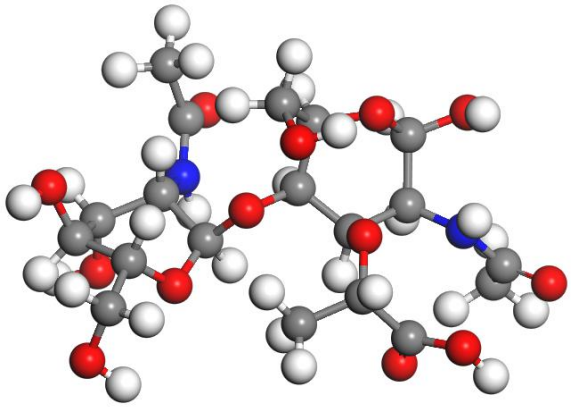
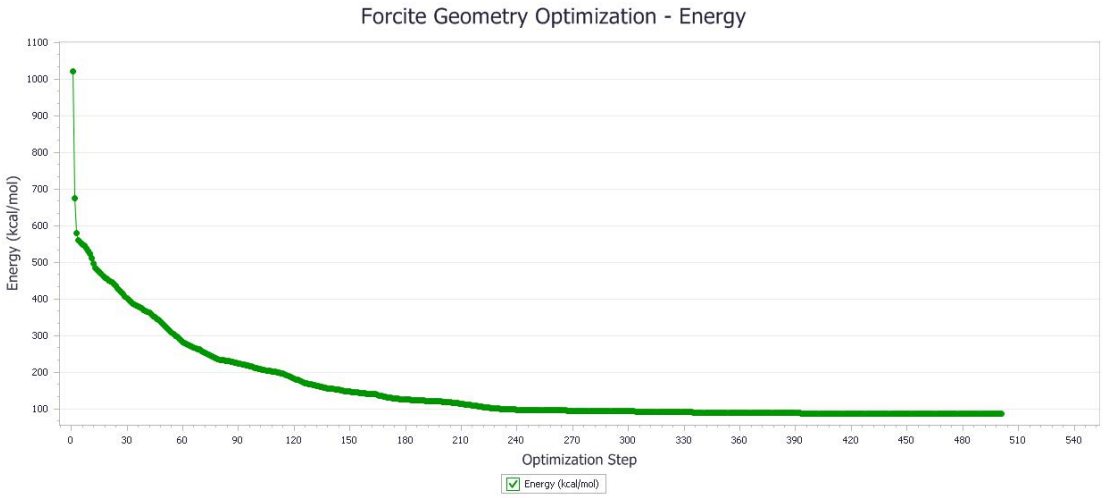


Figure S1. Optimized structure of N-acetylglucosamine-N-acetylsalicylic acid β-1,4 Glucoside (β-1,4 Glucoside)



