Supplementary Materials

1. H-NMR

Figure S1. $^1$H-NMR spectrum of compound 2a.

Figure S2. $^1$H-NMR spectrum of compound 2b.
Figure S3. $^1$H-NMR spectrum of compound 2c.

Figure S4. $^1$H-NMR spectrum of compound 2d.
Figure S5. $^1$H-NMR spectrum of compound 2e.

Figure S6. $^1$H-NMR spectrum of compound 2f.
Figure S7. $^1$H-NMR spectrum of compound 2g.

Figure S8. $^1$H-NMR spectrum of compound 2h.
Figure S9. $^1$H-NMR spectrum of compound 2i.

Figure S10. $^1$H-NMR spectrum of compound 2j.
Figure S11. $^1$H-NMR spectrum of compound 2k.

Figure S12. $^1$H-NMR spectrum of compound 2l.
Figure S13. $^1$H-NMR spectrum of compound 2m.

Figure S14. $^1$H-NMR spectrum of compound 2n.
Figure S15. $^1$H-NMR spectrum of compound 2o.

Figure S16. $^1$H-NMR spectrum of compound 2p.
Figure S17. $^1$H-NMR spectrum of compound 2q.

Figure S18. $^1$H-NMR spectrum of compound 2r.
Figure S19. $^1$H-NMR spectrum of compound 2s.

Figure S20. $^1$H-NMR spectrum of compound 2t.
Figure S21. $^1$H-NMR spectrum of compound 2u.

Figure S22. $^1$H-NMR spectrum of compound 2v.
Figure S23. $^1$H-NMR spectrum of compound 2w.

Figure S24. $^1$H-NMR spectrum of compound 2x.
Figure S25. $^1$H-NMR spectrum of compound 2y.

2. C-NMR

Figure S26. $^{13}$C-NMR spectrum of compound 2a.
Figure S27. $^{13}$C-NMR spectrum of compound 2b.

Figure S28. $^{13}$C-NMR spectrum of compound 2c.
Figure S29. $^{13}$C-NMR spectrum of compound 2d.

Figure S30. $^{13}$C-NMR spectrum of compound 2e.
Figure S31. $^{13}$C-NMR spectrum of compound 2f.

Figure S32. $^{13}$C-NMR spectrum of compound 2g.
Figure S33. $^{13}$C-NMR spectrum of compound 2h.

Figure S34. $^{13}$C-NMR spectrum of compound 2i.
**Figure S35.** $^{13}$C-NMR spectrum of compound 2j.

**Figure S36.** $^{13}$C-NMR spectrum of compound 2k.
Figure S37. $^{13}$C-NMR spectrum of compound 2l.

Figure S38. $^{13}$C-NMR spectrum of compound 2m.
Figure S39. $^{13}$C-NMR spectrum of compound 2n.

Figure S40. $^{13}$C-NMR spectrum of compound 2o.
Figure S41. $^{13}$C-NMR spectrum of compound 2p.

Figure S42. $^{13}$C-NMR spectrum of compound 2q.
Figure S43. $^{13}$C-NMR spectrum of compound 2r.

Figure S44. $^{13}$C-NMR spectrum of compound 2s.
Figure S45. $^{13}$C-NMR spectrum of compound 2t.

Figure S46. $^{13}$C-NMR spectrum of compound 2u.
**Figure S47.** $^{13}$C-NMR spectrum of compound $2v$.

**Figure S48.** $^{13}$C-NMR spectrum of compound $2w$. 
Figure S49. $^{13}$C-NMR spectrum of compound 2x.

Figure S50. $^{13}$C-NMR spectrum of compound 2y.
3. HR-MS

**Figure S51.** HR-MS spectrum of compound 2a.

**Figure S52.** HR-MS spectrum of compound 2b.
**Figure S53.** HR-MS spectrum of compound 2c.

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**Figure S54.** HR-MS spectrum of compound 2d.

**User Spectra**

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Figure S55. HR-MS spectrum of compound 2e.

Figure S56. HR-MS spectrum of compound 2f.
Figure S57. HR-MS spectrum of compound 2g.

Figure S58. HR-MS spectrum of compound 2h.
Figure S59. HR-MS spectrum of compound 2i.

Figure S60. HR-MS spectrum of compound 2j.
Figure S61. HR-MS spectrum of compound 2k.

Figure S62. HR-MS spectrum of compound 2l.
Figure S63. HR-MS spectrum of compound 2m.

Figure S64. HR-MS spectrum of compound 2n.
Figure S65. HR-MS spectrum of compound 2o.

Figure S66. HR-MS spectrum of compound 2p.
Figure S67. HR-MS spectrum of compound 2q.

Figure S68. HR-MS spectrum of compound 2r.
Figure S69. HR-MS spectrum of compound 2s.

Figure S70. HR-MS spectrum of compound 2t.
Figure S71. HR-MS spectrum of compound 2u.

Figure S72. HR-MS spectrum of compound 2v.
Figure S73. HR-MS spectrum of compound 2w.

Figure S74. HR-MS spectrum of compound 2x.
Figure S75. HR-MS spectrum of compound 2y.