

Literature Report

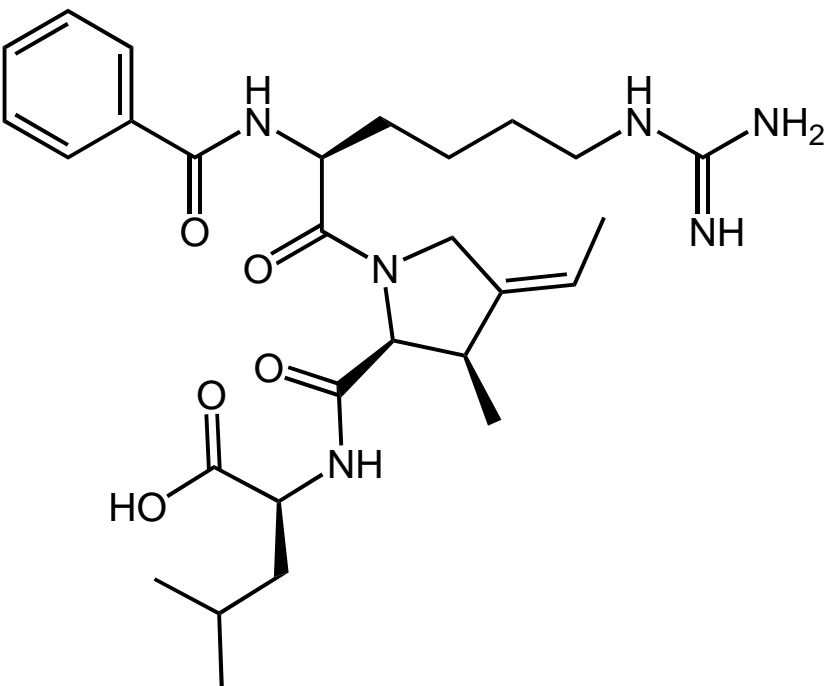
Literature Report 2009-12-01

陈木旺 检查: 陈庆安

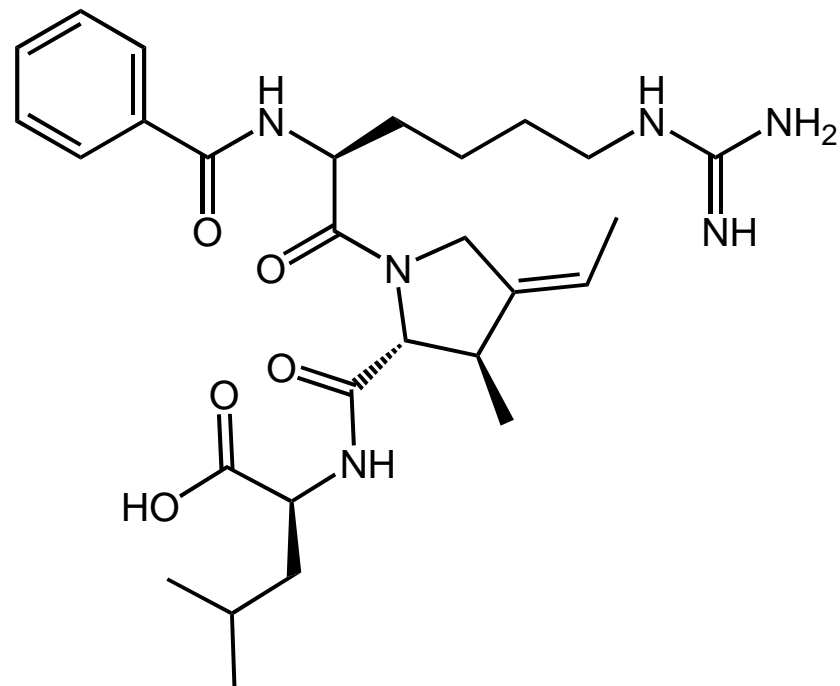
Progress toward the Total Synthesis of Lucentamycin A:
Total Synthesis and Biological Evaluation of 8-*epi*-
Lucentamycin A