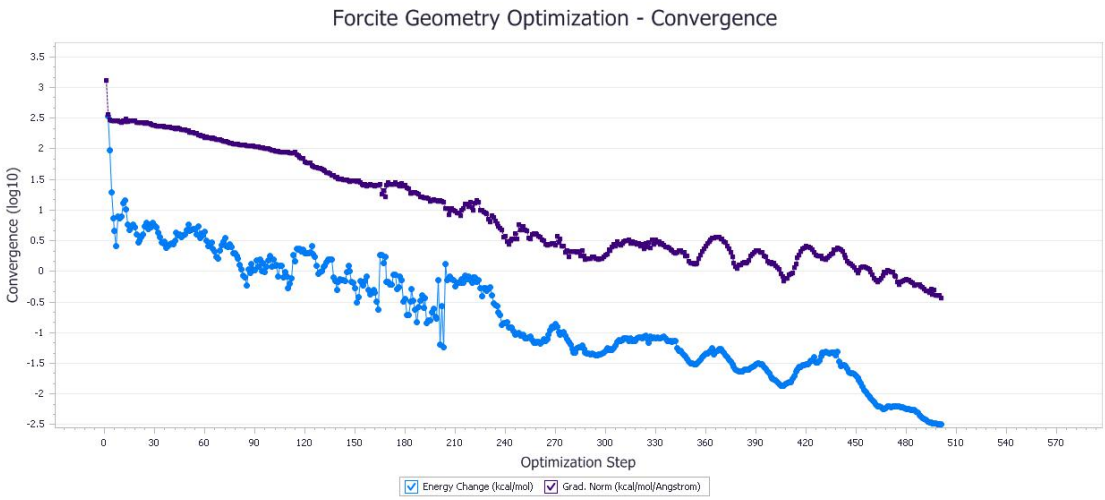


Figure S2. the energy and convergence of β-1,4 Glucoside

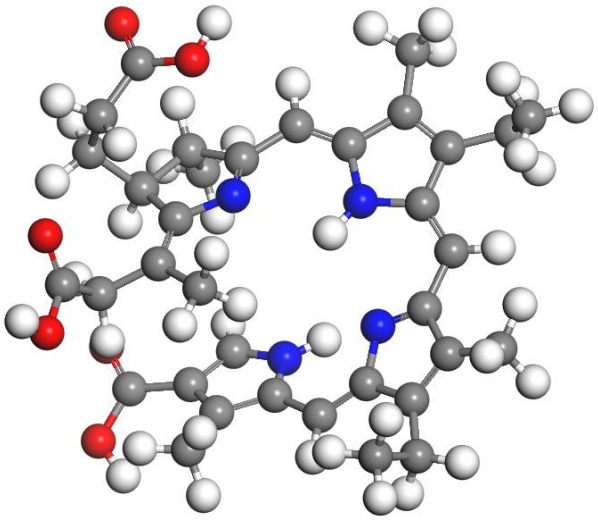


Figure S3. Optimized structure of Ce6

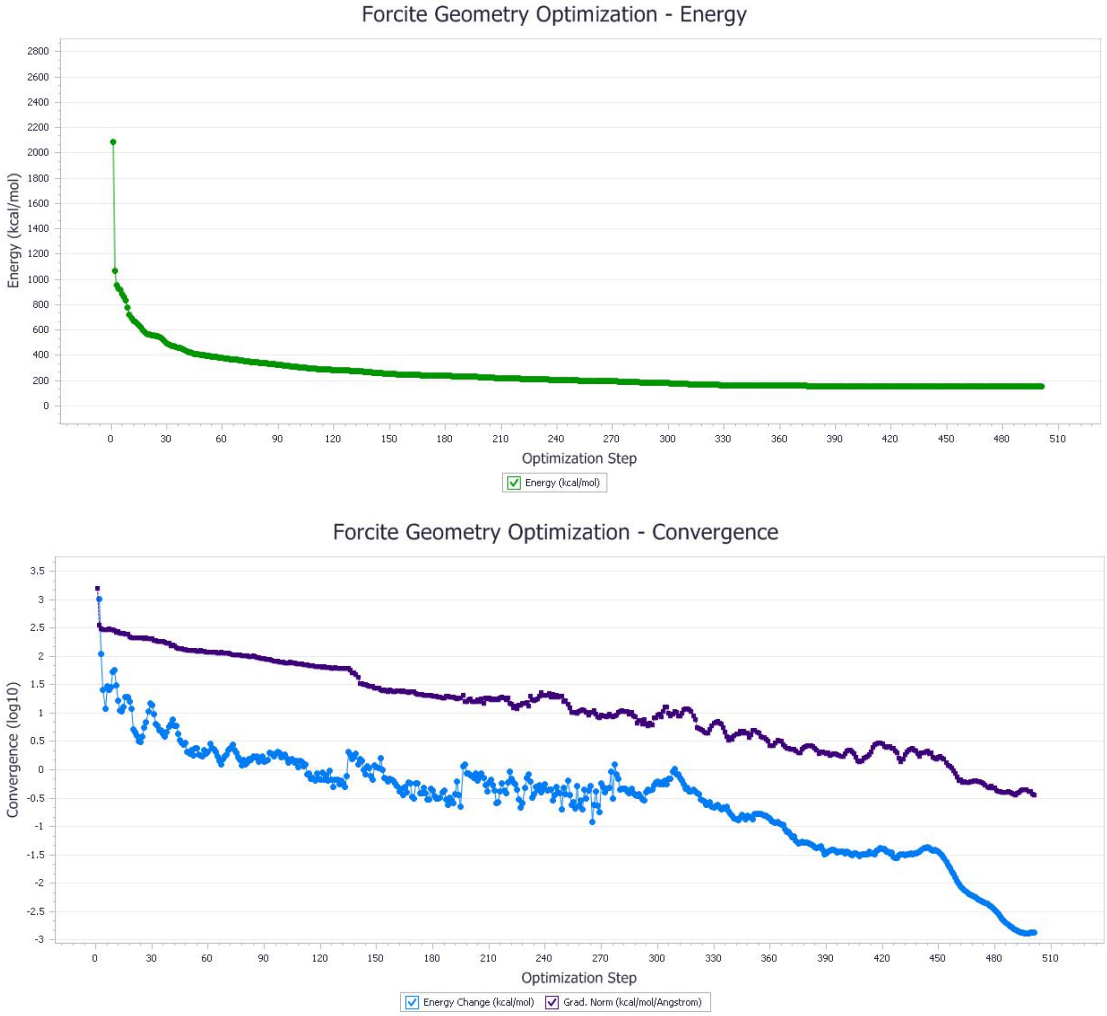


Figure S4. the energy and convergence of Ce6

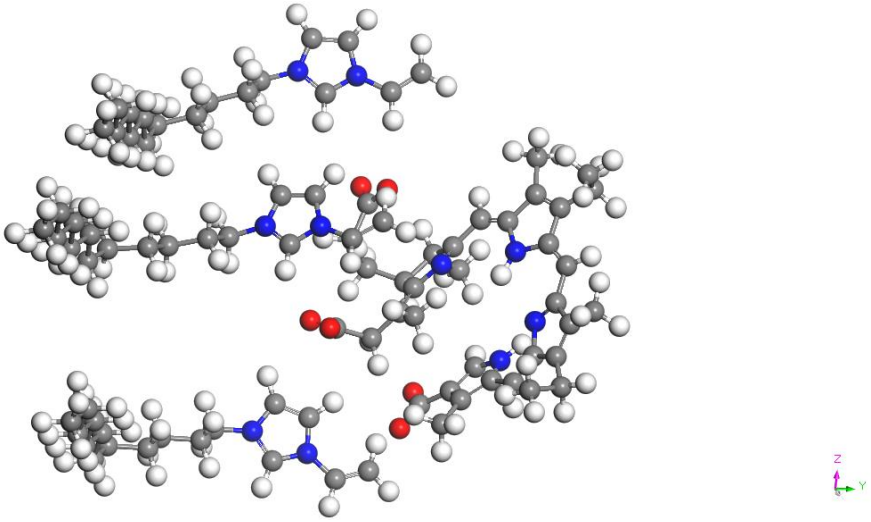
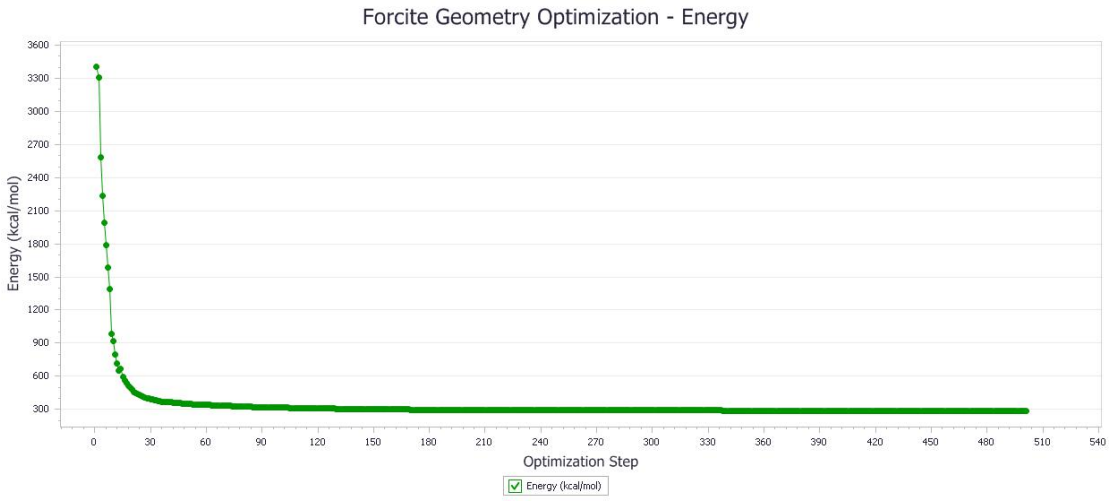


