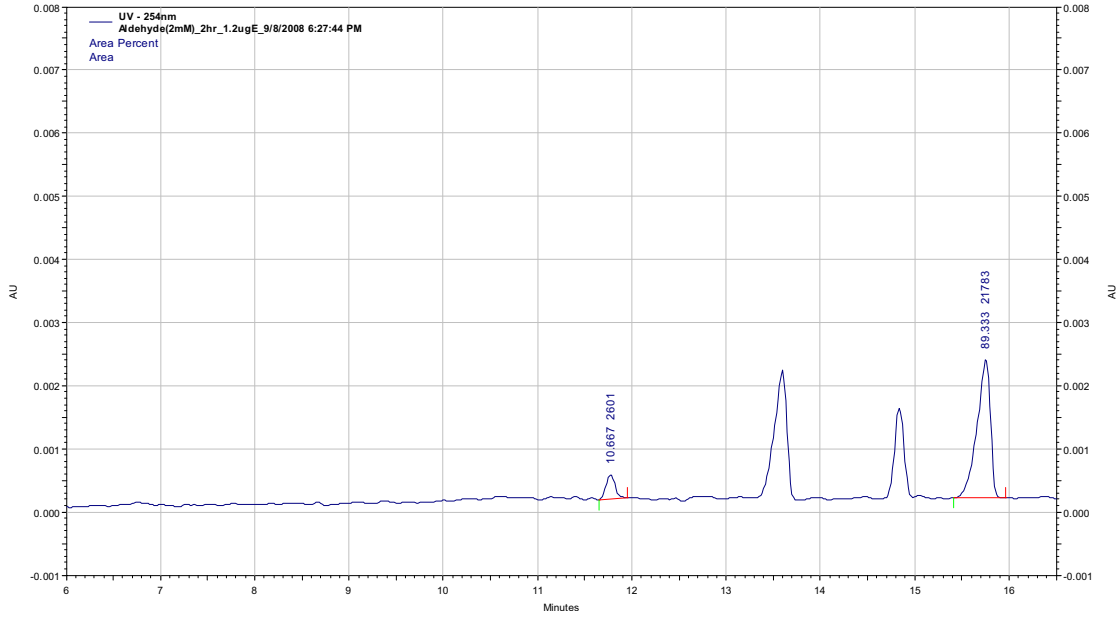


Fig. S4. (continued).

I. compound **9**, product MS (ESI): 602.3



J. compound **10**, product MS (ESI): 598.2

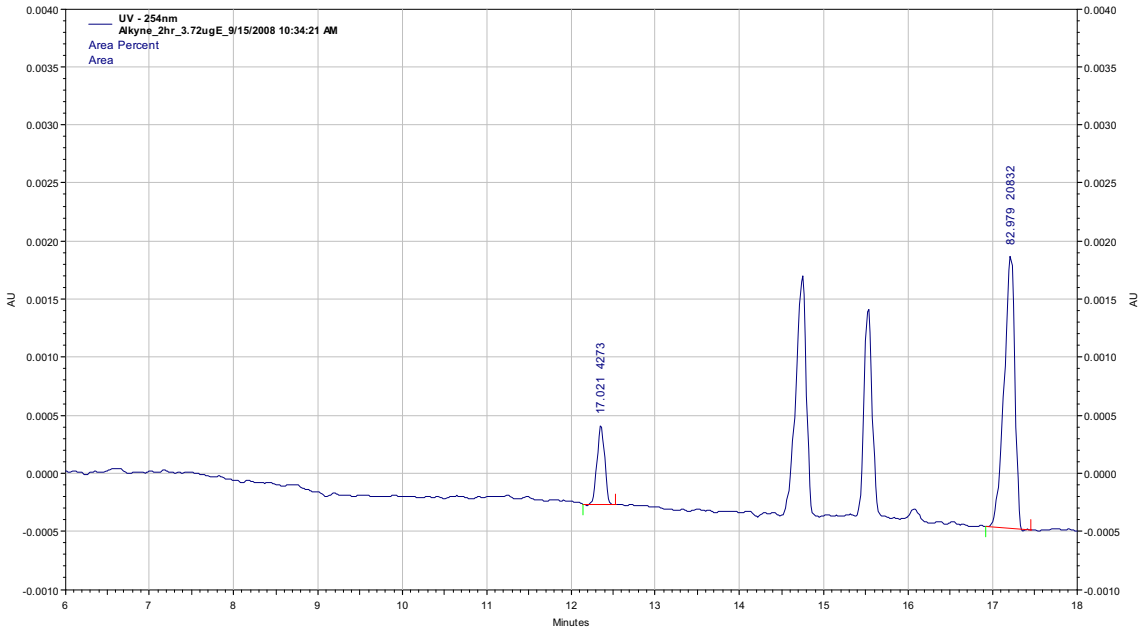


Fig. S4. (continued).