Craig W. Lindsley* *et al*
J. Org. Chem., **2009**, *74*, 8852-8855.

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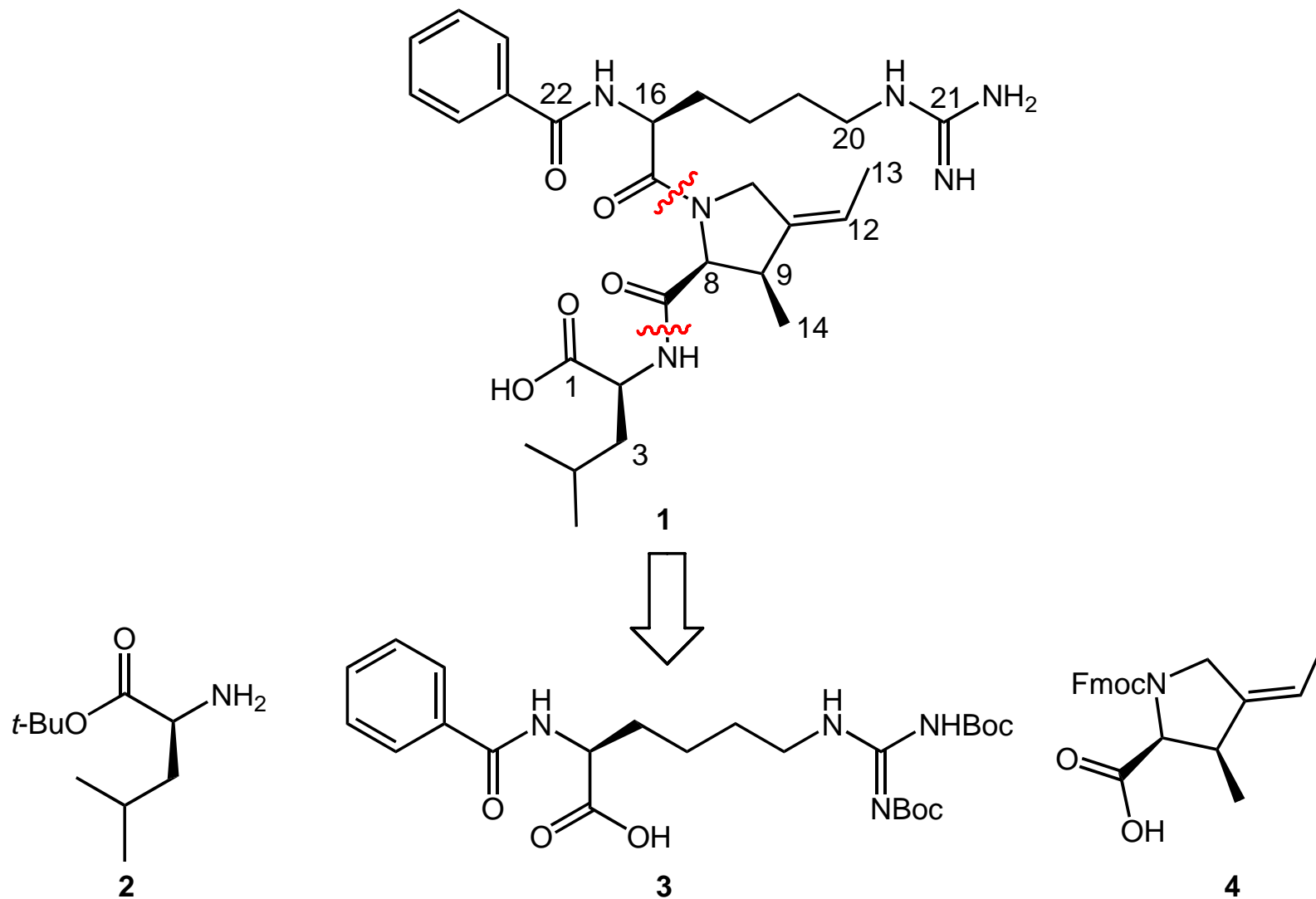


Lucentamycin A

