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Retrosynthetic Analysis

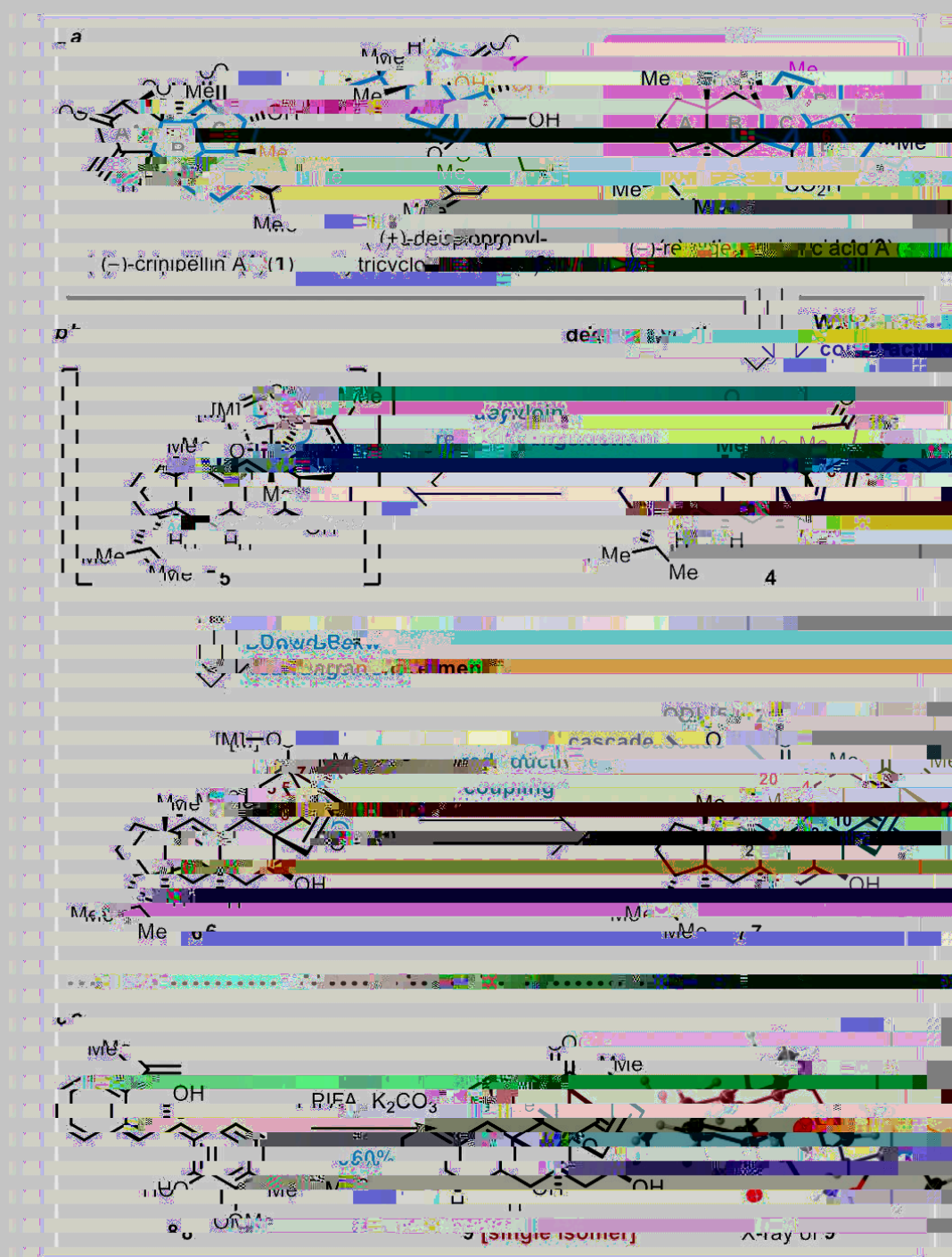


Table 1. Optimization of the Reductive Alkylation

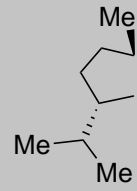


Run	Reaction conditions	Yield (%)	Yield (%)
1 ^a	$n\text{-Bu}_3\text{BiCl}_2$, LiAlH_4 , toluene, 90°C	0	0
2 ^d	TiCl_4 , Zn, THF, 0°C	0	0
3 ^d	VCl_4 (THF), Zn, CH_2Cl_2 , 25°C	0	0
4	CSmI_2 , THF, 0°C , Zn	35	0
5	CSmI_2 , THF, 0°C , Zn	35	0
6	CSmI_2 , THF, 0°C , Zn	75	0
7	CSmI_2 , THF, 0°C , Zn	70	0
8	CSmI_2 , THF, 0°C , Zn , then KOH	35	65

^a Reaction conditions: 10a (0.5 mmol) and R_2NH (1.0 mmol, 2.0 equiv) in solvent/ cosolvent (4.5 mL/ 7.0 mL), R_2NH (1.0 mmol, 2.0 equiv). No reaction for 10a (3a) and 10b (3b) under the same conditions.