A. MS spectrum of LPS (compound **1**).

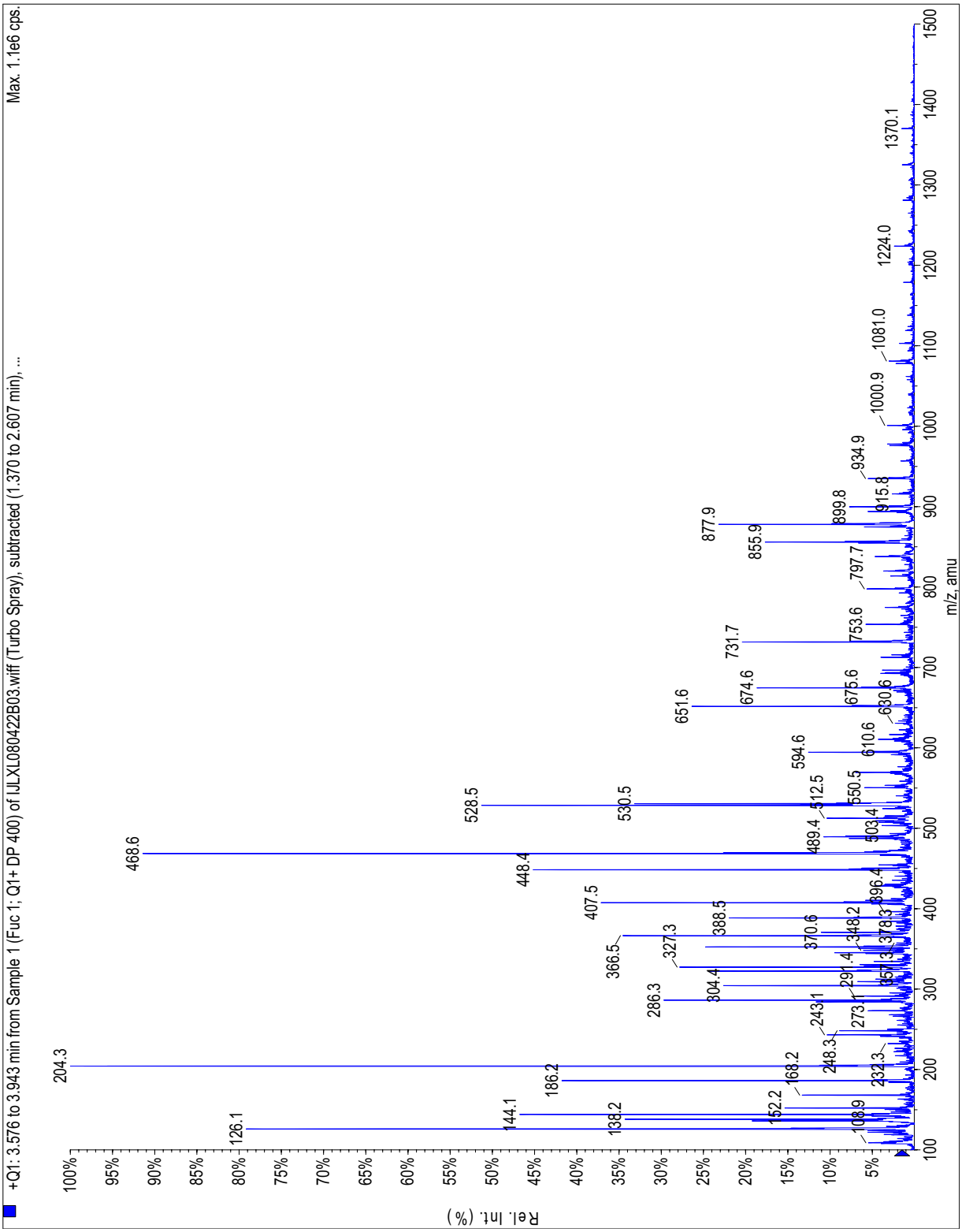


Fig. S5. MS spectra of intact LPSs.

B. MS spectrum of LPS (**3**)

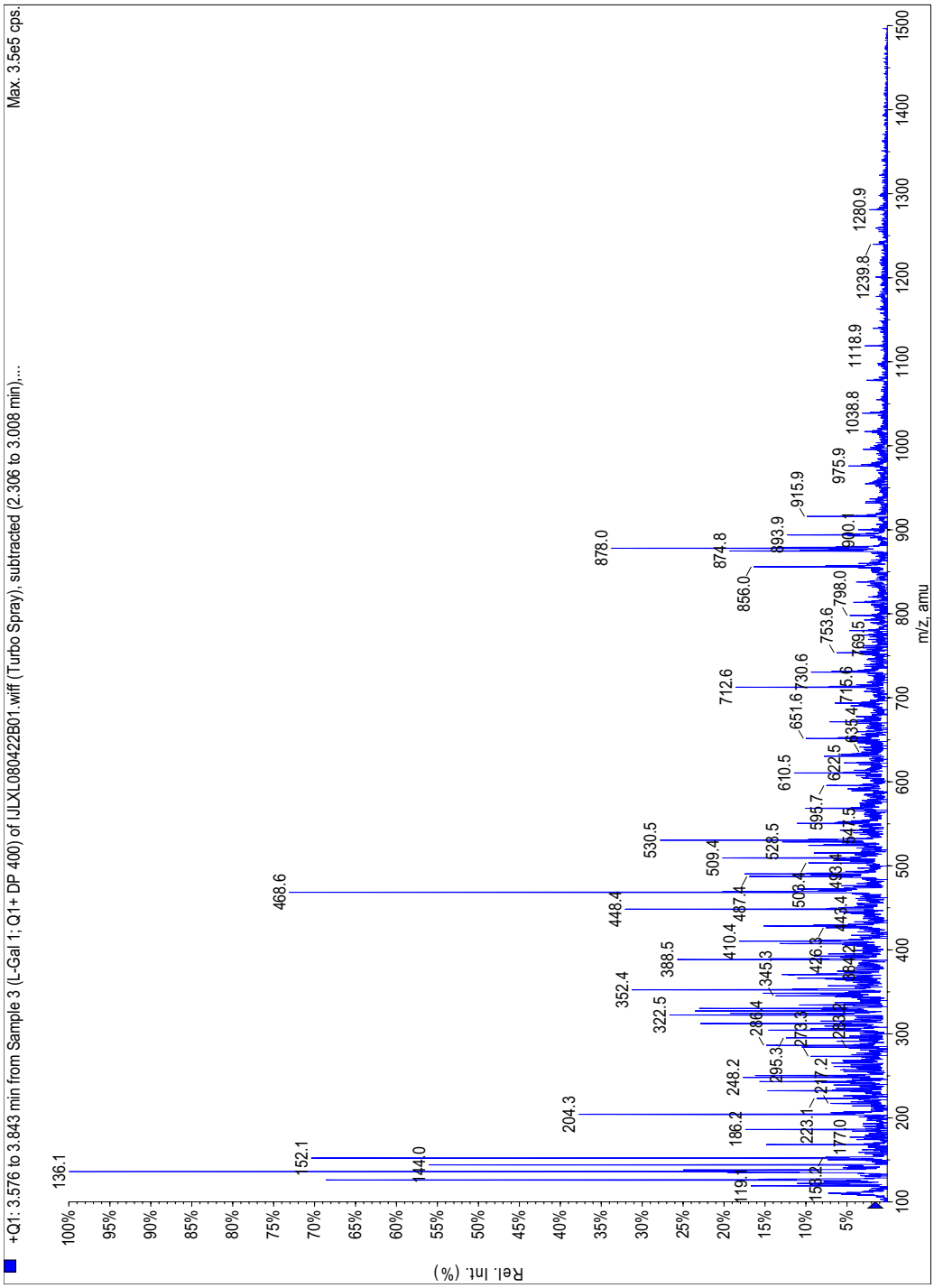


Fig. S5. (continued).