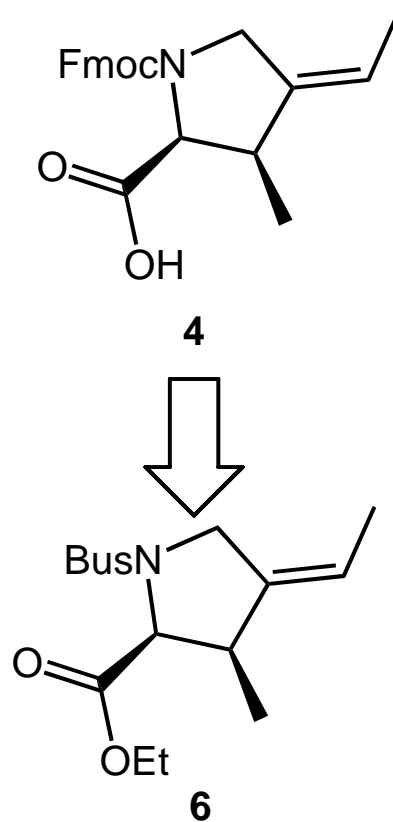
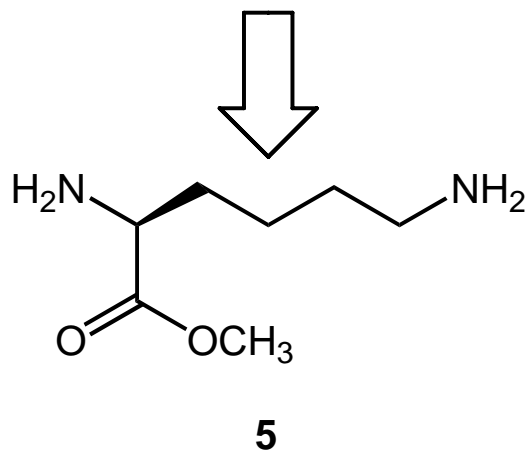
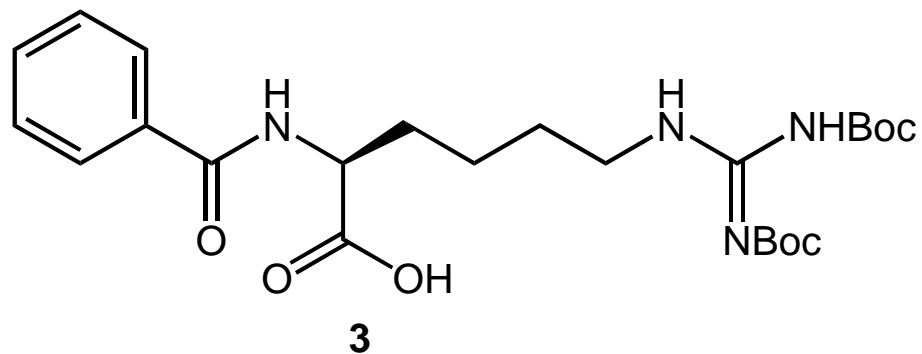
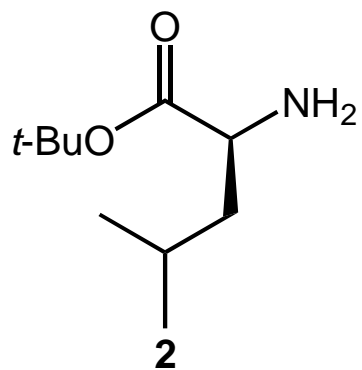


