

**Figure S22. Alignment of JomP1 AT<sub>2</sub> conserved sequences with other acyltransferase domains.** StiA\_AT1, StiA\_AT2 and StiC\_AT: stimatellin biosynthesis [1] and MxaF\_AT1 and MxaF\_AT2: myxalamid biosynthesis in *S. aurantica* Sga15 [2].

JomP2_AT	GQASQY...GHSVGE...HAFH
StiC_AT	GQGSQY...GHSVGE...HAFH
JomP1_AT2	GQGGHT...GHSAGE...YPSH
MxaF_AT1	GHGSQW...GHSIGE...VAVH
StiA_AT1	GTGSQW...GHSIGE...TPSH
JomP1_AT1	GQGSQW...GHSLGE...VASH
StiA_AT2	GQGSQW...GHSMGE...VASH
MxaF_AT2	GQGSQW...GHSMGE...VASH
<b>Consensus</b>	GqgSQw...GHSxGE

**Figure S23. Genetic complementation of mutant  $\Delta jomM$ .** UPLC analysis of jomthonic acids production in  $\Delta jomM$  and complemented strain  $\Delta M$ -pSEJomM.

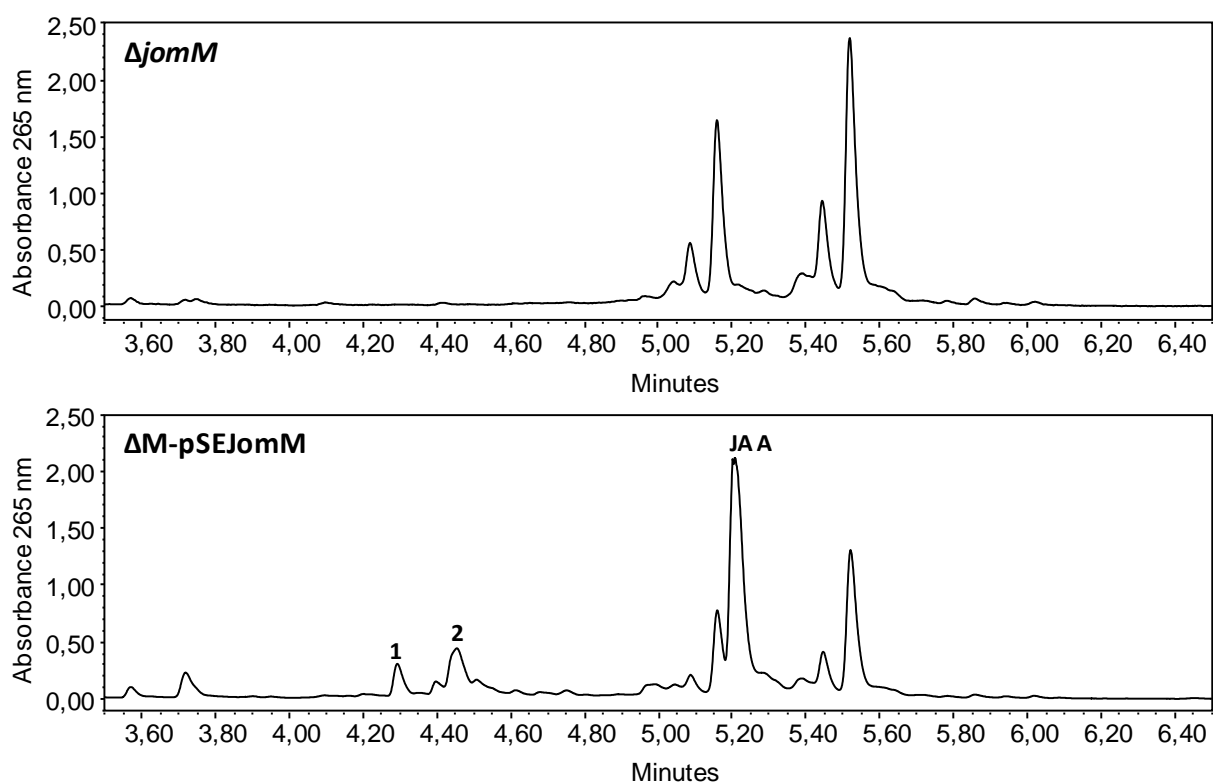
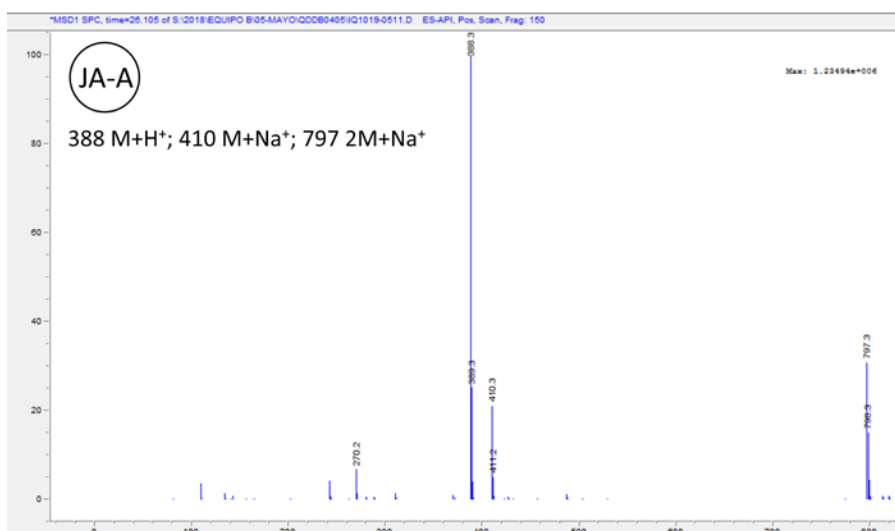
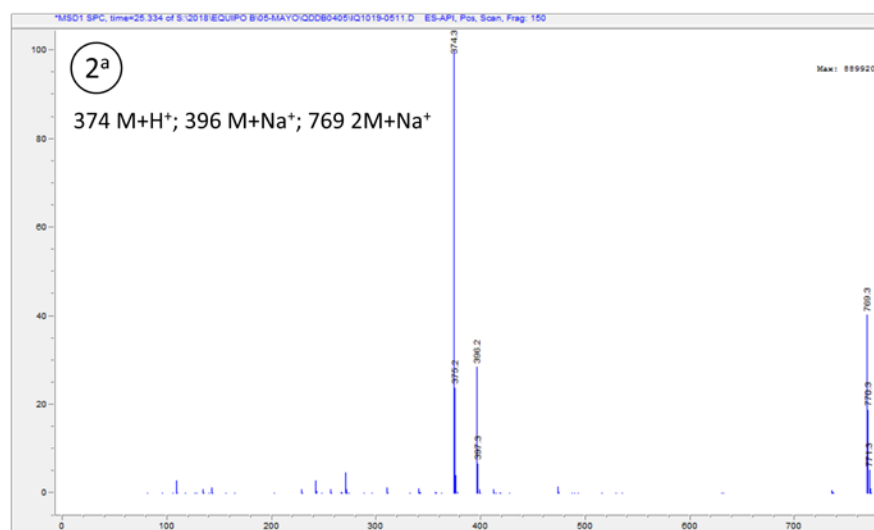
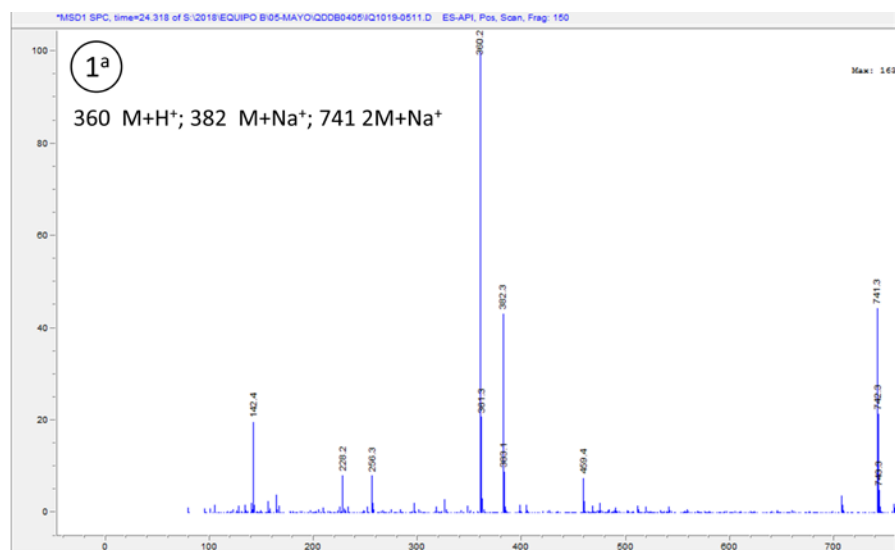
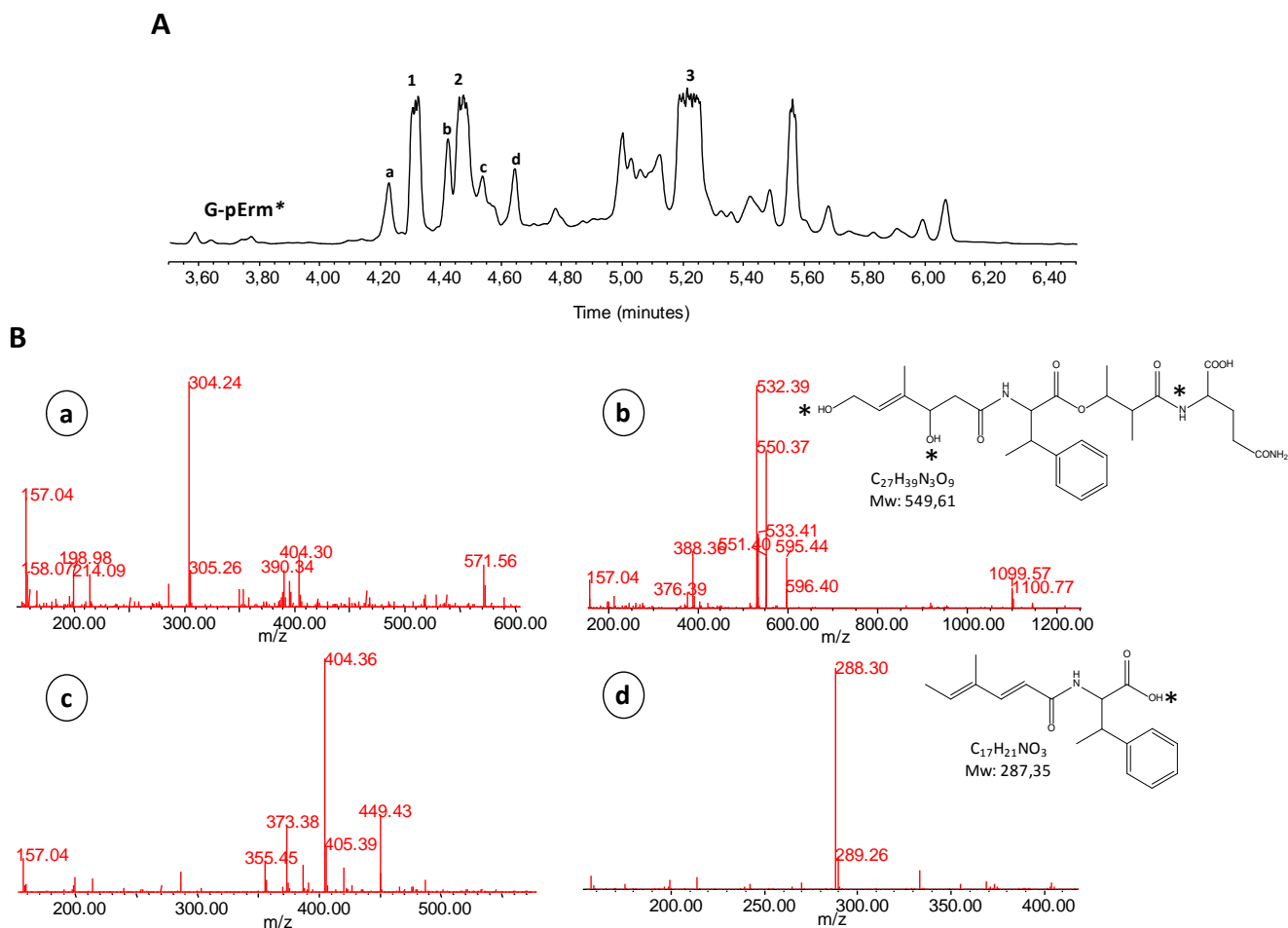