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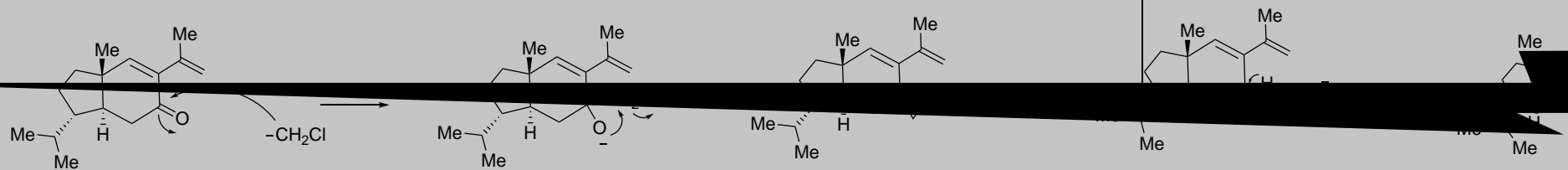
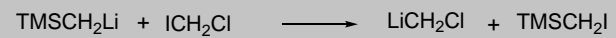
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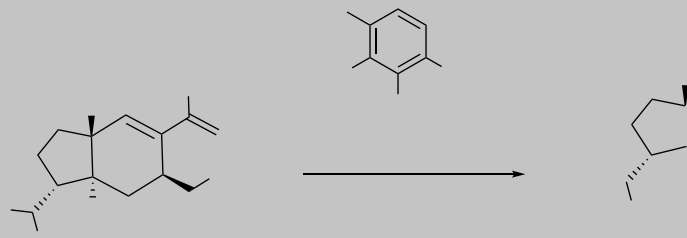
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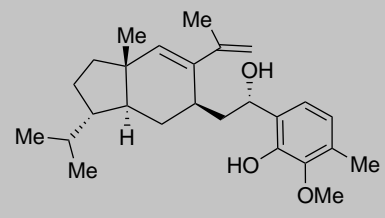
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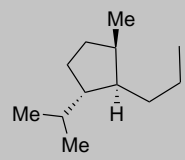


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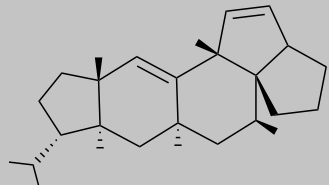




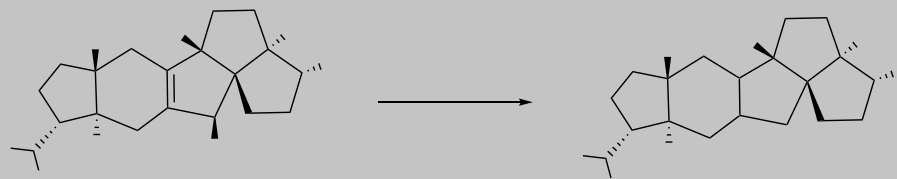
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Thanks!
Questions?