C. MS spectrum of LPS (**2**)

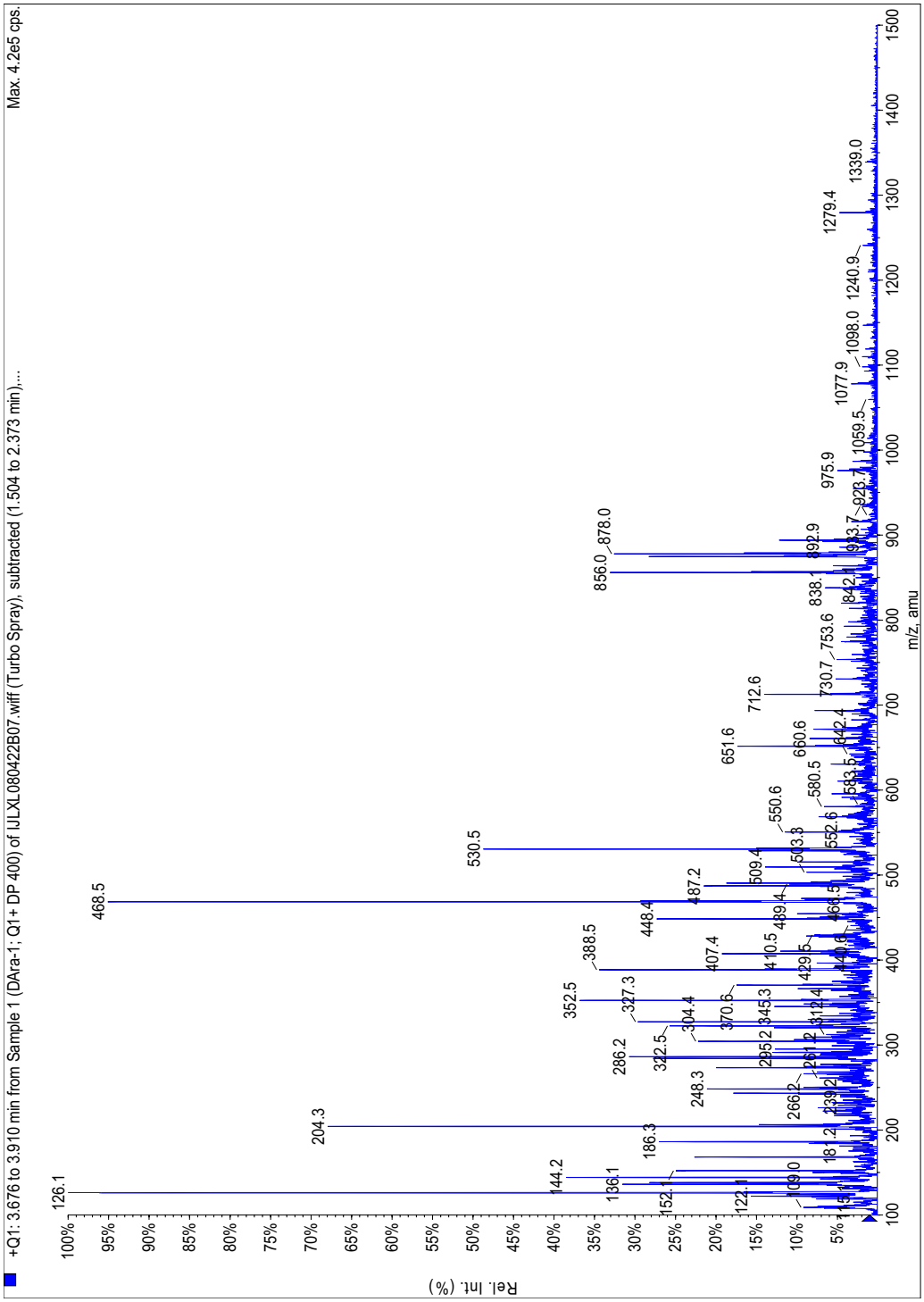


Fig. S5. (continued).

D. MS spectrum of LPS (**4**)

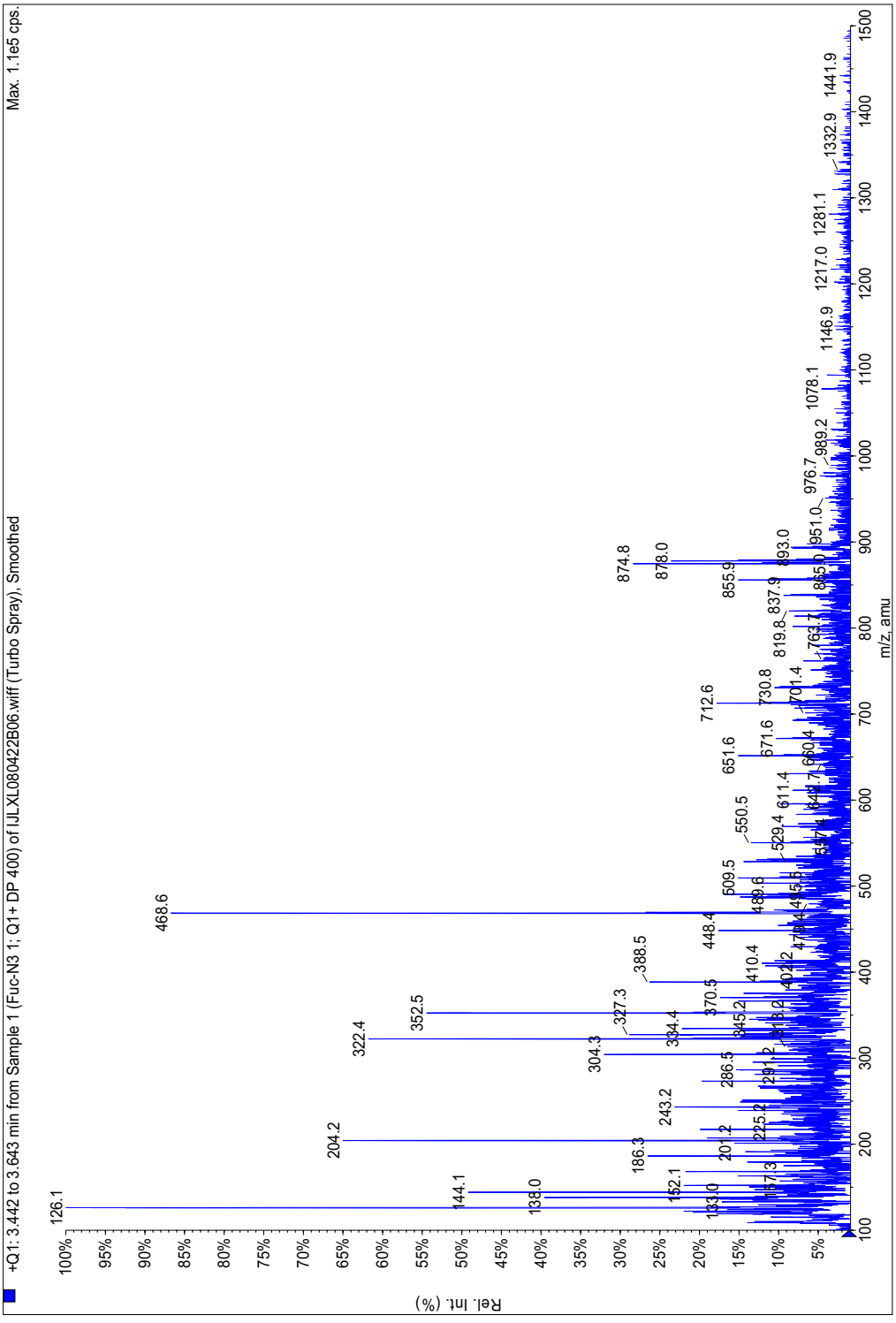


Fig. S5. (continued).

