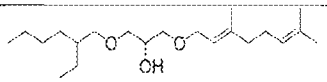
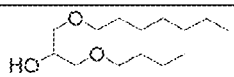
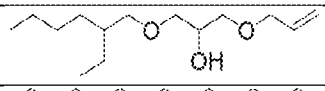
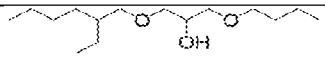
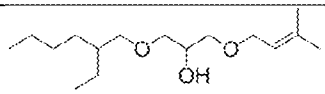
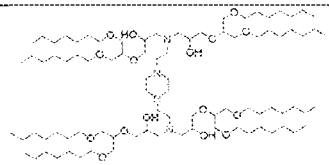
1-((3,7-dimethylocta-2,6-dien-1-yl)oxy)-3-((2-ethylhexyl)oxy)propan-2-ol	$C_{21}H_{40}O_3$		**1-6** N/A
1-butoxy-3-(heptyloxy)propan-2-ol	$C_{14}H_{30}O_3$		**1-7** 3098962-24-1
1-(allyloxy)-3-((2-ethylhexyl)oxy)propan-2-ol	$C_{14}H_{28}O_3$		**1-8** N/A
1-butoxy-3-((2-ethylhexyl)oxy)propan-2-ol	$C_{15}H_{32}O_3$		**1-9** 63167-08-9
1-((2-ethylhexyl)oxy)-3-((3-methylbut-2-en-1-yl)oxy)propan-2-ol	$C_{17}H_{35}O_3$		**1-10** N/A
15,15'-(piperazine-1,4-diylbis(ethane-2,1-diyl))bis(10,20-bis((heptyloxy)methyl)-8,11,19,22-tetraoxa-15-azanonacosane-13,17-diol)	$C_{88}H_{180}N_4O_{16}$		**3-1 (PIP)** N/A

The synthetic design also makes the platform chemically divergent rather than single-purpose. As shown in Scheme 1, the common glycerol-diether alcohol intermediate can be directed toward ionizable lipid synthesis or redirected to glycerol-derived thiols. In addition, several members of the tail library contain alkene functionality, providing complementary handles for thiol–ene chemistry and other postfunctionalization strategies. Together with recent nonsymmetric alkene and glycerol-derived methacrylate studies[13, 27, 28] this route demonstrates that glycerol-derived tail precursors can serve as shared intermediates for delivery-oriented amphiphiles, sulfur-containing derivatives, and other functional materials. Thus, the present work extends glycerol-derived small-molecule chemistry into a broader synthetic framework for larger multifunctional architectures.