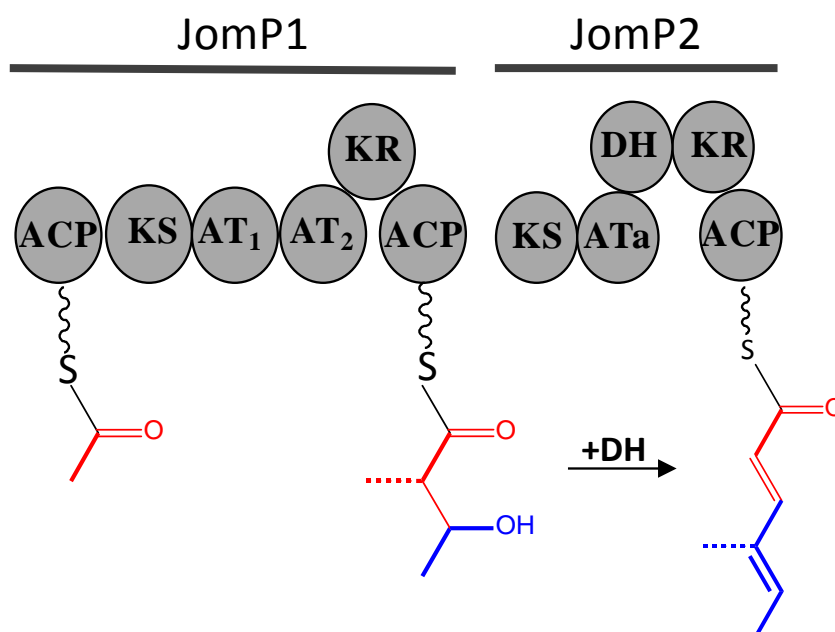
Figure S24. Mass spectra of compounds 1<sup>a</sup>-2<sup>a</sup>.



