

BO\$+CD&+)'+A(%+10-&:+'?'+'''\$')(\$/+0\$+0@(:
 6-('''\$&(\$/+%'''''\$''09''&''''\$%+A''''\$'+)&+'?'+'*('%'+
 < (EO\$)'/+01+(&3-4(\$+'\$)6-)&(&'%

!''#\$''%''&'(')*''+, -. '/#''%+01+2&3-4(\$+5\$)6-)&(&'%

704/6-)&(&'%'&+90&%)%')&3+01+1-%":+1)*'';<"<."''\$":+\$)&3+)&+:)*''\$%"+90&&''9')0&+#('''''\$&%&+. ''40&3+'0+(&+
)<#0\$' (&'+94(%%+01+%="4''0&%+#\$0<)&''&'+)&+'''\$#''&0):%+(&: +%''''\$0):%+
 5?'+)&'\$)3-)&3+.)0403)9(4#\$0#''\$)''%'&+90&3''%":+(\$9?)''''9'-\$''%+(&: +0*''\$ (44+%''''\$''09?'<)&9(4+90<#4''@)'/+?(*''+
 %) < -4('':+(40'+01+<''?'0: 0403)''%+'0A(\$:+'?'+'90&%'\$-9')0&+01+'?'+'90\$''+'\$-9'-\$''%+>

Table 1. Optimization of the Reductive Alkylation



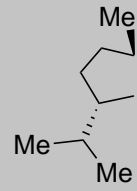
Run	Reaction Conditions	Yield (%)	Yield (%)
1 ^a	$n\text{-Bu}_3\text{BiCl}_2$, AIBN, toluene, 90 °C	0	0
2 ^d	TiCl_4 , Zn, THF, 0 °C	0	0
3 ^d	VCl_4 (THF), Zn, CH_2Cl_2 , 25 °C	0	0
4	CSmI_2 , THF, 0 °C	<5	0
5	CSmI_2 , THF, MeOH, 0 °C	<5	0
6	CSmI_2 , THF/ MeOH , 0 °C	75	0
7	CSmI_2 , THF/ MeOH , 0 °C	70	0
8	CSmI_2 , THF/ MeOH , 0 °C, then KOH	<5	65

^a Reaction conditions: 10a (0.5 mmol) and K_2CO_3 (1.0 mmol, 2 equiv) in solvent/ cosolvent (4.5 mL/ 7.0 mL) at 90 °C for 24 h. ^b K_2CO_3 (1.0 mmol, 2 equiv). ^c K_2CO_3 (1.0 mmol, 2 equiv). ^d No reaction for 10a (3a) and 10b (3b).

F"&\$/+90&: "&%(')0&+

G2HCI +#\$0<0'": +J"1\$" (9')0&

$C'' < 0;$



;RO:)&(')O&+

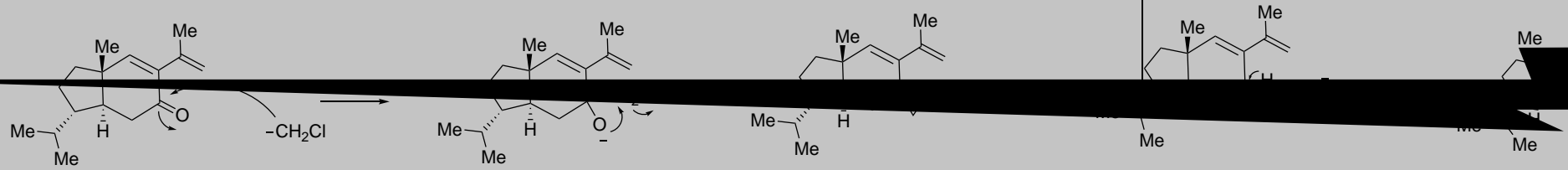
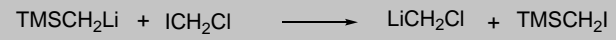
7(44(:)- < ;9(' (4/Q": +J"3)%?) 9\$0%%+90-#4)&3

1 (\$23&# (')
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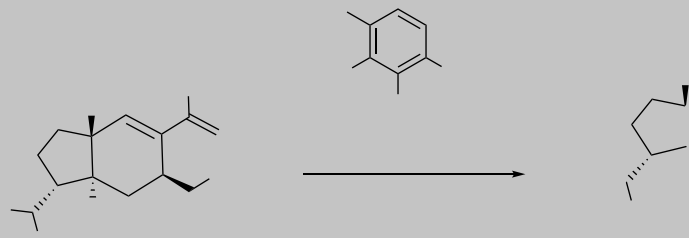
! "#\$%&' ()%\$&#* +

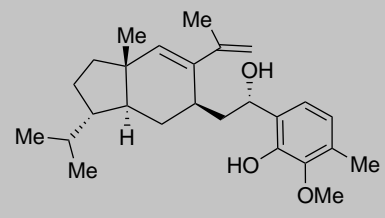
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C(%9(: "+"#0@): (')0&PO")&A(4: \$" (\$\$(&3" < "&' +

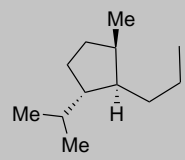


S#) < "\$)Q(')O&+

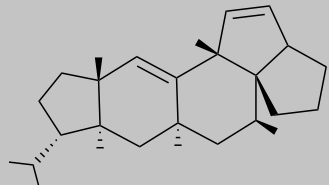




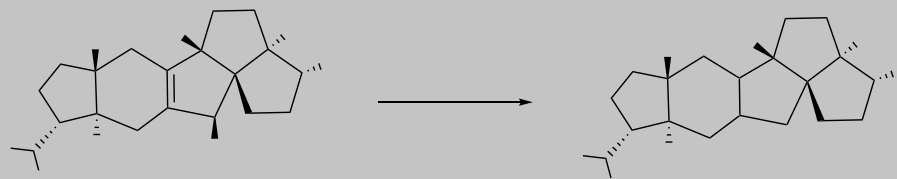
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Thanks!
Questions?