E. MS spectrum of LPS (**5**)

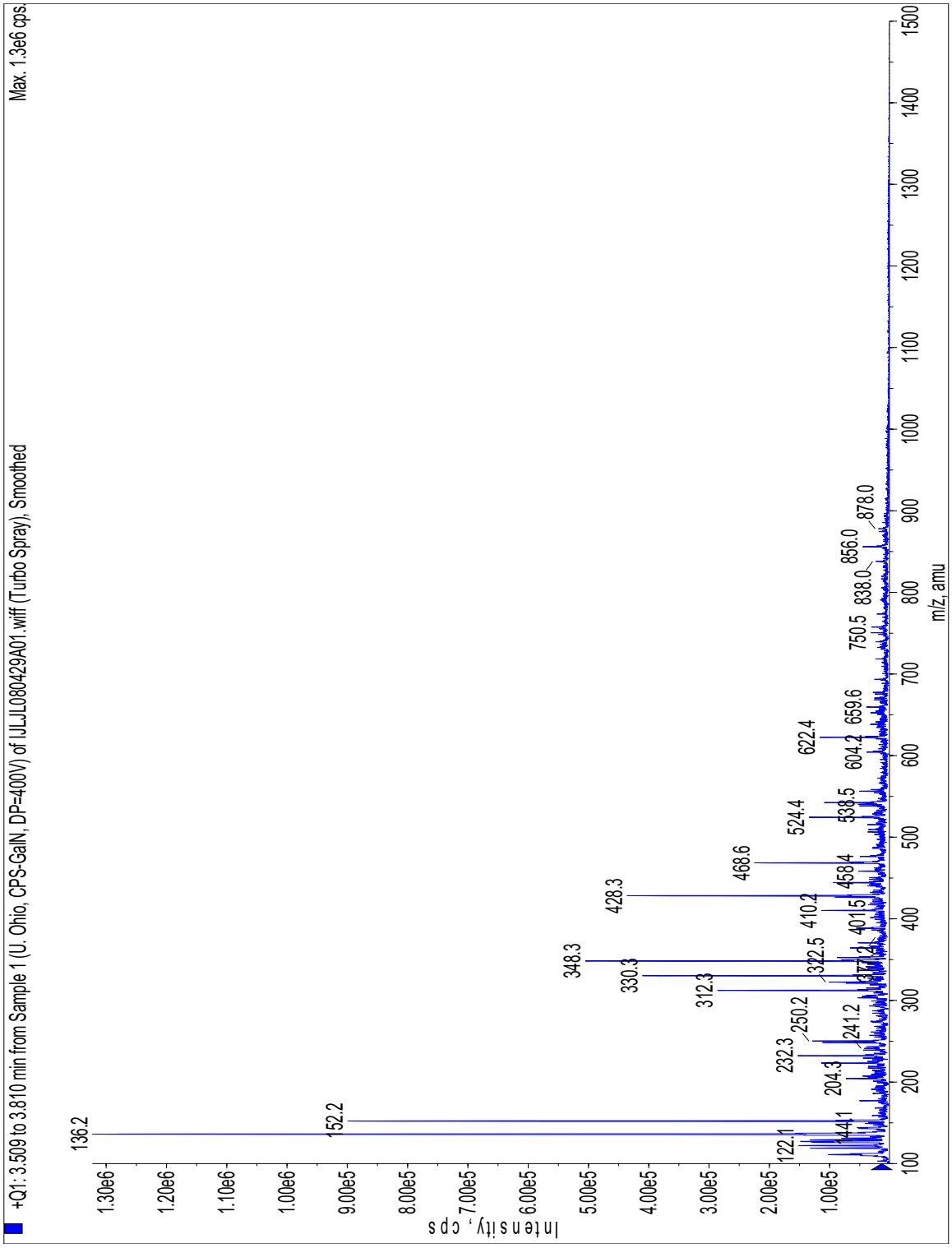


Fig. S5. (continued).

F. MS spectrum of LPS (**6**)

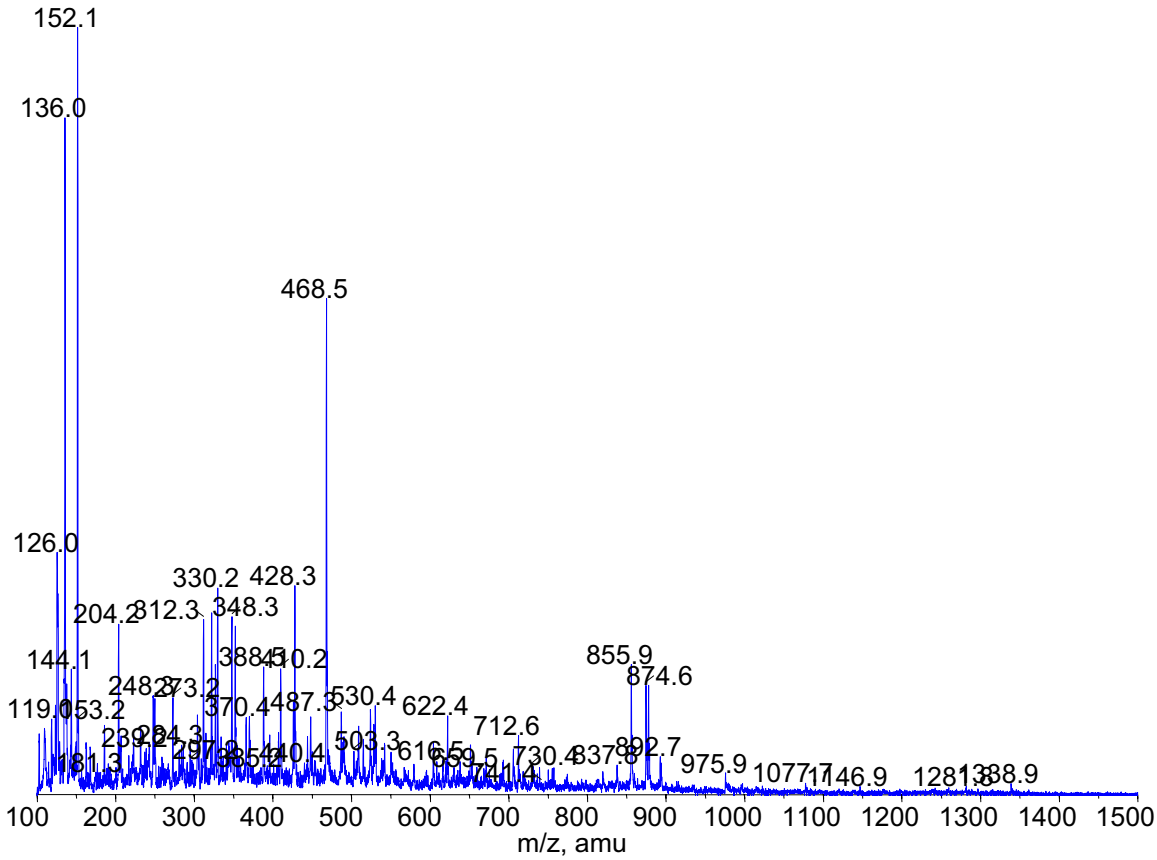


Fig. S5. (continued).