Figure S5. Optimized structure of Ce6-IL



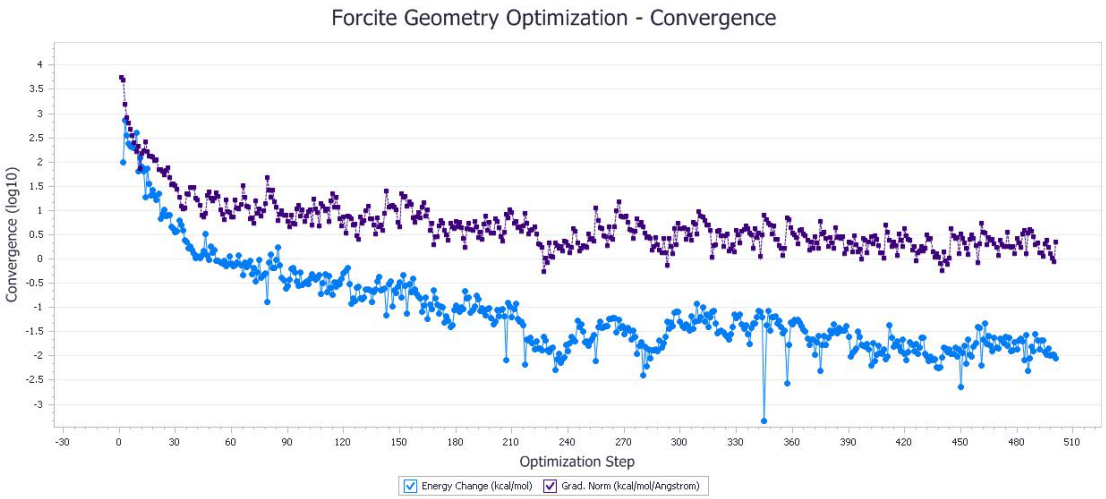


Figure S6. the energy and convergence of Ce6-IL

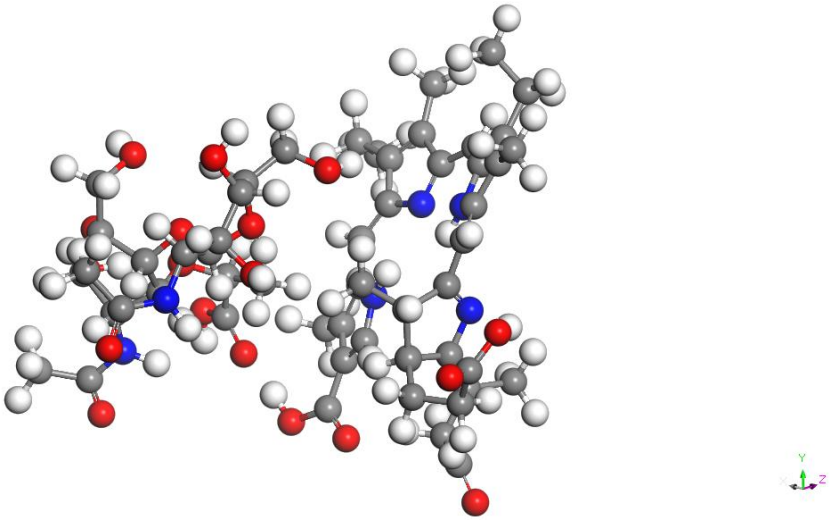
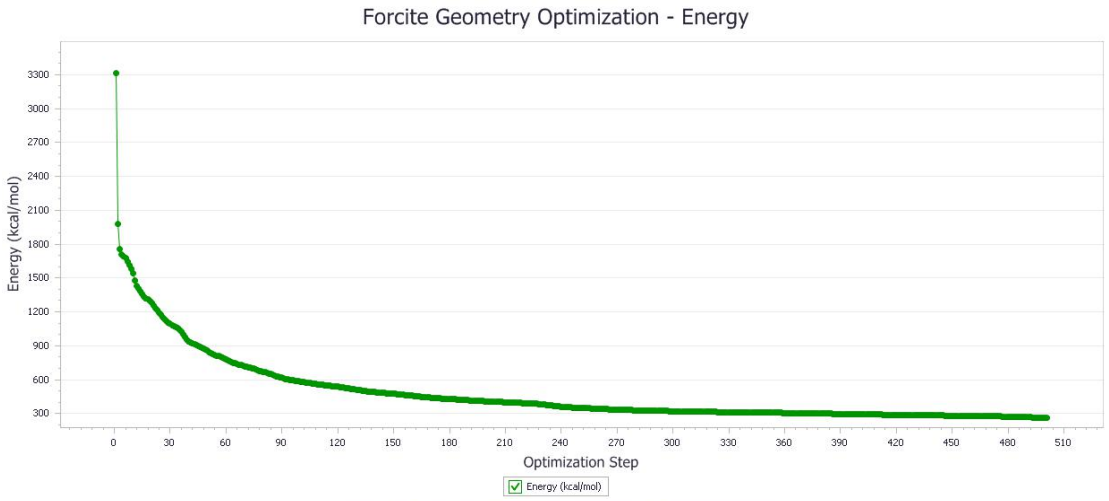