8-*epi*-Lucentamycin

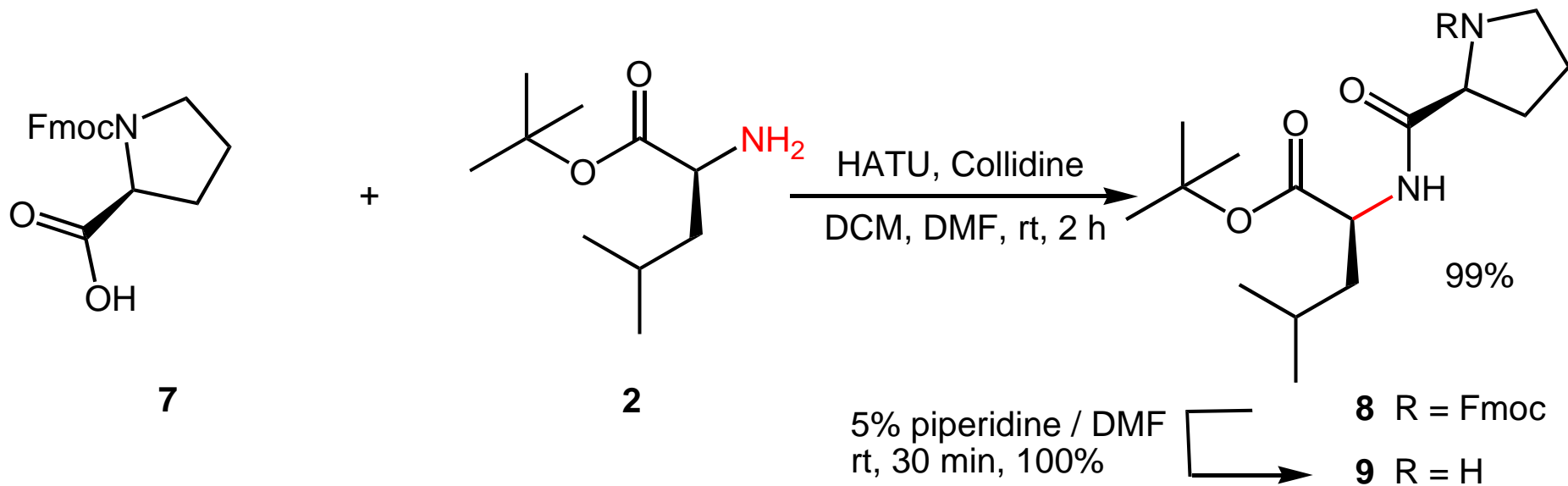
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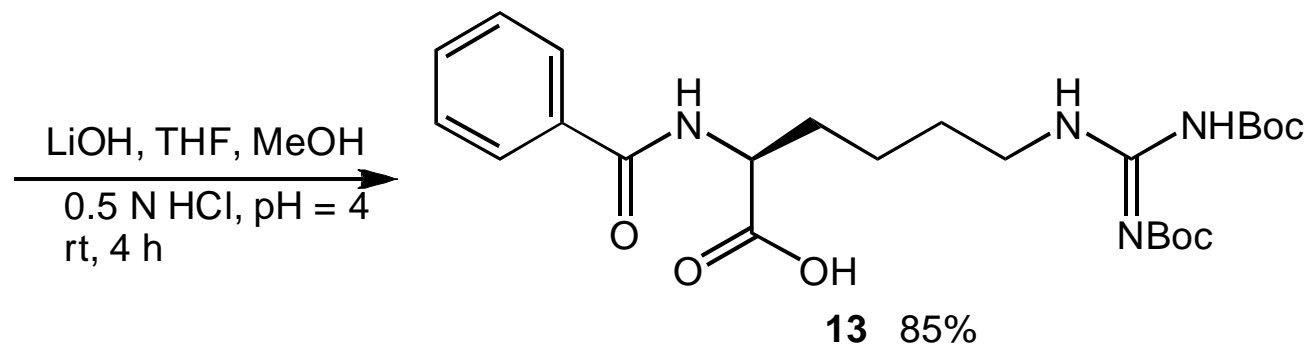
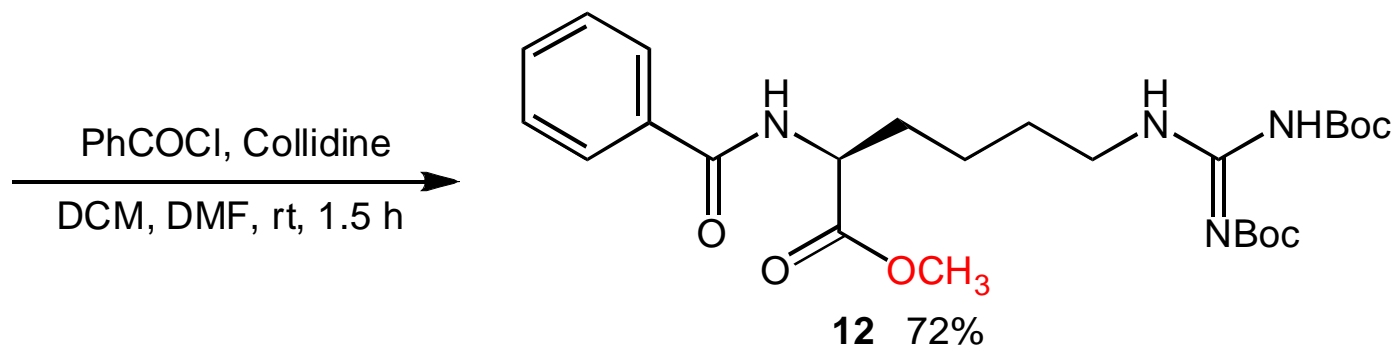