G. MS spectrum of LPS (**7**)

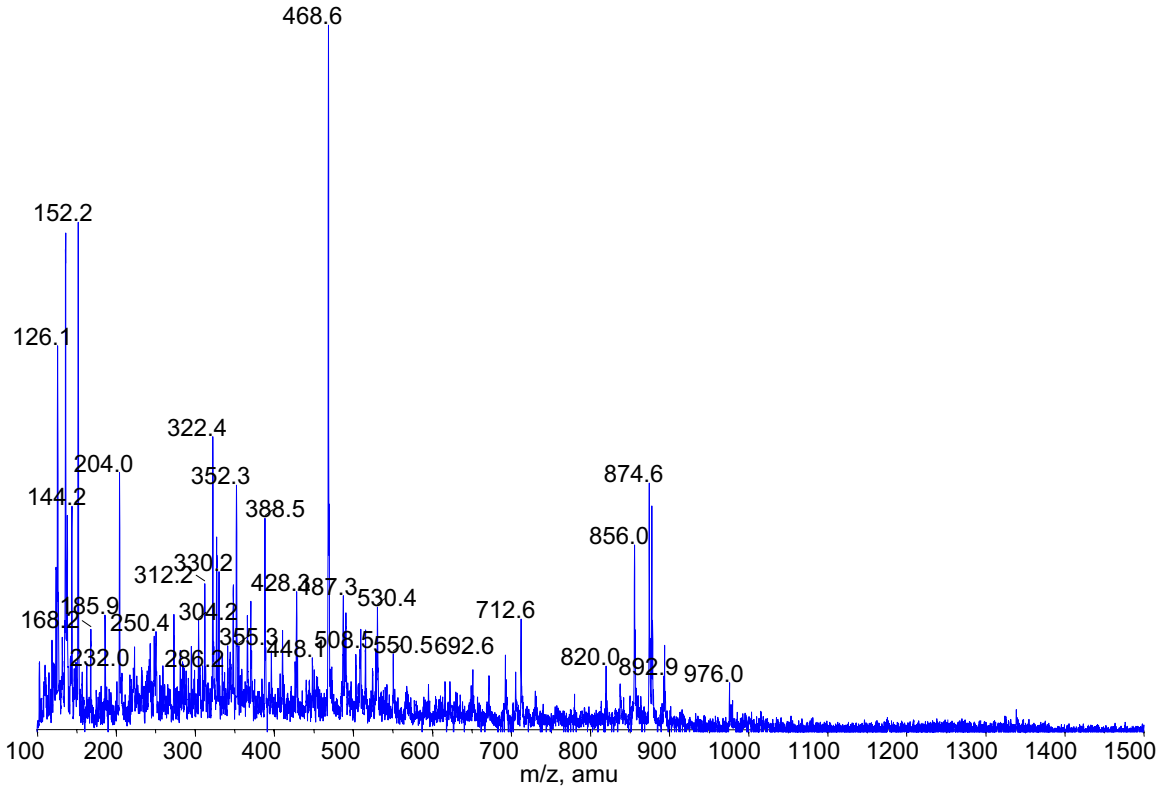


Fig. S5. (continued).

H. MS spectrum of LPS (**8**)

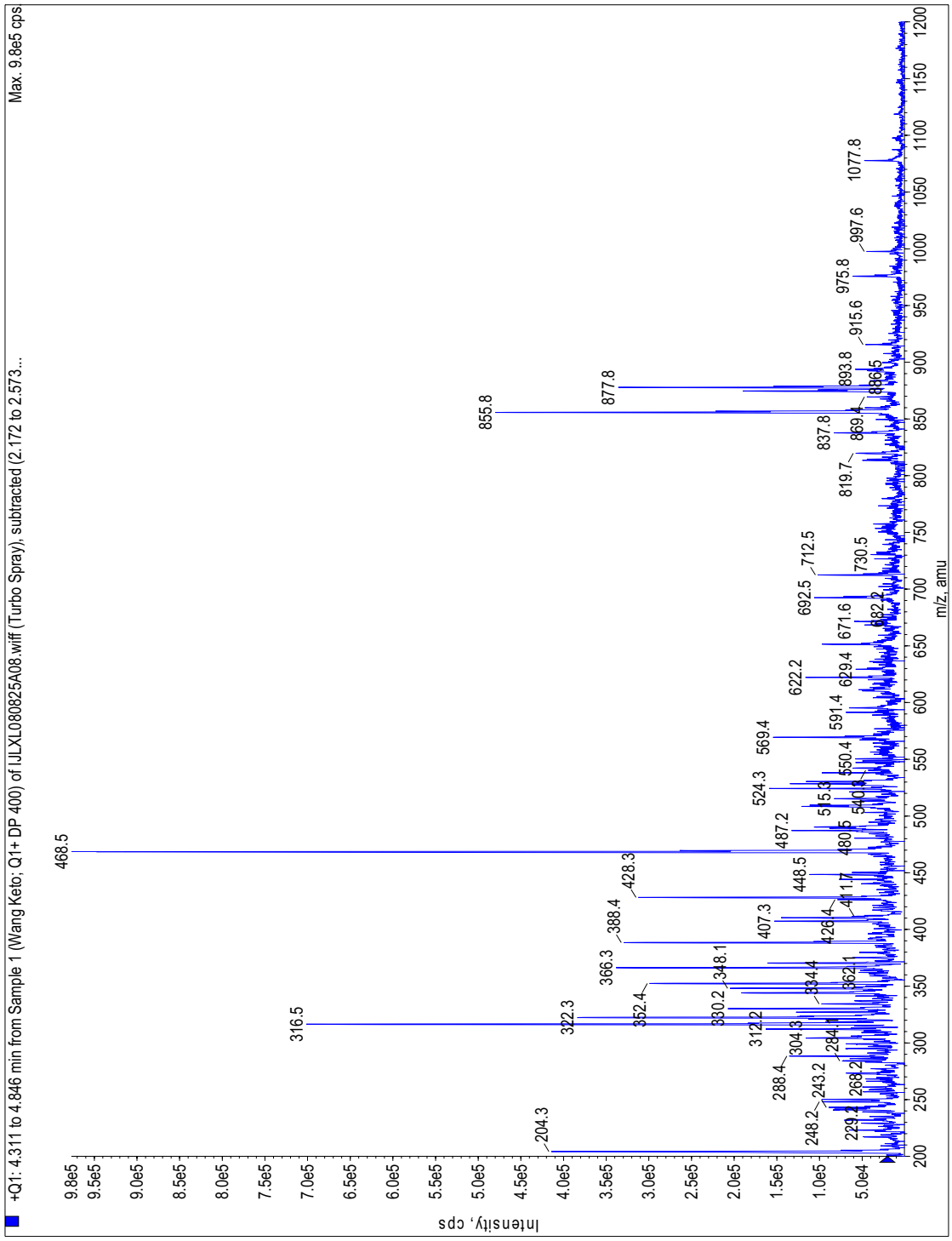


Fig. S5. (continued).

