Supplementary Material

for

Synthesis of Highly-Substituted Enantiopure C6 and C7 Enones.

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CHARACTERIZATION CHECKSHEET

Number in paper	¹ H NMR	¹³ C NMR	LRMS	HRMS Calcd.	HRMS Found	ee (%)	MP (°C)	[α] _D ^o (CHCl ₃)	Misc (x-ray, etc)
13t-Me	Y	Y	Y	267.1055	267.1053			-132	
14Me	Y							-116	
12t-Et	Y	Y	Y	266.0977	266.0975			-87	
13t-Et	Y	Y	Y	280.1133	280.1132			-150	
14Et	Y					93.7		---	
12t-iPr	Y	Y	Y	280.1133	280.1129		105	-24	
13t-iPr	Y	Y	Y	294.1290	294.1282		113	-87	
14iPr	Y					94.7		---	
12t-tBu	Y	Y	Y	294.1290	294.1277			-107	
13t-tBu	Y	Y	Y	308.1446	308.1436			-142	
14t-Bu	Y					91		---	
12t-PhMe ₂ Si	Y	Y	Y	372.1215	372.1197			-174	
13t-PhMe ₂ Si	Y	Y	Y	386.1372	386.1355			-186	
26	Y	Y	Y	266.0977	266.0964			-21	
27	Y	Y	Y	280.1133	280.1126			-74	
28	Y	Y						-94	
17a	Y	Y	Y	250.0664	250.0660			-11	
17b	Y	Y	Y	278.0977	278.0968			-75	
14a	Y	Y						+106	
14b	Y	Y	Y	150.1045	150.1043			-153	
14c	Y	Y	Y	152.1201	152.1199			+119	
14d	Y	Y				93		---	
14e	Y	Y	Y	178.1358	178.1354			-69	
14g	Y	Y	Y	194.1671	194.1675			-12	
19	Y	Y				91.2		---	
21	Y	Y	Y	166.1355	166.1355			+10	
22Me	Y	Y	Y	253.0898	253.0905			---	
22Pr	Y	Y	Y	281.1211	281.1199			---	
30	Y	Y	Y	381.1920	381.1917			---	
23Me a	Y	Y	Y	269.0848	269.0852		134	+27	x-ray
23Pr a	Y	Y	Y	297.1161	297.1173	>99	148	+63	x-ray
31	Y	Y	Y	396.1791	396.1782			---	
23Me b	Y	Y	Y	383.1712	383.1700			+16	
23Pr b	Y	Y	Y	411.2025	411.2005			-1	
24Me a	Y	Y	Y	365.1607	365.1595			-2	
24Me b	Y	Y	Y	396.1791	396.1787			-0.5	
24Pr a	Y	Y	Y	411.2025	411.2012		134	-60	
24Pr b	Y	Y	Y	425.2182	425.2176			-39	
32	Y	Y	Y	396.1791	396.1772			---	

33	Y	Y	Y	411.2025	411.2030		117	---	x-ray
25Me	Y	Y	Y	255.1780	255.1779	98.7		-41	
25Pr	Y	Y	Y	283.2093	283.2094	97.7		-68	
34	Y	Y	Y	268.1859	268.1848	99.2		+50	
36	Y	Y	Y	269.1937	269.1930	99.7		+139	

Structure and number checksheet

Compound structure	Number in paper
13t-Me
14Me
12t-Et
13t-Et
14Et
12t-iPr
13t-iPr

14iPr
12t-tBu
13t-tBu
14t-Bu
12t-PhMe ₂ Si
13t-PhMe ₂ Si
26
27
28
17a

17b
14a
14b
14c
14d
14e
14g
19

21
22Me
22Pr
30
23Me a
23Pr a
31
23Me b
23Pr b
24Me a

24Me b
24Pr a
24Pr b
32
33
25Me
25Pr
34
36

Polarimetric Data or HPLC (% ee)