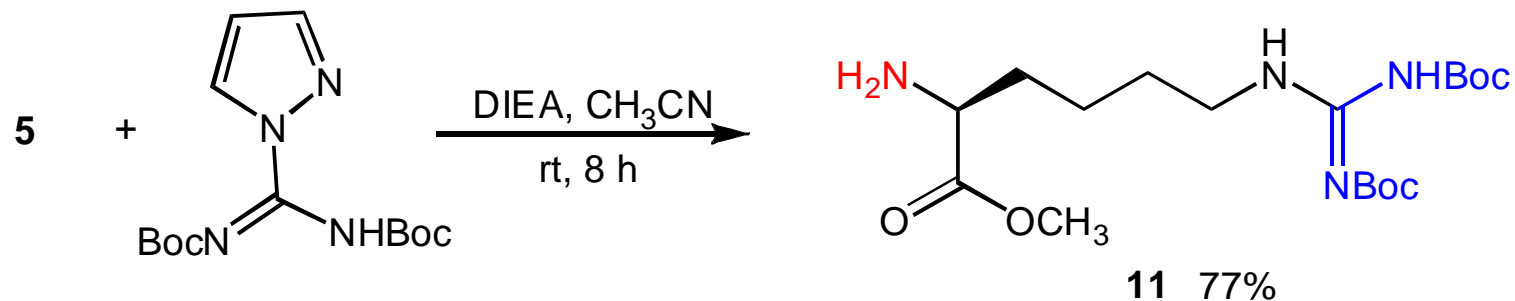
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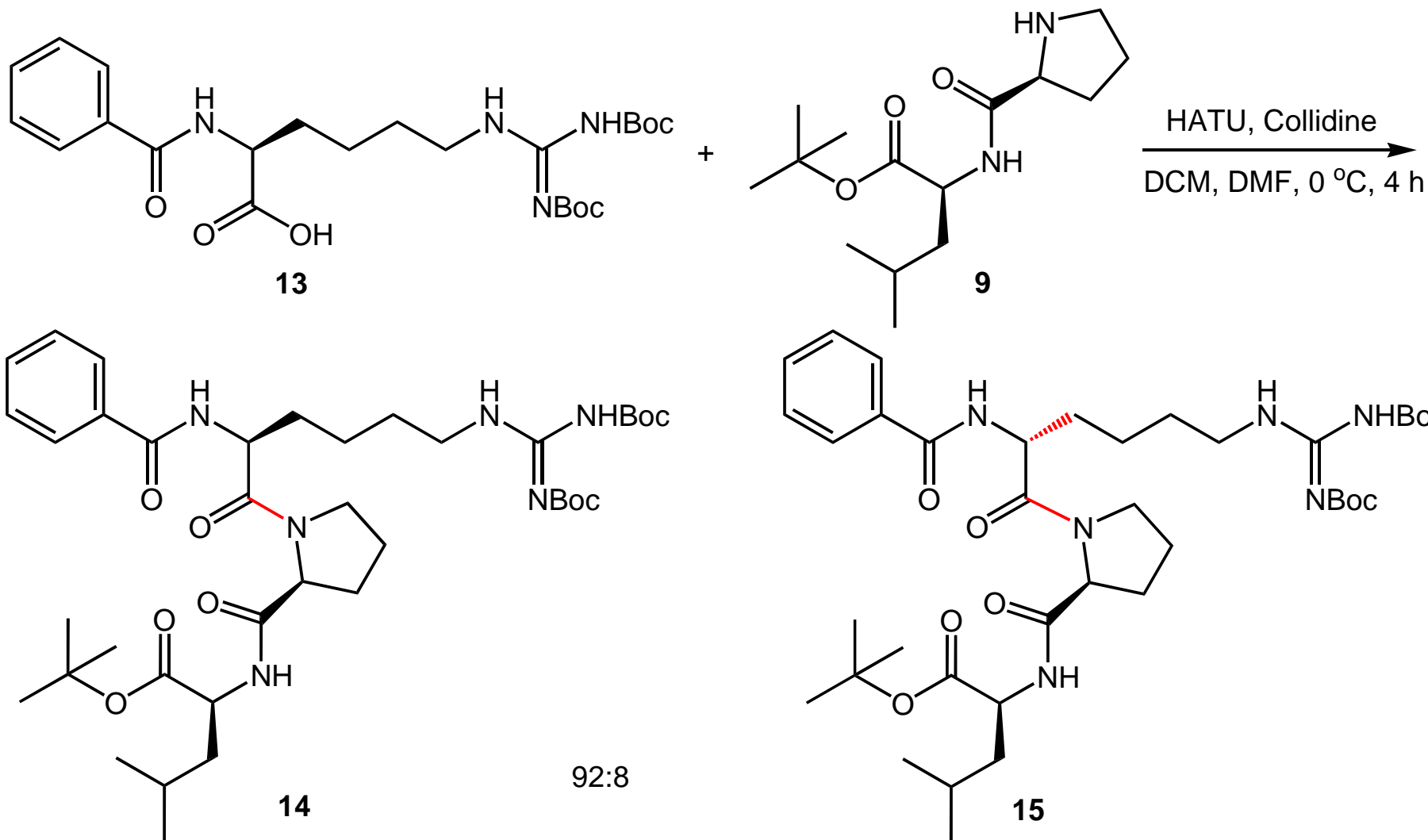
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