I. MS spectrum of LPS (**9**)

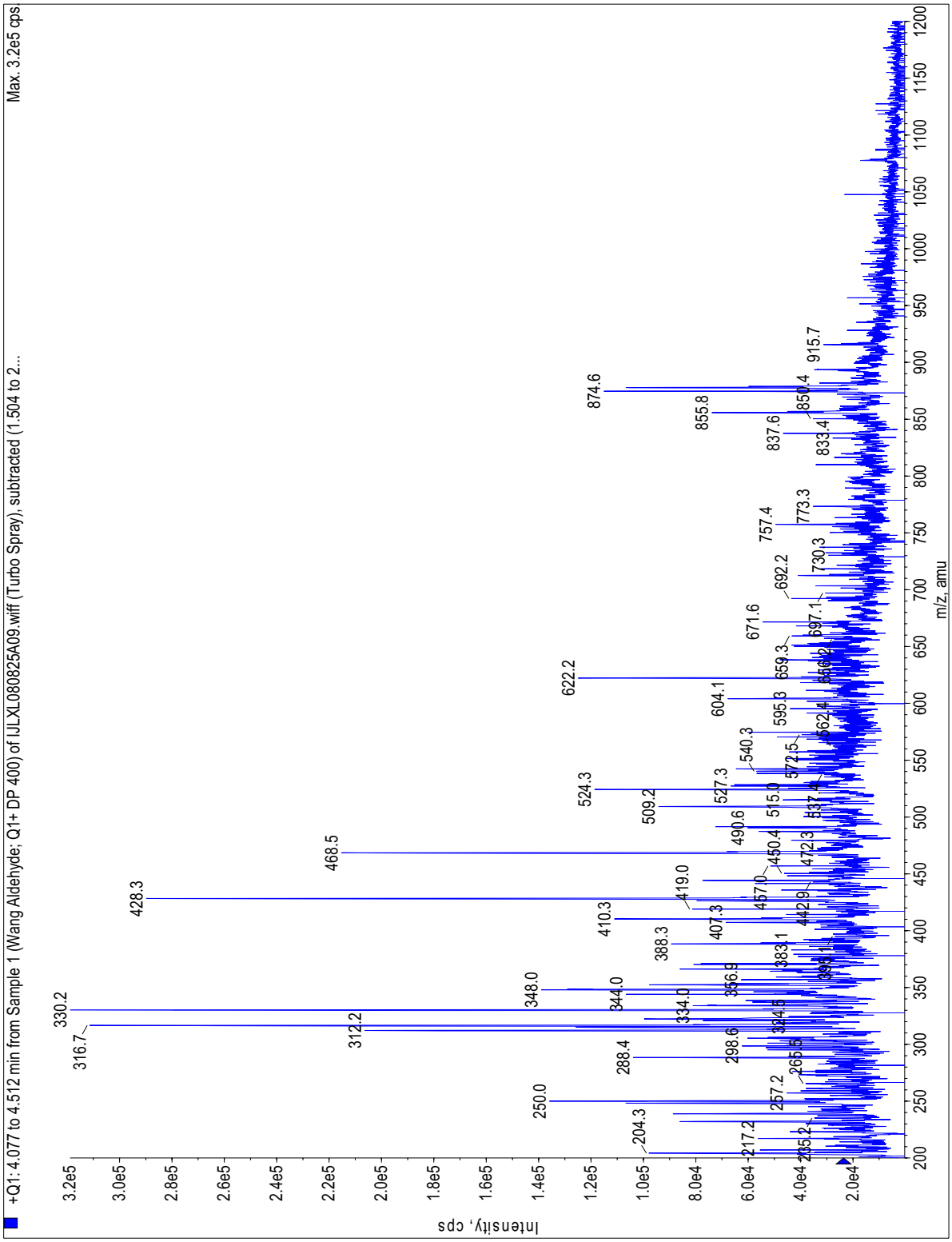


Fig. S5. (continued).

J. MS spectrum of LPS (**10**)

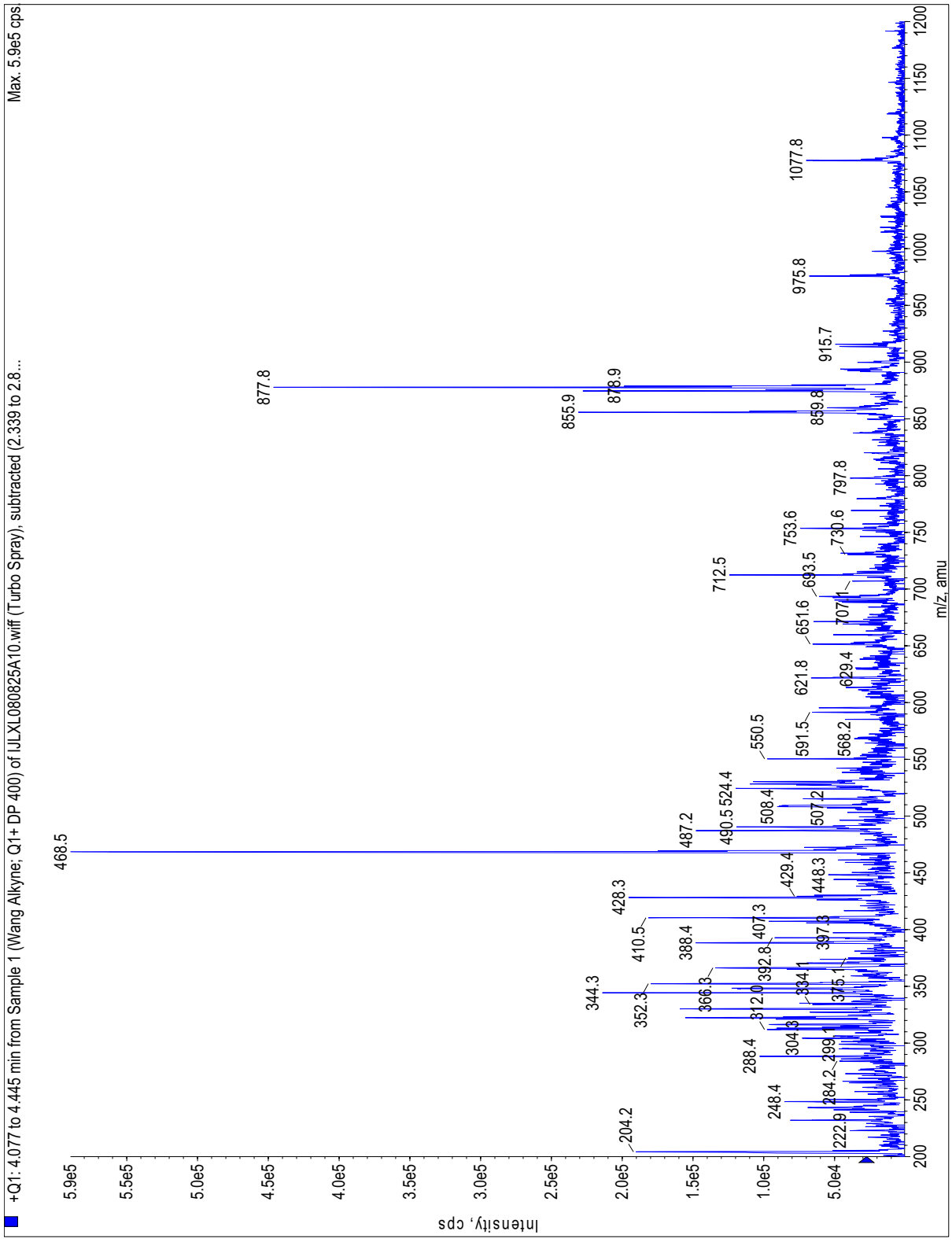
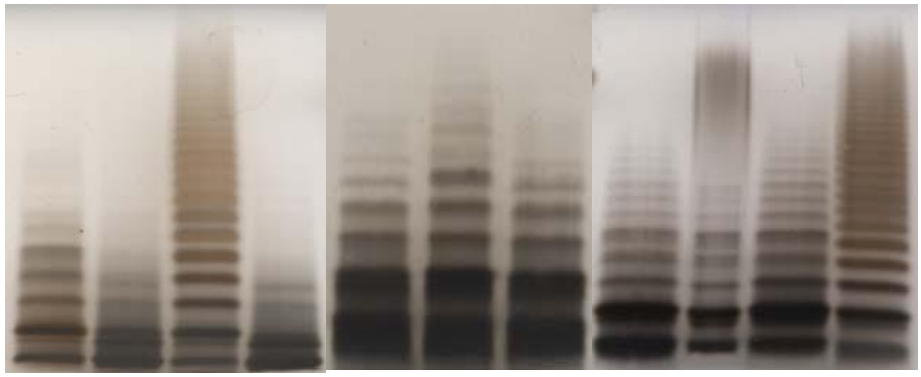


Fig. S5. (continued).