Figure S7. Optimized structure of Ce6 with β-1,4 Glucoside



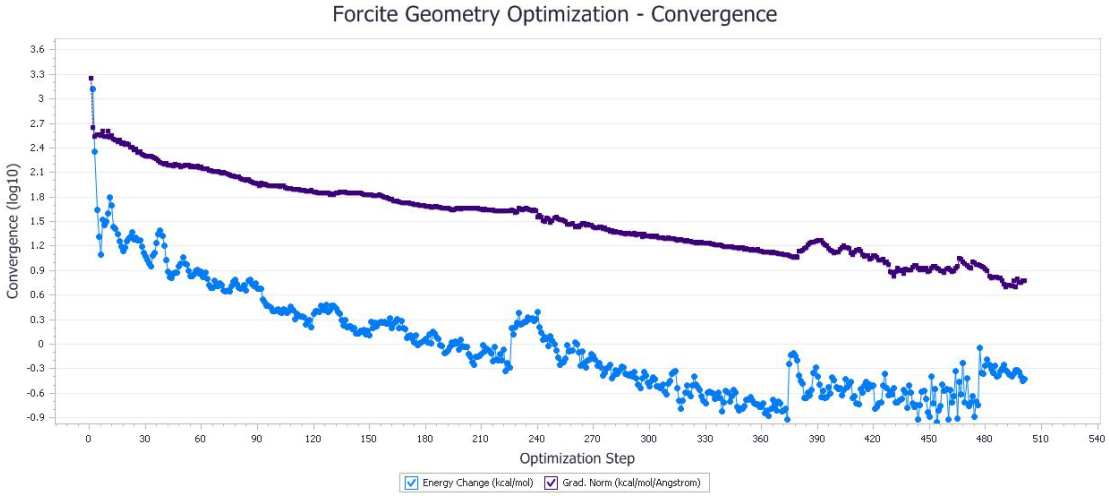


Figure S8. The energy and convergence of Ce6-ILwith β-1,4 Glucoside

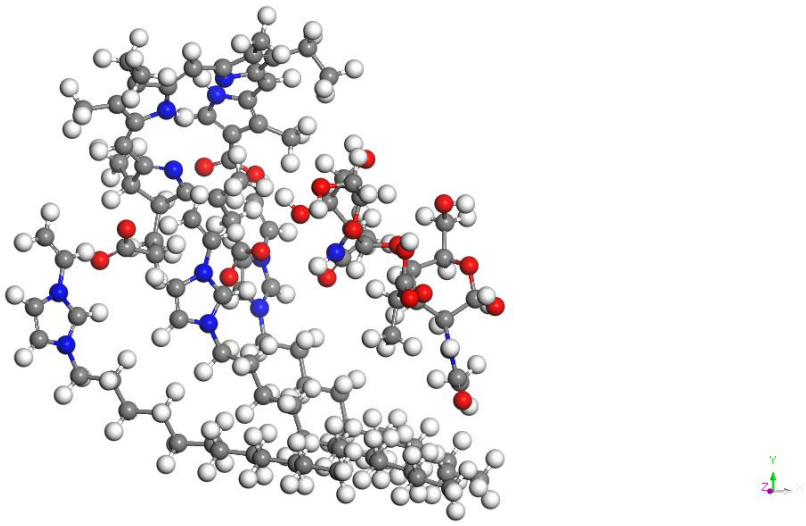


Figure S9. Optimized structure of Ce6-IL with β-1,4 Glucoside

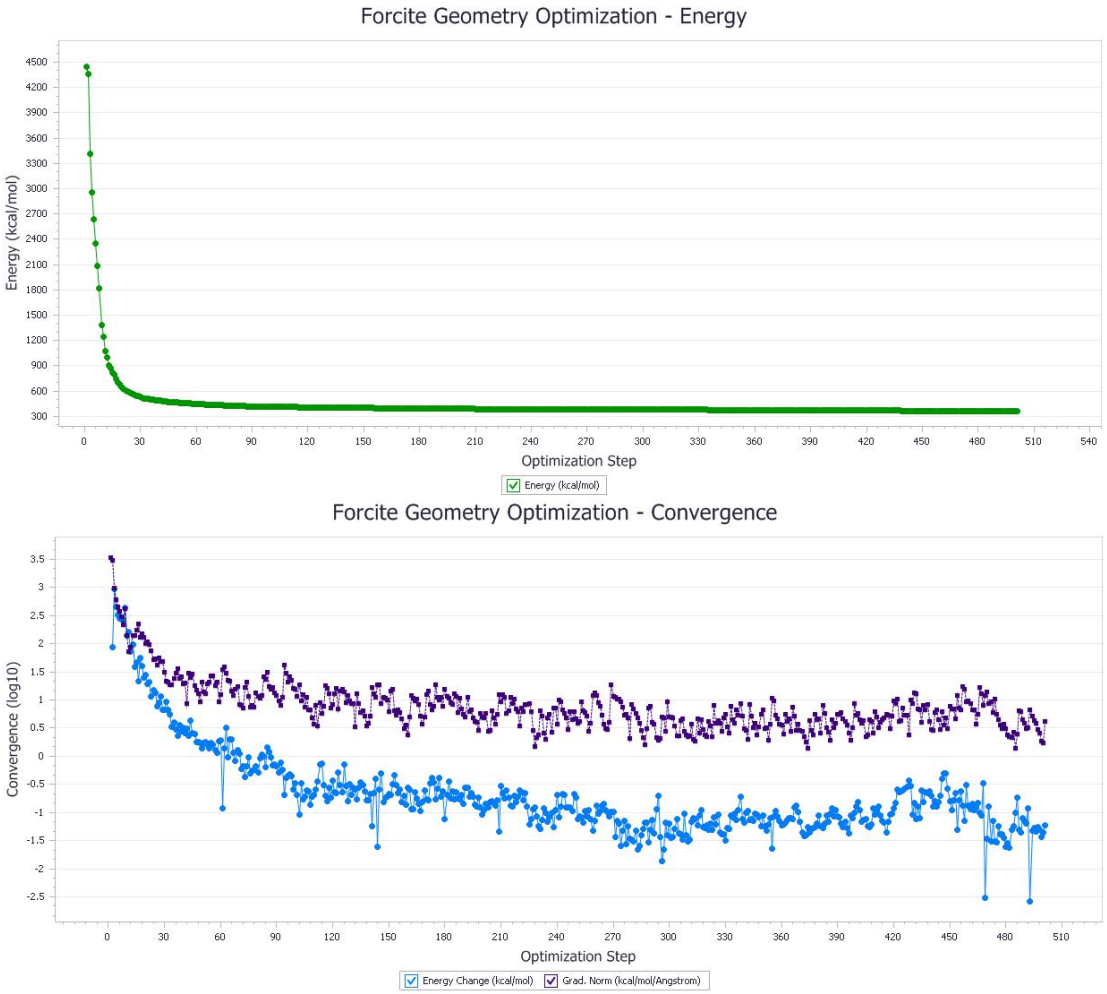


Figure S10. The energy and convergence of Ce6-ILwith β-1,4 Glucoside

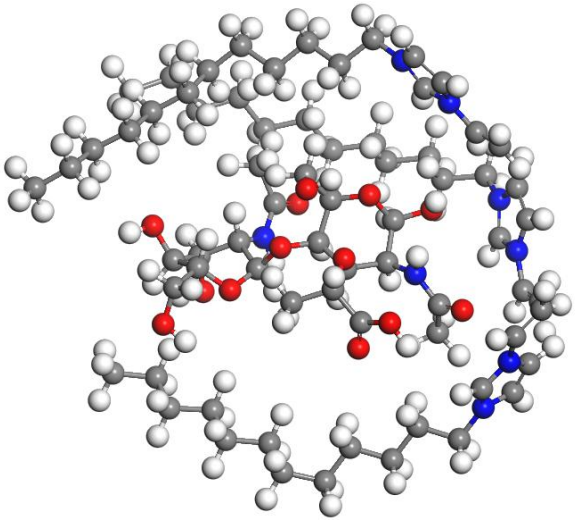
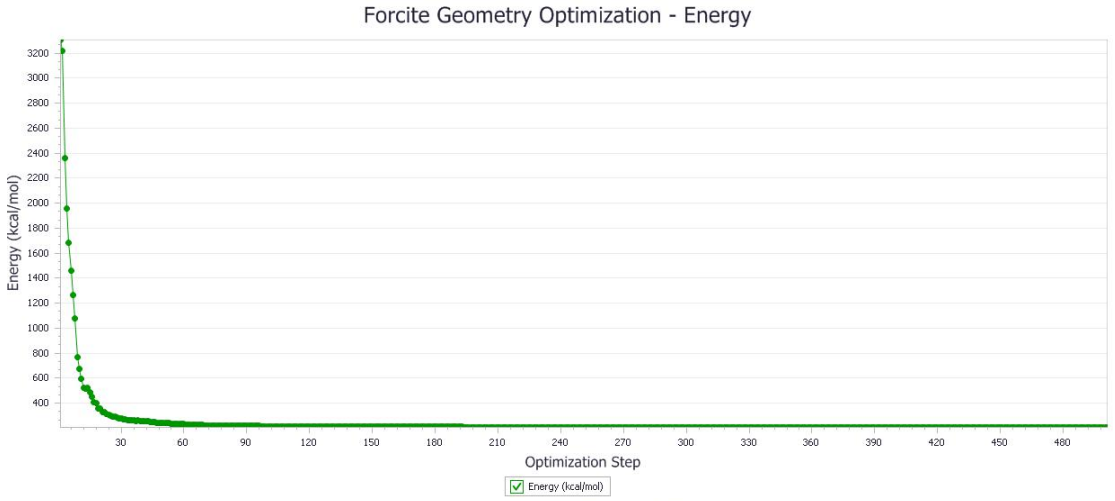