Compound structure	Number in paper	Concentration g/100mL	$[\alpha]_D^{20}$ (CHCl ₃) or % ee
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	13t-Me	2.3	-132
	14Me	0.56	-116
	12t-Et	9.1	-87
	13t-Et	2.3	-150
	14Et	---	93.7
	12t-iPr	5.2	-24
	13t-iPr	1.4	-87
	14iPr	---	94.7
	12t-tBu	7.4	-107
	13t-tBu	4.5	-142

14t-Bu	---	91
12t-PhMe ₂ Si	3.5	-174
13t-PhMe ₂ Si	3.0	-186
26	2.3	-21
27	8.1	-74
28	2.0	-94
17a	5.2	-11
17b	1.7	-75
14a	0.51	+106

14b	1.4	-153
14c	0.43	+119
14d	---	93
14e	6.8	-69
14g	5.8	-12
19	---	91.2
21	1.4	+10
22Me	---	---
22Pr	---	---

30	---	---
23Me a	2.9	+27
23Pr a	3.1	+63
31	---	---
23Me b	5.0	+16
23Pr b	38.0	-1
24Me a	88.0	-2
24Me b	27.0	-0.5
24Pr a	5.0	-60
24Pr b	3.0	-39

32	---	---
33	---	---
25Me	9.9	-41, 98.7
25Pr	4.0	-68, 97.7
34	0.4	+50, 99.2
36	11.0	+139, 99.7