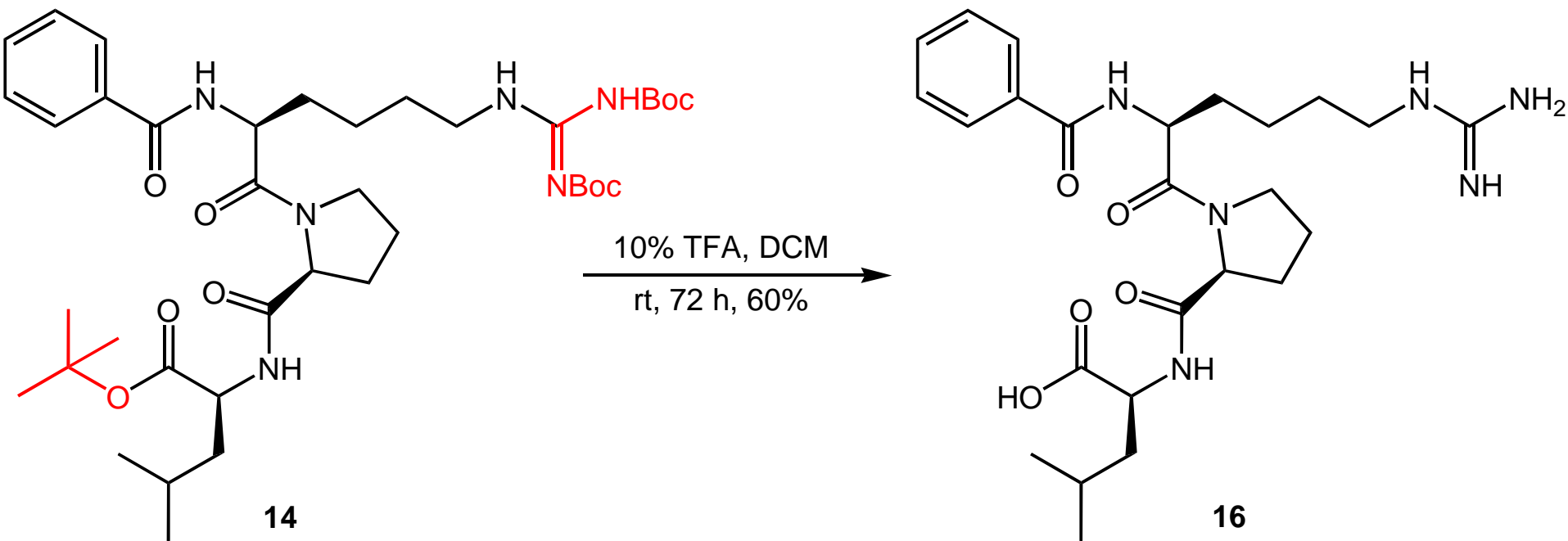
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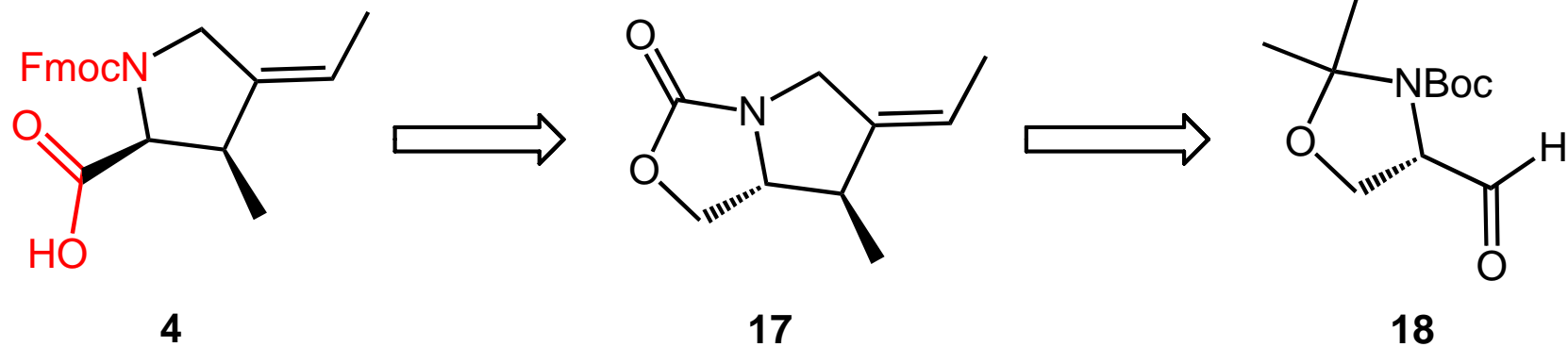