Figure S11. Optimized structure of IL and β-1,4 Glucoside



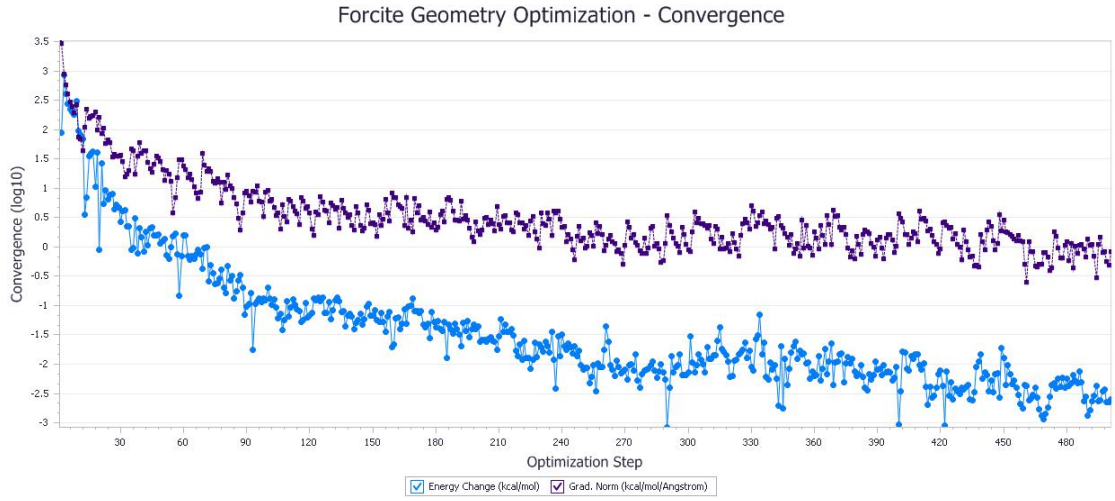


Figure S12. the energy and convergence of IL with β-1,4 Glucoside

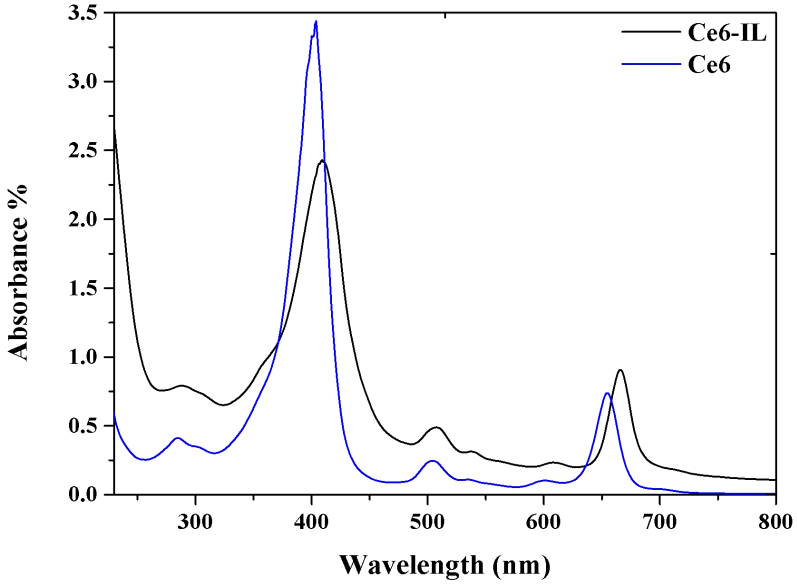


Figure S13. UV absorption spectroscopy of Ce6-IL

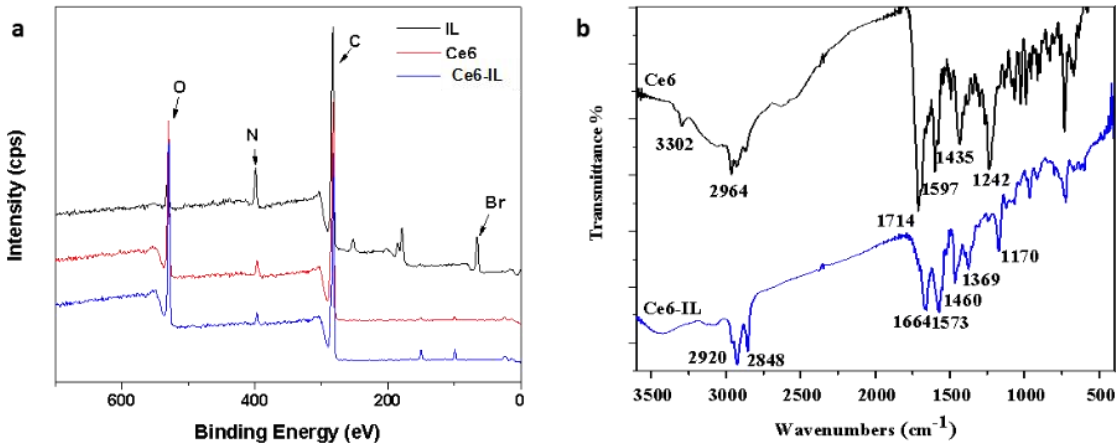


Figure S14. Wide scan of XPS (a) and FT-IR of Ce6-IL (b)