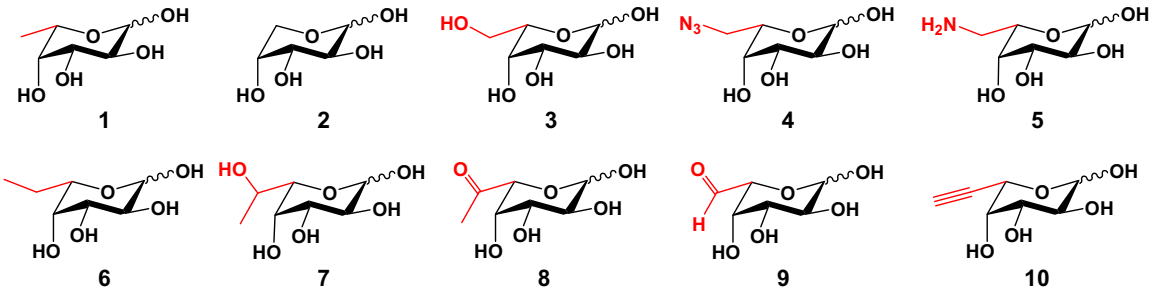


Fig. S6. Analysis of LPSs fed with different fucose analogs. Chemical structures of compounds are shown.

A. compound **5**

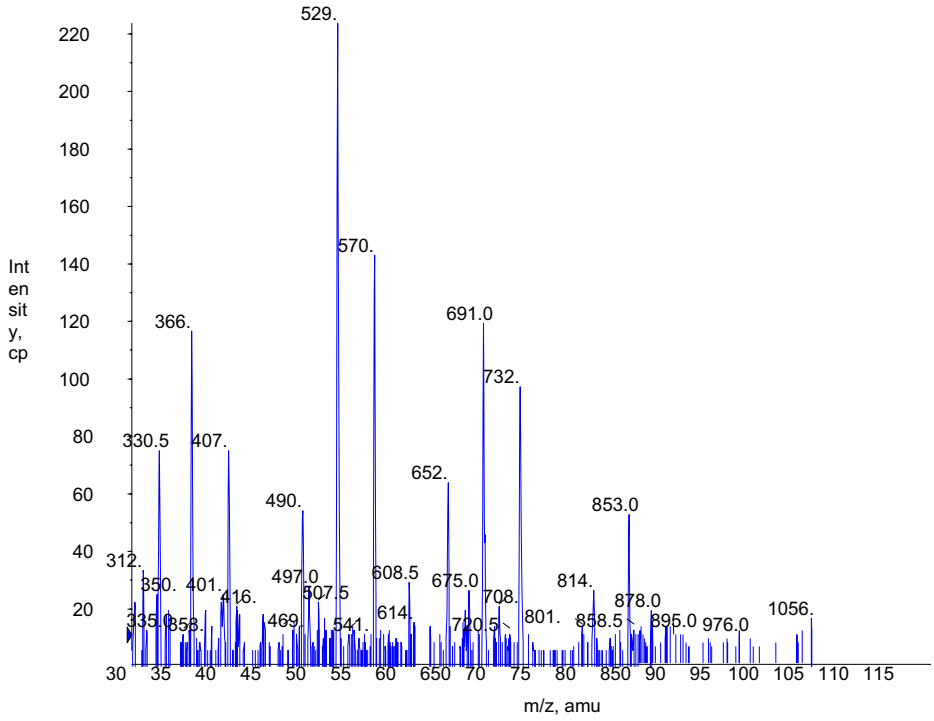


Fig. S7. Precursor-treated MS spectra.

B. compound **6**

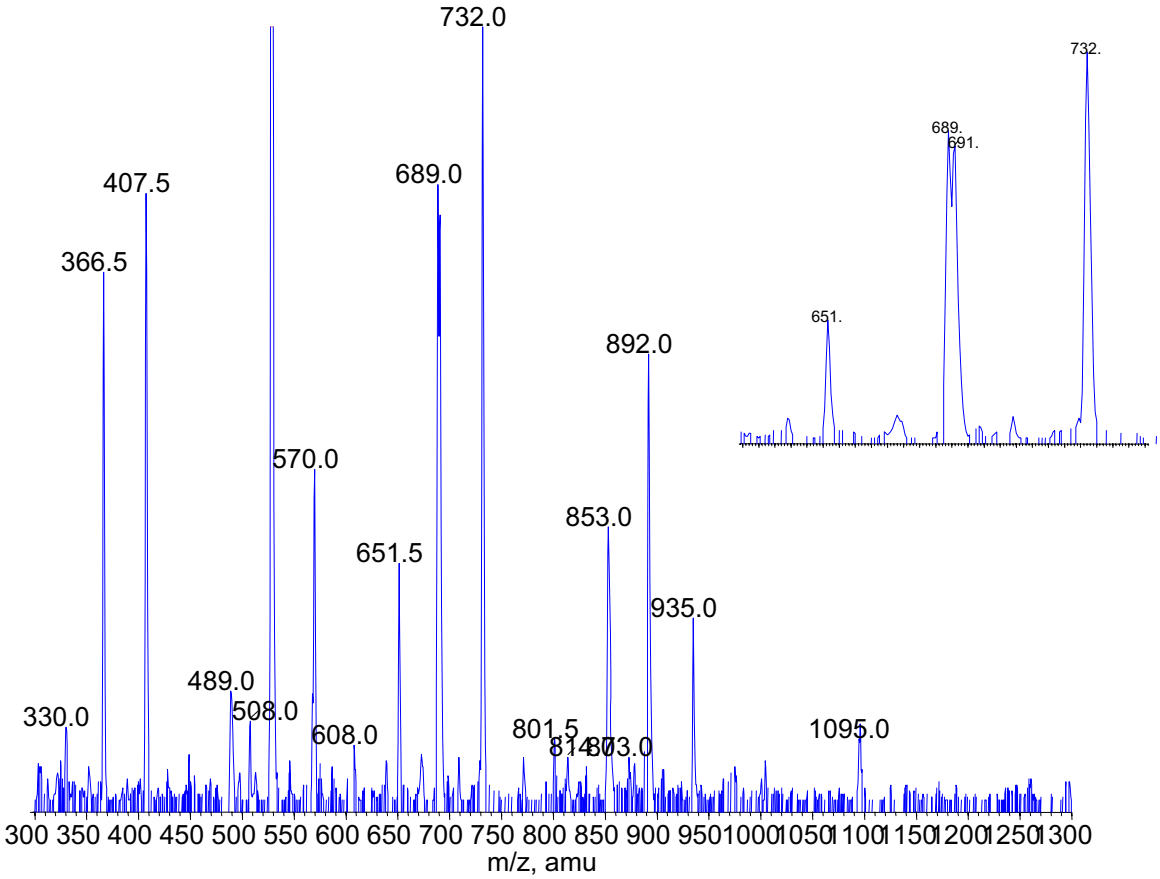


Fig. S7. (continued).

