Supporting Information: ^1H & ^{13}C NMR Spectra

Iterative Stereospecific Reagent Controlled Homologation of Pinacol Boronates by Enantioenriched α -Chloroalkyllithium Reagents

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^1H and ^{13}C NMR spectra were recorded in Fourier transform mode at the field strength specified using standard 5 mm diameter tubes. Chemical shift in ppm is quoted relative to residual solvent signals calibrated as follows:

CDCl_3 δ_{H} (CHCl_3) = 7.26 ppm, δ_{C} (CDCl_3) = 77.2 ppm.

compound	^1H / ^{13}C NMR	compound	^1H / ^{13}C NMR
8 : R = Me, R ² = Bn	S23 / S24	11 : R ¹ = BnCH ₂ , R ² = Bn	S43 / S44
8 : R = Me, R ² = Me	S25 / S26	11 : R ¹ = <i>c</i> -hex, R ² = Bn	S45 / S46
8 : R = Cl, R ² = Et	S27 / S28	11 : R ¹ = BnCH ₂ , R ² = Me	S47 / S48
8 : R = Me, R ² = <i>i</i> -Pr	S29 / S30	11 : R ¹ = BnCH ₂ , R ² = Et	S49 / S50
8 : R = Me, R ² = <i>i</i> -Bu	S31 / S32	11 : R ¹ = BnCH ₂ , R ² = <i>i</i> -Bu	S51 / S52
8 : R = Me, R ² = BnCH ₂	S33 / S34	11 : R ¹ = BnCH ₂ , R ² = BnCH ₂	S53 / S54
10 : R ¹ = BnCH ₂ ; neo	S35 / S36	11 : R ¹ = <i>c</i> -hex, R ² = BnCH ₂	S55 / S56
10 : R ¹ = <i>c</i> -hex; neo	S37 / S38	S2	S57 / S58
10 : R ¹ = BnCH ₂ ; pin	S39 / S40	S3 (+ S4)	S59 / S60
10 : R ¹ = <i>c</i> -hex; pin	S41 / S42	(<i>S,S</i>)- 14	S61 / S62
		(<i>S,R</i>)- 14	S63 / S64

8: R = Me, R² = Bn

¹H NMR
300 MHz, CDCl₃

8: R = Me, R² = Bn

¹³C NMR
75 MHz, CDCl₃

8: R = Me, R² = Me

¹H NMR
300 MHz, CDCl₃

8: R = Me, R² = Me

¹³C NMR
75 MHz, CDCl₃

142.65
135.48
129.62
125.86

77.63
77.21
76.78
71.04

21.54
17.30

8: R = Cl, R² = Et

¹H NMR
300 MHz, CDCl₃

8: R = Cl, R² = Et

¹³C NMR
75 MHz, CDCl₃

138.41
137.76

129.37
127.21

77.85
77.53
77.21
76.89

24.70

11.04

8: R = Me, R² = *i*-Pr

¹H NMR
300 MHz, CDCl₃

8: R = Me, R² = *i*-Pr

¹³C NMR
75 MHz, CDCl₃

8: R = Me, R² = *i*-Bu

¹H NMR
300 MHz, CDCl₃

8: R = Me, R² = *i*-Bu

¹³C NMR
75 MHz, CDCl₃

— 142.60
— 136.03
— 129.75
— 125.88

77.63
77.20
76.78
75.09

— 39.28

25.26
23.18
21.70
21.13

8: R = Me, R² = BnCH₂

¹H NMR
300 MHz, CDCl₃

8: R = Me, R² = BnCH₂

¹³C NMR
75 MHz, CDCl₃

142.62
139.50
135.87
129.76
128.83
128.68
126.89
125.82

77.63
77.21
76.79
75.42

32.39
32.06
21.64

10: R¹ = BnCH₂; neo

¹H NMR
300 MHz, CDCl₃

10: R¹ = BnCH₂; neo

¹³C NMR
75 MHz, CDCl₃

10: R¹ = *c*-hex; neo

¹H NMR
300 MHz, CDCl₃

10: R¹ = *c*-hex; neo

¹³C NMR
75 MHz, CDCl₃

77.63
77.21
76.79
72.14

31.80
28.38
27.59
27.10
21.96

10: R¹ = BnCH₂; pin
(compound **12**)

¹H NMR
300 MHz, CDCl₃

10: R¹ = BnCH₂; pin
(compound **12**)

¹³C NMR
75 MHz, CDCl₃

10: R¹ = *c*-hex; pin

¹H NMR
300 MHz, CDCl₃

10: R¹ = *c*-hex; pin

¹³C NMR
75 MHz, CDCl₃

82.89
77.62
77.20
76.77

28.14
27.31
26.94
24.92

11: R¹ = BnCH₂, R² = Bn

¹H NMR
300 MHz, CDCl₃

11: $R^1 = \text{BnCH}_2$, $R^2 = \text{Bn}$

^{13}C NMR
75 MHz, CDCl_3

142.20
138.51
129.61
128.78
128.63
128.58
128.27
126.71
126.01

77.52
77.20
76.89
72.12

44.33
38.61
32.30

11: R¹ = c-hex, R² = Bn

¹H NMR
300 MHz, CDCl₃

11: R¹ = *c*-hex, R² = Bn

¹³C NMR
75 MHz, CDCl₃

11: R¹ = BnCH₂, R² = Me

¹H NMR
300 MHz, CDCl₃

11: R¹ = BnCH₂, R² = Me

¹³C NMR
75 MHz, CDCl₃

11: R¹ = BnCH₂, R² = Et

¹H NMR
300 MHz, CDCl₃

11: R¹ = BnCH₂, R² = Et

¹³C NMR
75 MHz, CDCl₃

11: R¹ = BnCH₂, R² = *i*-Bu

¹H NMR
300 MHz, CDCl₃

11: R¹ = BnCH₂, R² = *i*-Bu

¹³C NMR
75 MHz, CDCl₃

11: R¹ = BnCH₂, R² = BnCH₂

¹H NMR
300 MHz, CDCl₃

11: R¹ = BnCH₂, R² = BnCH₂

¹³C NMR
75 MHz, CDCl₃

11: R¹ = c-hex, R² = BnCH₂

¹H NMR
300 MHz, CDCl₃

11: R¹ = c-hex, R² = BnCH₂

¹³C NMR
75 MHz, CDCl₃

S2

^1H NMR
300 MHz, CDCl_3

S2

^{13}C NMR
75 MHz, CDCl_3

142.983
142.258
129.053
128.579
128.426
128.246
125.810
125.678

83.278
77.628
77.204
76.781

37.373
35.715
33.330
30.140
24.996

¹H NMR
 300 MHz, CDCl₃

^{13}C NMR
 75 MHz, CDCl_3

^1H NMR
300 MHz, CDCl_3

^{13}C NMR
75 MHz, CDCl_3

^1H NMR
300 MHz, CDCl_3

^{13}C NMR
75 MHz, CDCl_3