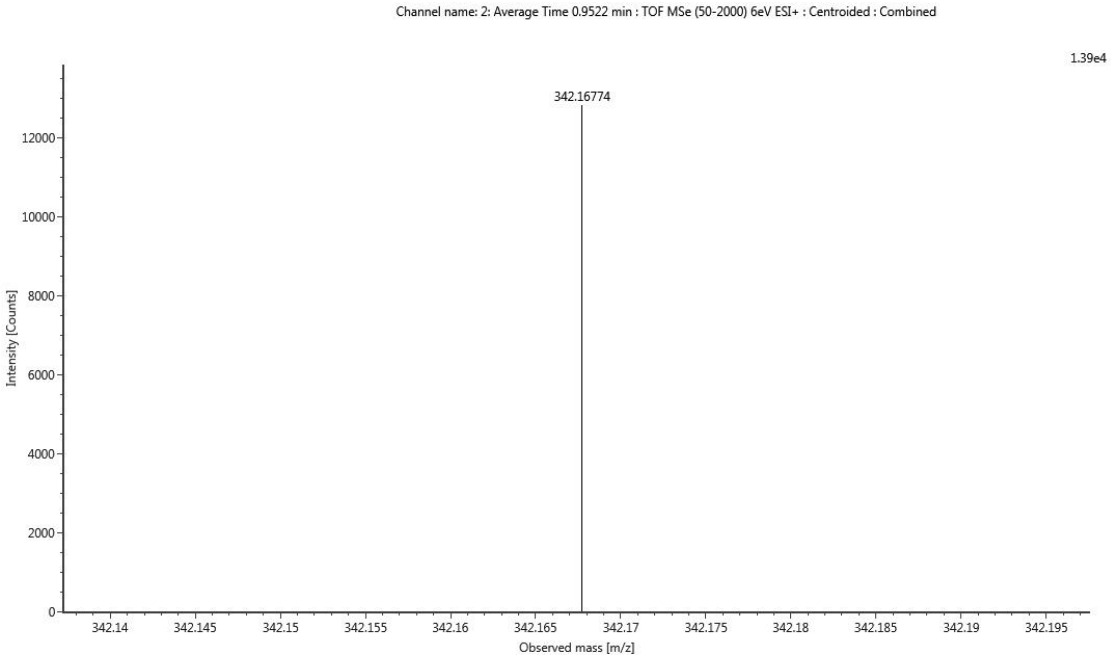


Figure S15. 1-vinyl-3-dodecyl imidazole bromide mass spectrometry

m/z: 342.1677, required m/z: 342.1671

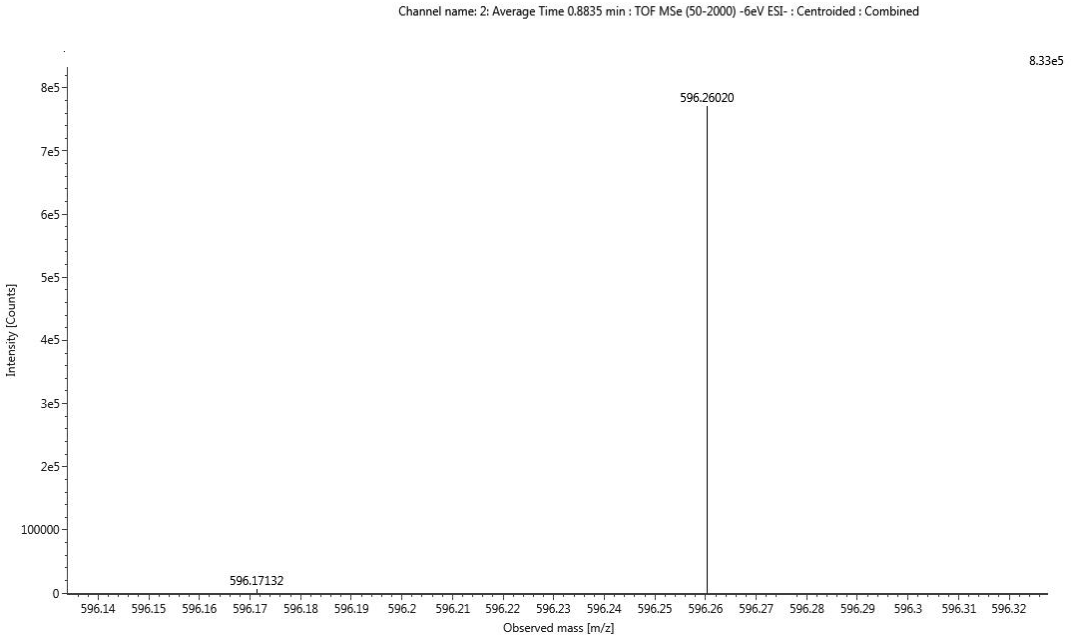


Figure S16. Ce6 mass spectrometry

m/z: 596.2602, required m/z: 597.2635

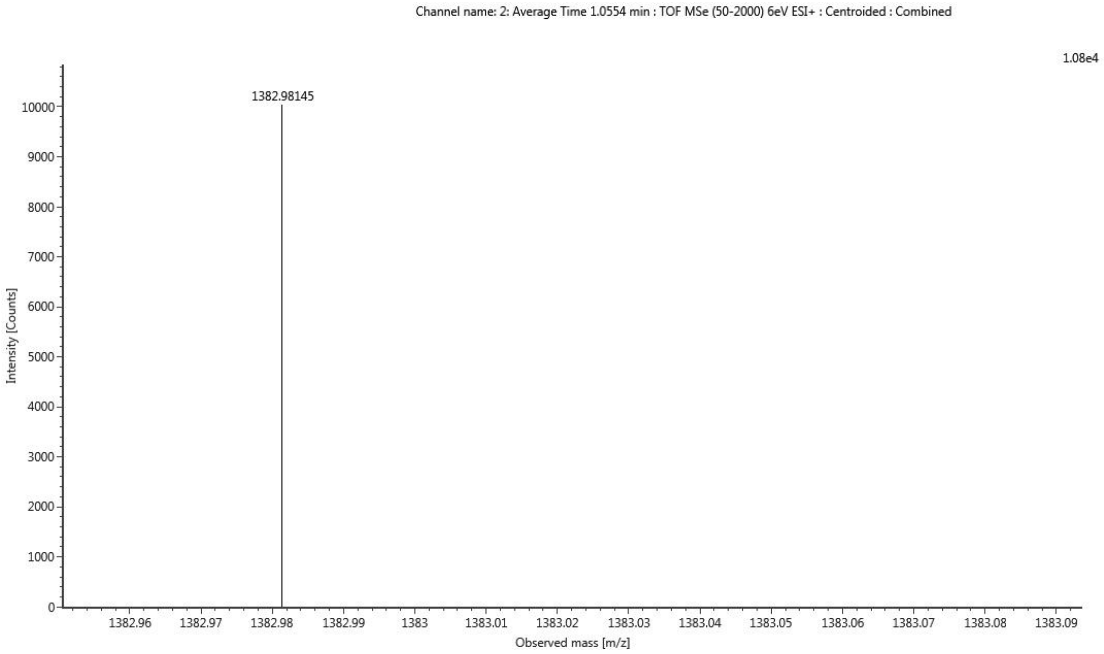


Figure S17. Ce6-IL mass spectrometry

m/z: 1382.9815, required m/z:1382.9862

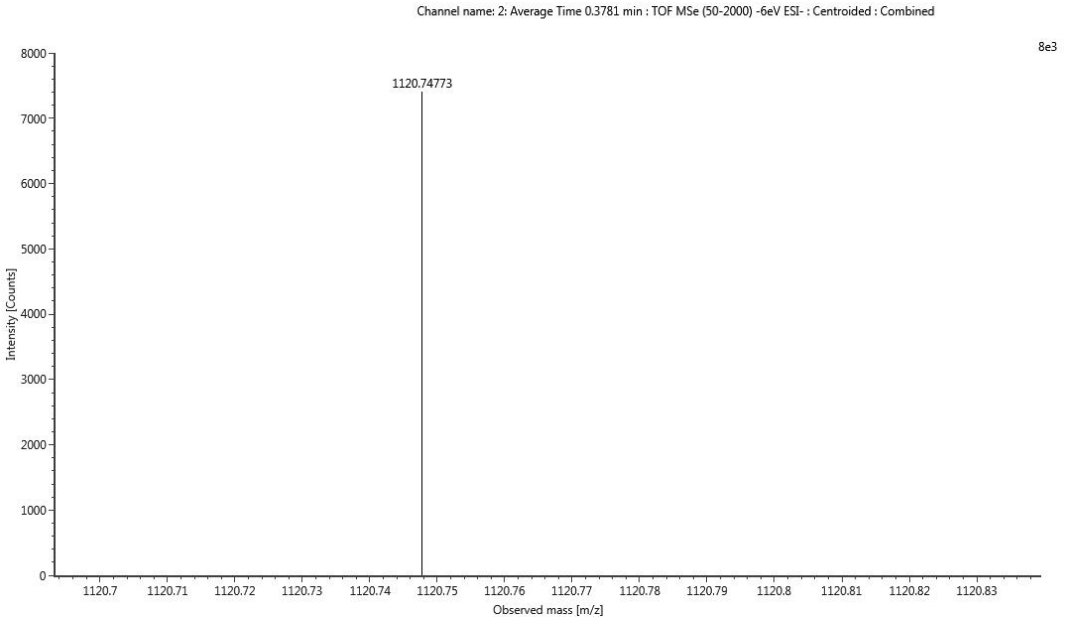


Figure S18. Ce6-IL at pH 5.5 mass spectrometry

m/z: 1120.7477, required m/z:1120.7453