**Figure S25. Identification of additional potential jomthonic acids.** A) UPLC analysis of 5-fold concentrated extracts from *G-permE\**. B) Mass spectra of four additional compounds with jomthonic acid absorption spectra. Based on mass spectra, a tentative chemical structure is suggested for compound **b** and **d**.



**Figure S26. Alternative biosynthesis model of the JAs polyketide chain.** JomP1AT<sub>1</sub> transfer the starting unit malonil-CoA and AT<sub>2</sub> catalyzes an extension with methylmalonil-CoA. A dehydration reaction (+DH) is required to achieve the final structure of the polyketide chain present in JA A.



## References

1. Gaitatzis, N.; Silakowski, B.; Kunze, B.; Nordsiek, G.; Blöcker, H.; Höfle, G.; Müller, R. The biosynthesis of the aromatic myxobacterial electron transport inhibitor stigmatellin is directed by a novel type of modular polyketide synthase. *J. Biol. Chem.* **2002**, 277, 13082–90, doi:10.1074/jbc.M111738200.
2. Silakowski, B.; Nordsiek, G.; Kunze, B.; Blöcker, H.; Müller, R. Novel features in a combined polyketide synthase/non-ribosomal peptide synthetase: the myxalamid biosynthetic gene cluster of the myxobacterium *Stigmatella aurantiaca* Sga15. *Chem. Biol.* **2001**, 8, 59–69.