Supporting Information

A DIRECT COPPER(I) IODIDE DIMETHYL SULFIDE CATALYZED CONJUGATE ADDITION OF ALKENYL GROUPS FROM VINYLZIRCONOCENE REAGENTS

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Representative procedure for conjugate additions of vinylzirconocenes:

Schwartz's reagent, $\text{Cp}_2\text{Zr(H)Cl}$ (2.61 mmol, 1.1 equiv) was added under argon to a 25 mL two necked round bottom flask containing anhydrous THF (10 mL) and 1-hexyne (2.38 mmol, 1.0 equiv). The flask was fitted with a reflux condenser and a stopper and the mixture was heated for 10 min at +40 °C. After cooling the mixture to +20 °C, benzalacetone (2.38 mmol, 1 equiv) and $\text{CuI} \cdot 0.75\text{DMS}$ (0.24 mmol, 1 equiv) were added under a slow flow of argon. The resulting reaction mixture was stirred at +40 °C for 12 h and subsequently quenched with wet Et_2O (25 mL) at ambient temperature. The mixture was transferred to a separation funnel and the organic phase was washed with saturated NaHCO_3 . The organic layer was dried over MgSO_4 , vacuum filtered through Celite®, and concentrated *in vacuo*. The crude material was purified by flash chromatography on silica gel 60Å using 5% Et_2O in pentane to afford 530 mg (97%) of 4-phenyl-*trans*-5-decen-2-one.

Time : 1012 17-MAR-03
Exp : H1_proj
File : ael_038_H1_proj
User : Amer
Sample : 138
Solvent : CDCl3
Pulse Sequence: szpu1

S2.

S3.

Time 1222 27-MAY-03
 Exp H1_proj
 File th_Rxn_31_Pure_H1_proj
 User Tatieb
 Sample .. Rxn 31 Pure
 Solvent .. CDCl3
 exp1 s2pul1

SAMPLE DEC. & VT
 date May 27 2003 dfrq 499.940
 solvent CDCl3 dn H1
 file exp 30
 ACQUISITION 499.939 dm 0
 sfrq 499.939 dm nm
 tn H1 dmm C
 at 5.000 dmf 10884
 np 45978 dseq
 sw 4597.7 dres 1.0
 fb 3000 homo n
 bs 16 temp 30.0
 tpwr 55 DEC2 0
 pw 5.7 dfrq2
 d1 5.000 dh2
 tof -692.5 dpwr2 1
 nt 16 dof2 0
 ct 16 dmm2 nm
 alock n dmf2 C
 gain not used 11065
 FLAGS
 il n dseq2
 in n dres2 1.0
 dp n homo2
 hs y lb PROCESSING 0.20
 DISPLAY -494.4 wfile
 sp -494.4 proc ft
 wp 4597.6 fn not used f
 vs 150 math
 sc 0
 wc 250 werr
 hzmm 18.39 wexp
 is 1000.00 wbs
 rfl 494.5 wnt
 th 0
 tns 6
 nm cdc ph 3.000

Time 1222 27-MAY-03
 Exp C13
 File th_Rxn_31_Pure_C13
 User Taleb

Sample .. Rxn 31 Pure
 Solvent : CDCl3
 exp2 szpu1

SAMPLE May 27 2003 DEC. & VT
 solvent CDC13 dfrq 499.940
 file exp dn H1
 ACQUISITION exp dbwr 30
 sfreq 125.722 dm 0
 tn C13 dnm yyy
 at 2.500 dmt w
 np 150830 dseq 10884
 sw 30165.9 dres 1.0
 fb 17000 homo n
 bs 16 temp 30.0
 tpwr 58
 pw 6.0 dfrq2 DEC2 0
 d1 0.500 dn2
 tof 1000.0 dpwr2 1
 nt 1024 dof2 0
 ct 800 dm2 n
 alock n dnm2 C
 gain not used dmf2 10000
 flags
 i1 n dres2 1.0
 in n homo2 n
 dp y PROCESSING 1.00
 hs nn lb wtfile
 DISPLAY -2163.8 wfile ft
 sp wp 30165.7 fn not used
 vs 150 math f
 sc 250 weff
 hzmm 2.67 wexp process_id
 is 3299.34 wbs wft ds dscate
 rfi 2164.1 wnt
 rfp 0
 th 8
 ins 100.000
 nm cdc ph

115

S12.

Time 1229 13-JUN-03
Exp H1
File ae1_015_H1
User Amer
Sample .. 1 15
Solvent .. CDCl3
Pulse Sequence: szpu1

S14.

Time 0953 13-JUN-03
Exp C13
File ae1_015_C13
User Amer
Sample .. 1 15
Solvent . CDCl3
Pulse Sequence: szpu1

S15.

Time 1126 04-APR-03
 Exp H1_proj
 File ac1_045_H1_proj
 User Amer

Sample .. 45
 Solvent : CDCl3

exp1 s2pu1

SAMPLE		DEC. & VT	
date	Apr 4 2003	dfrq	499.940
solvent	CDCl3	dn	H1
file	exp	dpwr	30
ACQUISITION			
sfrq	499.940	dm	0
tn	H1	dof	nmn
at	5.000	dmf	C
mp	5835.6	dseq	10884
sw	5835.6	dres	1.0
fb	3000	homo	n
bs	16	temp	30.0
tpwr	55	DEC2	
pw	5.7	dfrq2	0
dl	5.000	dn2	1
tof	-73.7	dpwr2	0
nt	16	dof2	nmn
ct	16	dm2	C
alock	n	dmm2	11065
gain	not used	dmf2	1.065
FLAGS			
il	n	dseq2	1.0
in	n	dres2	1.0
dp	nm	homo2	n
hs	y	PROCESSING	
DISPLAY		lb	0.20
sp	-489.2	wtfile	ft
wp	5835.4	proc	not used
vs	500	math	f
sc	0	process_id	
wc	250	werr	10884
hzm	23.34	wexp	1.0
is	500.00	wbs	1.0
ftl	489.4	wnt	1.0
rfl	0	nm	
th	2	cdc ph	
ins	1.000	nm

516.

Time 1137 04-APR-03
 Exp C13
 File ael_045_C13
 User Amer

Sample .. 45
 Solvent . CDCl3

exp7 szpul