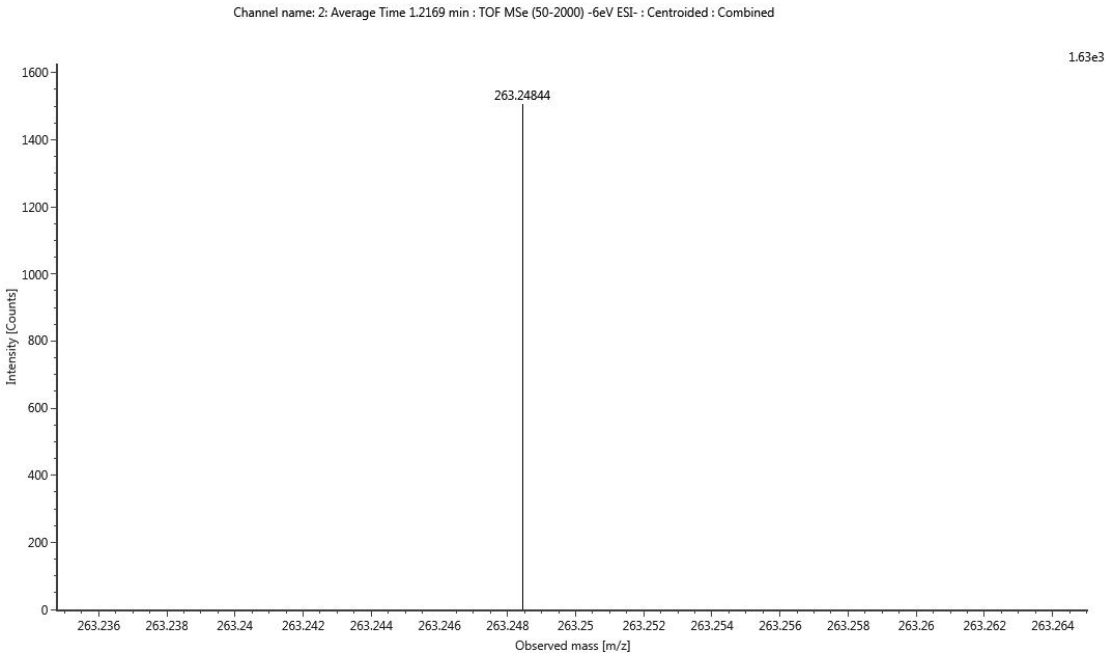


Figure S19. Cation 1-vinyl-3-dodecyl imidazole in Ce6-IL at pH 5.5 mass spectrometry

m/z: 263.2484, required m/z: 263.2482

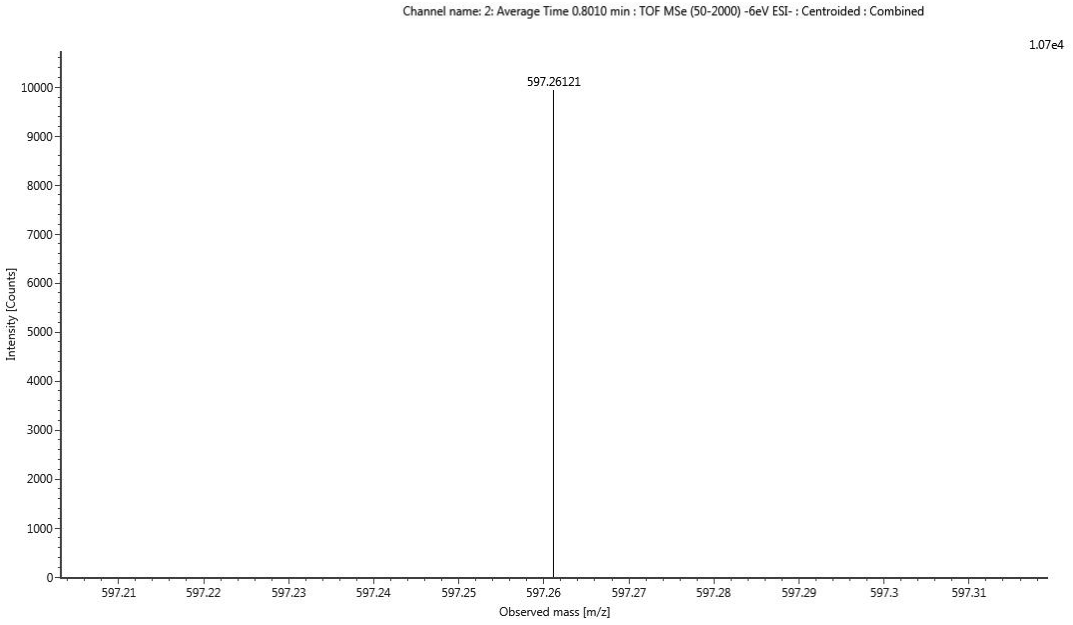


Figure S20. Ce6 in the Ce6-IL at pH 4.5 mass spectrometry

m/z(M+H): 597.2612, required m/z: 597.2635

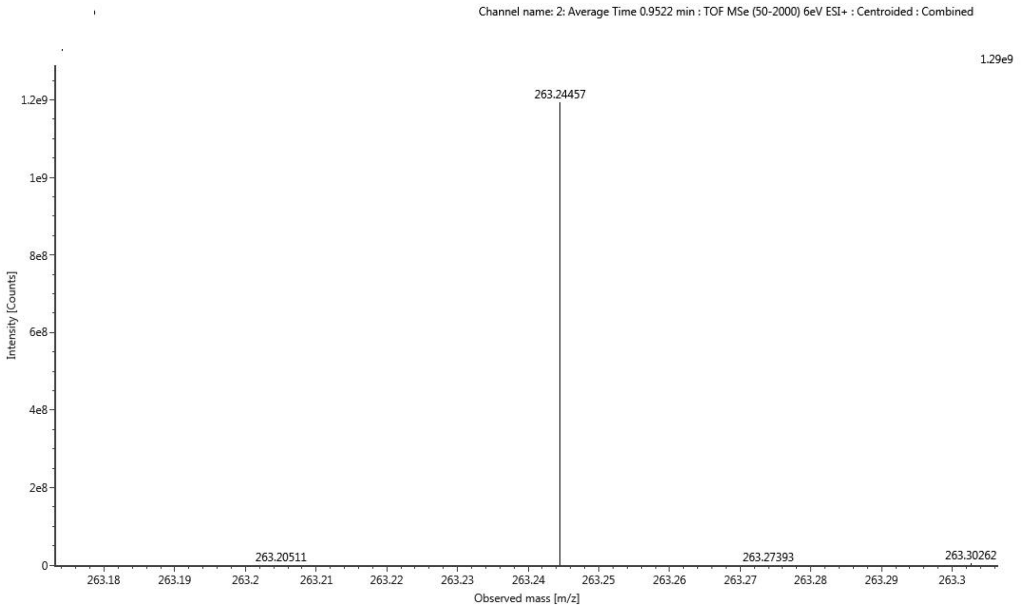


Figure S21. Cation 1-vinyl-3-dodecyl imidazole in Ce6-IL at pH 4.5 mass spectrometry
m/z: 263.2446, required m/z: 263.2482