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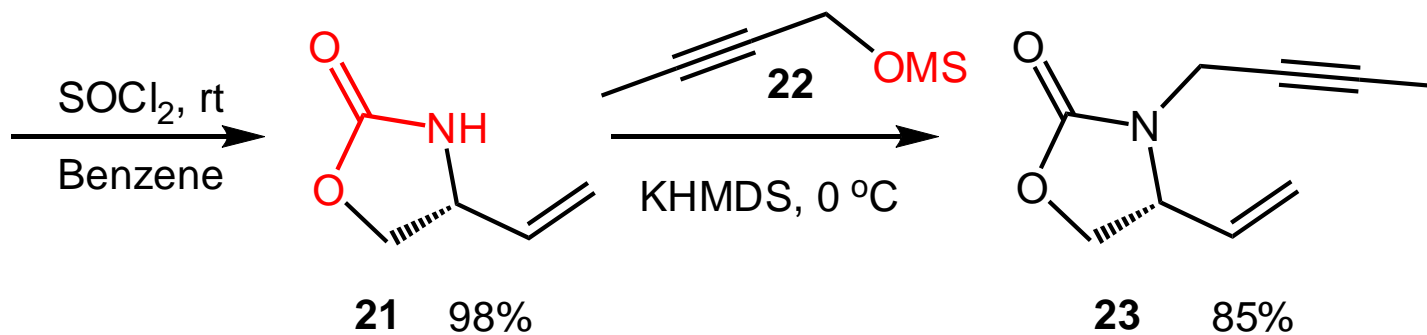
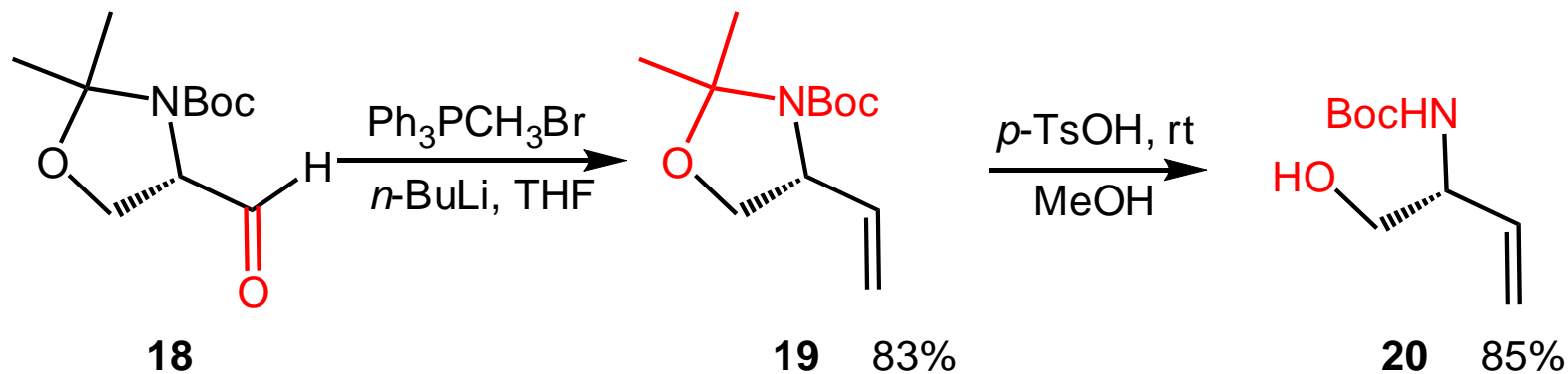
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