Supporting Information:
Spectra

300MHz ¹H NMR of compound **12t-Me** in CDCl₃

75MHz ¹³C NMR of compound **12t-Me** in CDCl₃

300MHz ¹H NMR of compound **13t-Me** in CDCl₃

75MHz ¹³C NMR of compound **13t-Me** in CDCl₃

300MHz ¹H NMR of compound **12t-Et** in CDCl₃

75MHz ^{13}C NMR of compound **12t-Et** in CDCl_3

300MHz ¹H NMR of compound **12t-iPr** in CDCl₃

75MHz ^{13}C NMR of compound **12t-iPr** in CDCl_3

300MHz ¹H NMR of compound **12t-tBu** in CDCl₃

75MHz ^{13}C NMR of compound **12t-tBu** in CDCl_3

300MHz ^1H NMR of compound **12t-PhMe₂Si** in CDCl_3

75MHz ¹³C NMR of compound **12t-PhMe₂Si** in CDCl_3

300MHz ¹H NMR of compound **13t-Et** in CDCl₃

75MHz ¹³C NMR of compound **13t-Et** in CDCl₃

300MHz ^1H NMR of compound **13t-iPr** in CDCl_3

75MHz ^{13}C NMR of compound **13t-iPr** in CDCl_3

75MHz ¹³C NMR of compound **13t-tBu** in CDCl₃

300MHz ¹H NMR of compound **13t-tBu** in CDCl₃

300MHz ^1H NMR of compound **13t-PhMe₂Si** in CDCl_3

75MHz ¹³C NMR of compound **13t-PhMe₂Si** in CDCl₃

300MHz ¹H NMR of compound **14Me** in CDCl₃

300MHz ^1H NMR of compound **14Et** in CDCl_3

300MHz ^1H NMR of compound **14i-Pr** in CDCl_3

300MHz ^1H NMR of compound **14tBu** in CDCl_3

300MHz ^1H NMR of compound **26** in CDCl_3

75MHz ^{13}C NMR of compound **26** in CDCl_3

300MHz ¹H NMR of compound **27** in CDCl₃

75MHz ¹³C NMR of compound **27** in CDCl₃

300MHz ¹H NMR of compound **28** in CDCl₃

75MHz ^{13}C NMR of compound **28** in CDCl_3

300MHz ¹H NMR of compound **14a** in CDCl₃

75MHz ^{13}C NMR of compound 14a in CDCl_3

300MHz ¹H NMR of compound **14b** in CDCl₃

75MHz ^{13}C NMR of compound **14b** in CDCl_3

300MHz ^1H NMR of compound 14d in CDCl_3

75MHz ^{13}C NMR of compound **14d** in CDCl_3

300MHz ^1H NMR of compound **14e** in CDCl_3

75MHz ^{13}C NMR of compound **14e** in CDCl_3

300MHz ¹H NMR of compound **14g** in CDCl₃

75MHz ^{13}C NMR of compound **14g** in CDCl_3

300MHz ¹H NMR of compound **17a** in CDCl₃

75MHz ¹³C NMR of compound **17a** in CDCl₃

300MHz ¹H NMR of compound **17b** in CDCl₃

75MHz ^{13}C NMR of compound **17b** in CDCl_3

300MHz ¹H NMR of compound **14c** in CDCl₃

75MHz ¹³H NMR of compound **14c** in CDCl₃

300MHz ^1H NMR of compound 19 in CDCl_3

75MHz ¹³C NMR of compound 19 in CDCl₃

300MHz ¹H NMR of compound **21** in CDCl₃

75MHz ^{13}C NMR of compound **21** in CDCl_3

300MHz ¹H NMR of compound **22Me** in CDCl₃

75MHz ^{13}C NMR of compound **22Me** in CDCl_3

300MHz ^1H NMR of compound **23Me a** in CDCl_3

75MHz ^{13}C NMR of compound **23Me a** in CDCl_3

Single Crystal X-ray of compound **23Me a**

300MHz ^1H NMR of compound **23Me b** in CDCl_3

75MHz ¹³C NMR of compound **23Me b** in CDCl₃

300MHz ¹H NMR of compound **24Me a** in CDCl₃

75MHz ¹³C NMR of compound **24Me a** in CDCl₃

300MHz ¹H NMR of compound **24Me b** in CDCl₃

75MHz ¹³C NMR of compound **24Me b** in CDCl₃

300MHz ¹H NMR of compound **25Me** in CDCl₃

75MHz ^{13}C NMR of compound **25Me** in CDCl_3

300MHz ^1H NMR of compound **22Pr** in CDCl_3

75MHz ^{13}C NMR of compound **22Pr** in CDCl_3

Single Crystal X-ray of compound **23Pr a**

300MHz ¹H NMR of compound **23Pr a** in CDCl₃

75MHz ^{13}C NMR of compound **23Pr a** in CDCl_3

300MHz ^1H NMR of compound **23Pr b** in CDCl_3

75MHz ^{13}C NMR of compound **23Pr b** in CDCl_3

300MHz ¹H NMR of compound **24Pr a** in CDCl₃

75MHz ¹³C NMR of compound **24Pr a** in CDCl₃

300MHz ^1H NMR of compound **24Pr b** in CDCl_3

75MHz ¹³C NMR of compound **24Pr b** in CDCl₃

300MHz ^1H NMR of compound **25Pr** in CDCl_3

75MHz ^{13}C NMR of compound **25Pr** in CDCl_3

300MHz ^1H NMR of compound 30 in CDCl_3

75MHz ^{13}C NMR of compound **30** in CDCl_3

300MHz ^1H NMR of compound **31** in CDCl_3

75MHz ¹³C NMR of compound **31** in CDCl₃

300MHz ¹H NMR of compound **32** in CDCl₃

75MHz ^{13}C NMR of compound **32** in CDCl_3

300MHz ¹H NMR of compound **33** in CDCl₃

75MHz ¹³C NMR of compound **33** in CDCl₃

Single X-ray Crystal for compound **33**

300MHz ^1H NMR of compound **34** in CDCl_3

75MHz ^{13}C NMR of compound **34** in CDCl_3

300MHz ¹H NMR of compound **36** in CDCl₃

75MHz ^{13}C NMR of compound **36** in CDCl_3