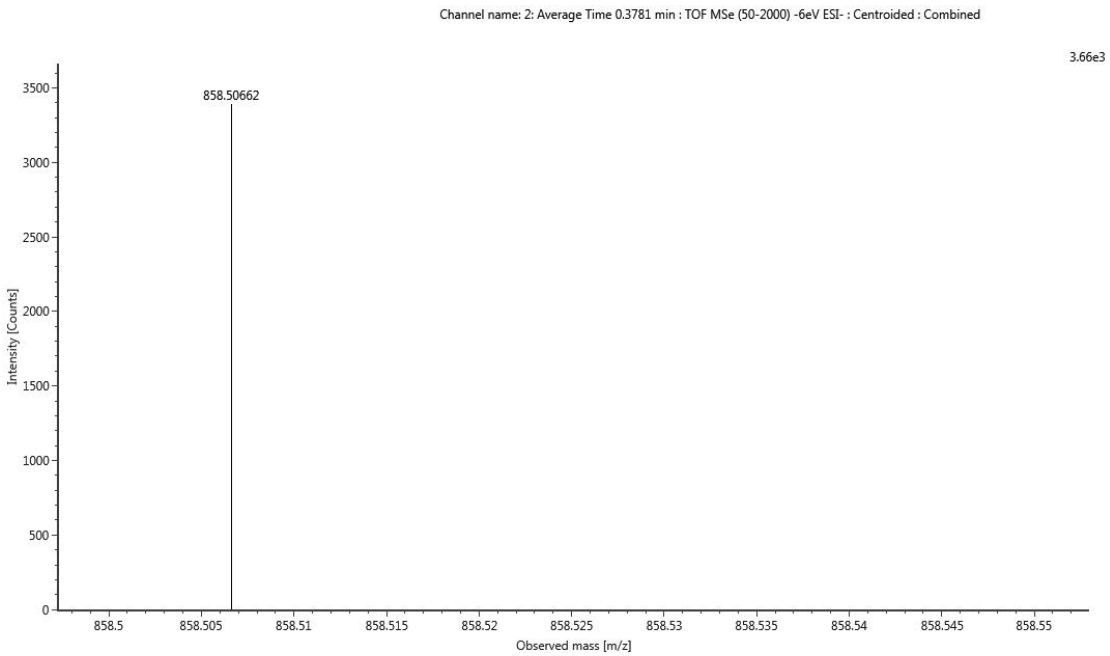


Figure S22. Ce6-IL at pH 4.5 mass spectrometry
m/z: 858.5066, required m/z:858.5044

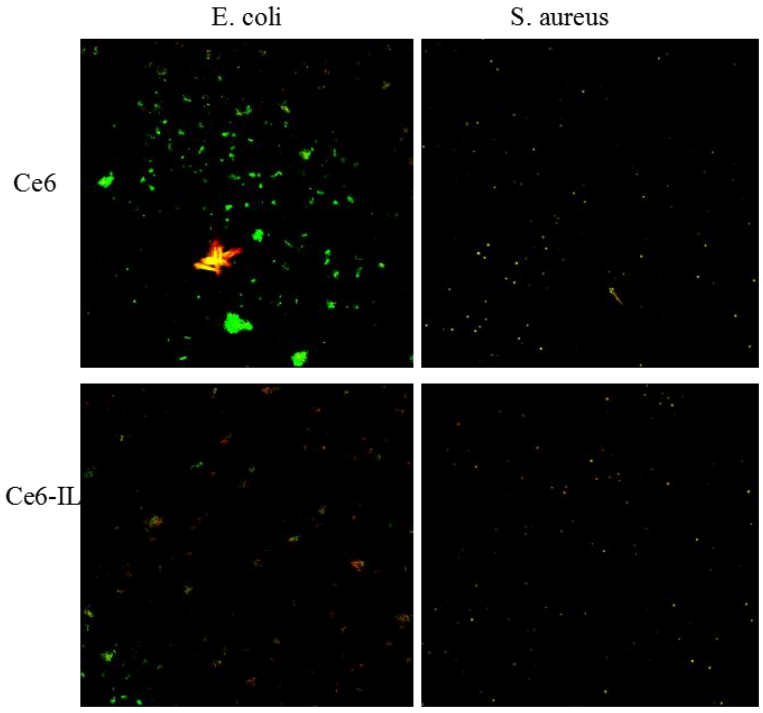


Figure S23. Fluorescence microscope images of Ce6-IL and Ce6 with E.Coli and S.aureus after 30 min irradiation with 660 nm light. Green staining indicates live bacteria, and red staining indicates dead bacteria, the magnification is 40 times.

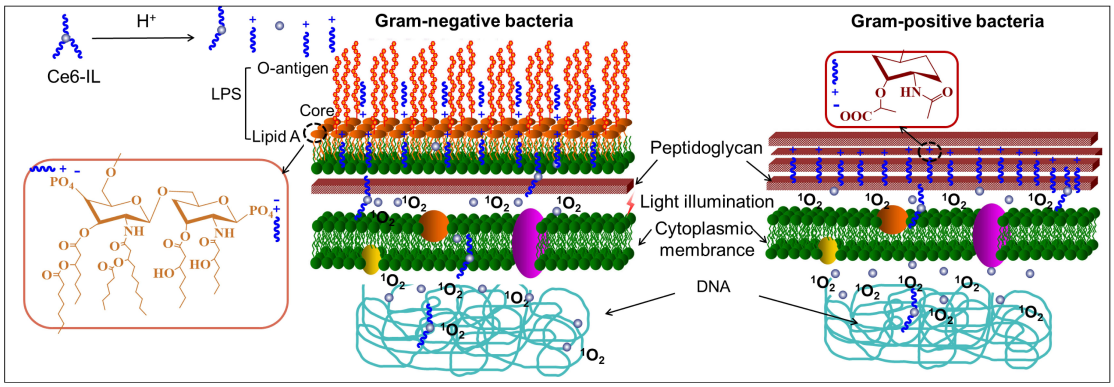


Figure S24. The dual-mode antibacterial mechanism of Ce6-IL