Supporting Information

Efficient synthesis of fluorinated benzimidazoles, benzoxazolines, and benzothiazolines catalyzed by Hf(OTf)$_4$

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The NMR spectra of fluorinated benzimidazolines (3,14–24), benzoazolines (25,28), benzothiazolines (32), and imine intermediate (34).

Figure S1. $^1$H NMR of 3
Figure S2. $^{13}$C NMR of 3

Figure S3. $^{19}$F NMR of 3

Figure S4. $^1$H NMR of 14
Figure S5. $^{13}$C NMR of 14

Figure S6. $^{19}$F NMR of 14
Figure S7. $^1$H NMR of 15

Figure S8. $^{13}$C NMR of 15
Figure S9. $^1$F NMR of 15

Figure S10. $^1$H NMR of 16
Figure S11. $^{13}$C NMR of 16

Figure S12. $^{19}$F NMR of 16
Figure S13. $^1$H NMR of 17

Figure S14. $^{13}$C NMR of 17
Figure S15. $^{19}$F NMR of 17

Figure S16. $^1$H NMR of 18
Figure S17. $^{13}$C NMR of 18

Figure S18. $^{19}$F NMR of 18
Figure S19. $^1$H NMR of 19

Figure S20. $^{13}$C NMR of 19
Figure S21. $^{19}$F NMR of 19

Figure S22. $^1$H NMR of 20
Figure S23. $^{13}$C NMR of 20

Figure S24. $^{19}$F NMR of 20
Figure S25. $^1$H NMR of 21

Figure S26. $^{13}$C NMR of 21
Figure S27. $^{19}$F NMR of 21

Figure S28. $^1$H NMR of 22
Figure S29. $^{13}$C NMR of 22

Figure S30. $^{19}$F NMR of 22
Figure S31. $^1$H NMR of 23

Figure S32. $^{13}$C NMR of 23
Figure S33. $^{19}$F NMR of 23

Figure S34. $^1$H NMR of 24
Figure S35. $^{13}$C NMR of 24

Figure S36. $^{19}$F NMR of 24
Figure S37. $^1$H NMR of 25

Figure S38. $^{13}$C NMR of 25
Figure S39. $^{19}$F NMR of 25

Figure S40. $^1$H NMR of 28
Figure S41. $^{13}$C NMR of 28

Figure S42. $^{19}$F NMR of 28
Figure S43. $^1$H NMR of 32

Figure S44. $^{13}$C NMR of 32
Figure S45. $^{19}$F NMR of 32

Figure S46. $^1$H NMR of 34
Figure S47. $^{13}$C NMR of 34

Figure S48. $^{19}$F NMR of 34