C. compound **7**

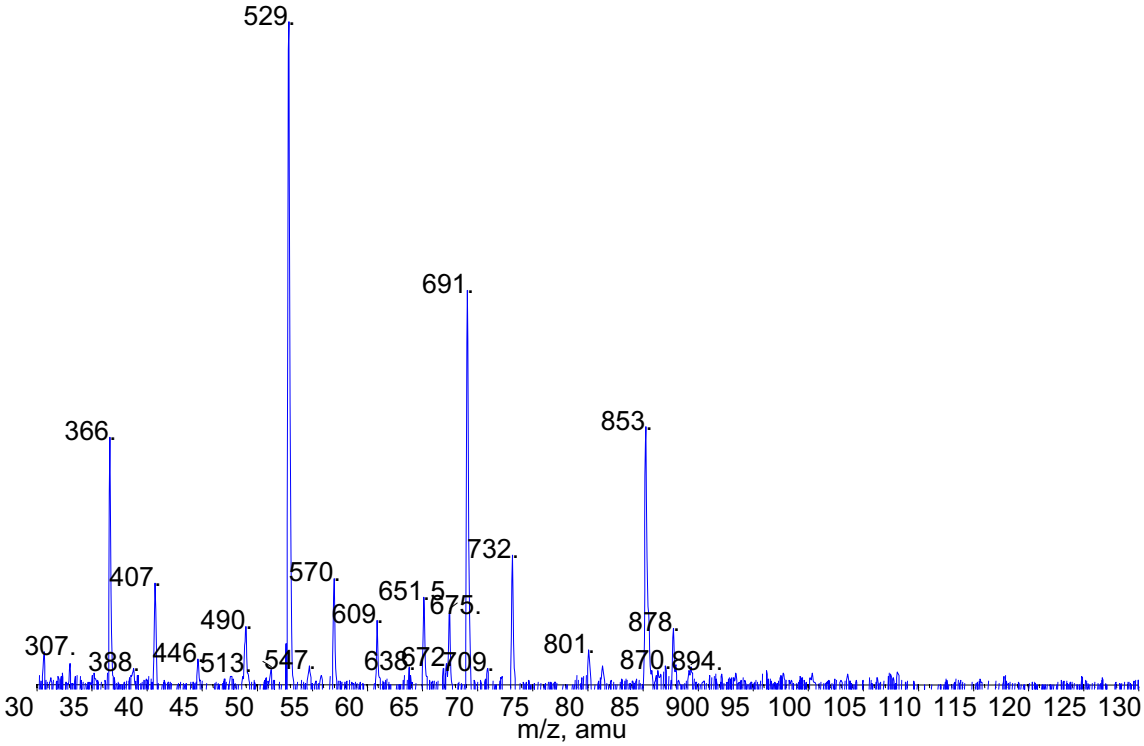


Fig. S7. (continued).

D. compound **10**

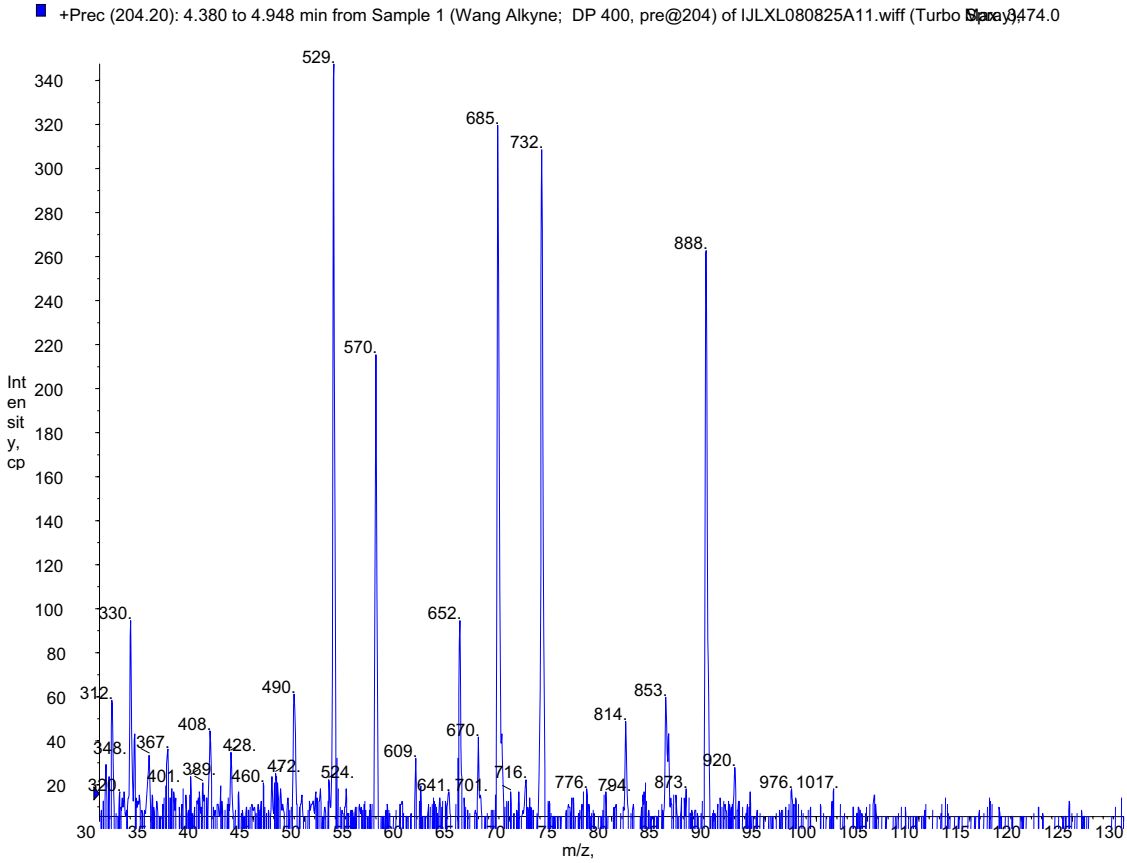


Fig. S7. (continued).

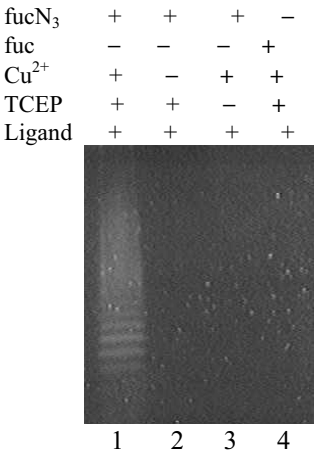


Fig. S8. Control experiments for in vitro polysaccharide labeling.

Other Supporting Information Files

SI Appendix