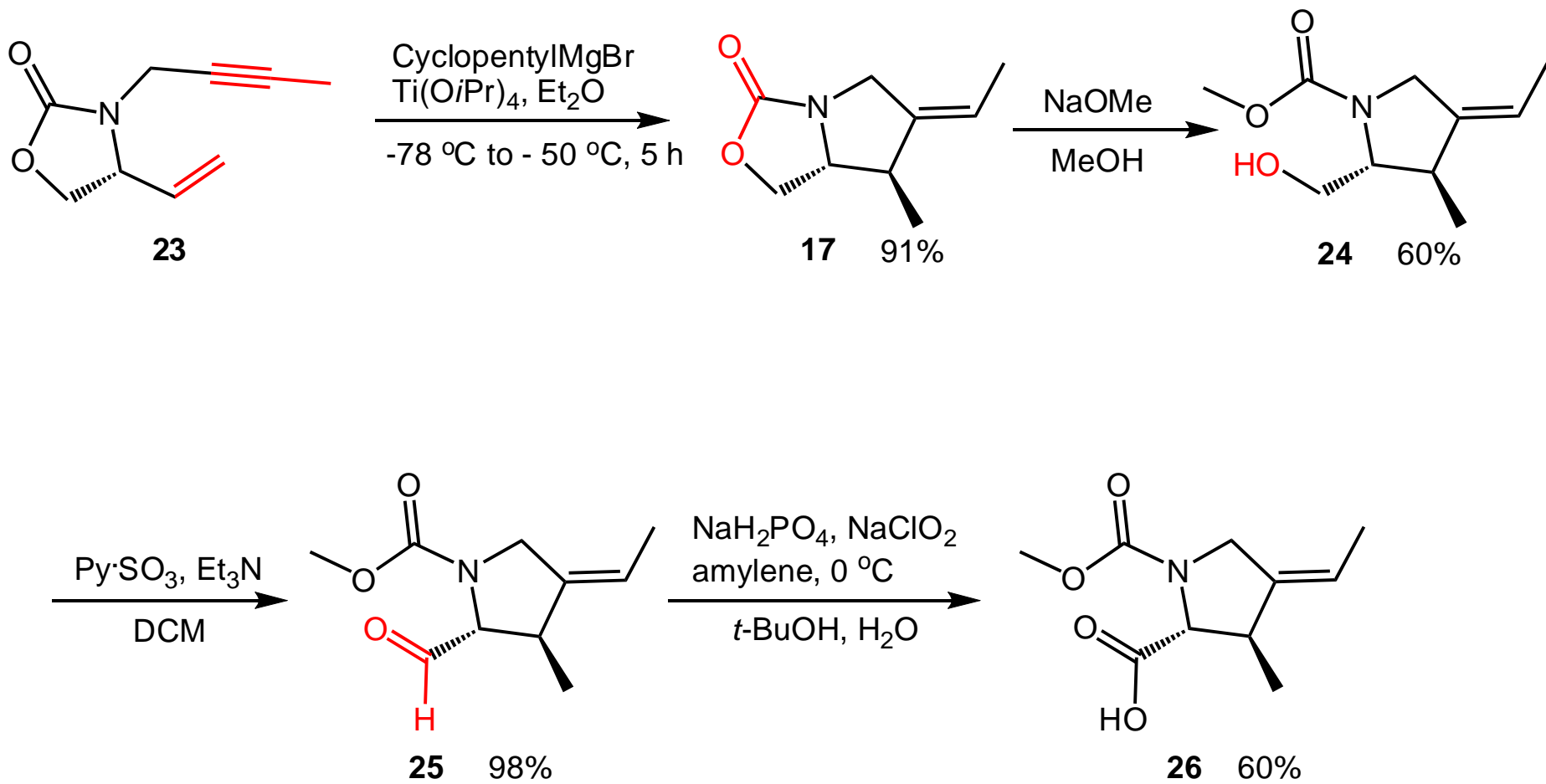
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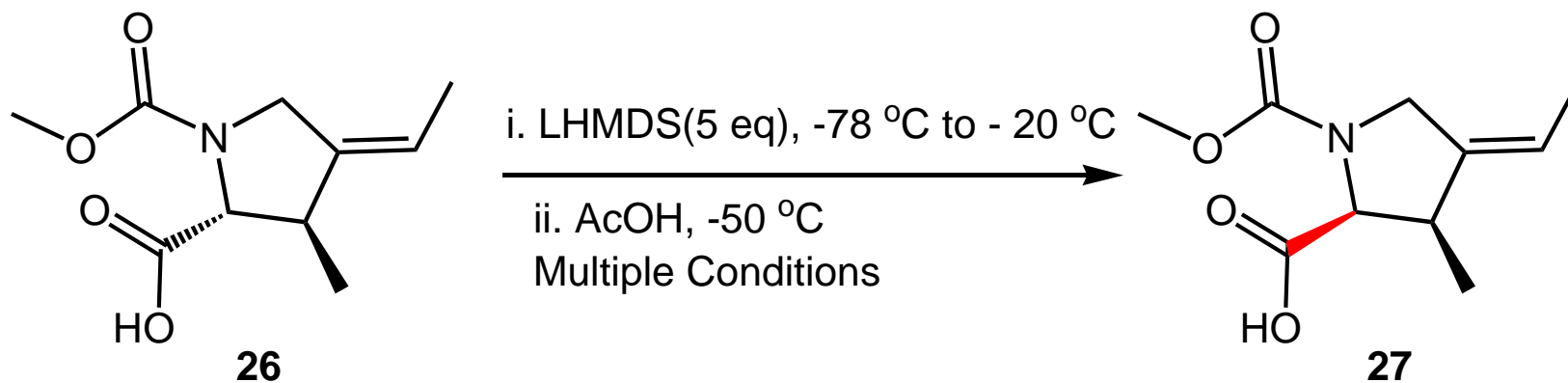
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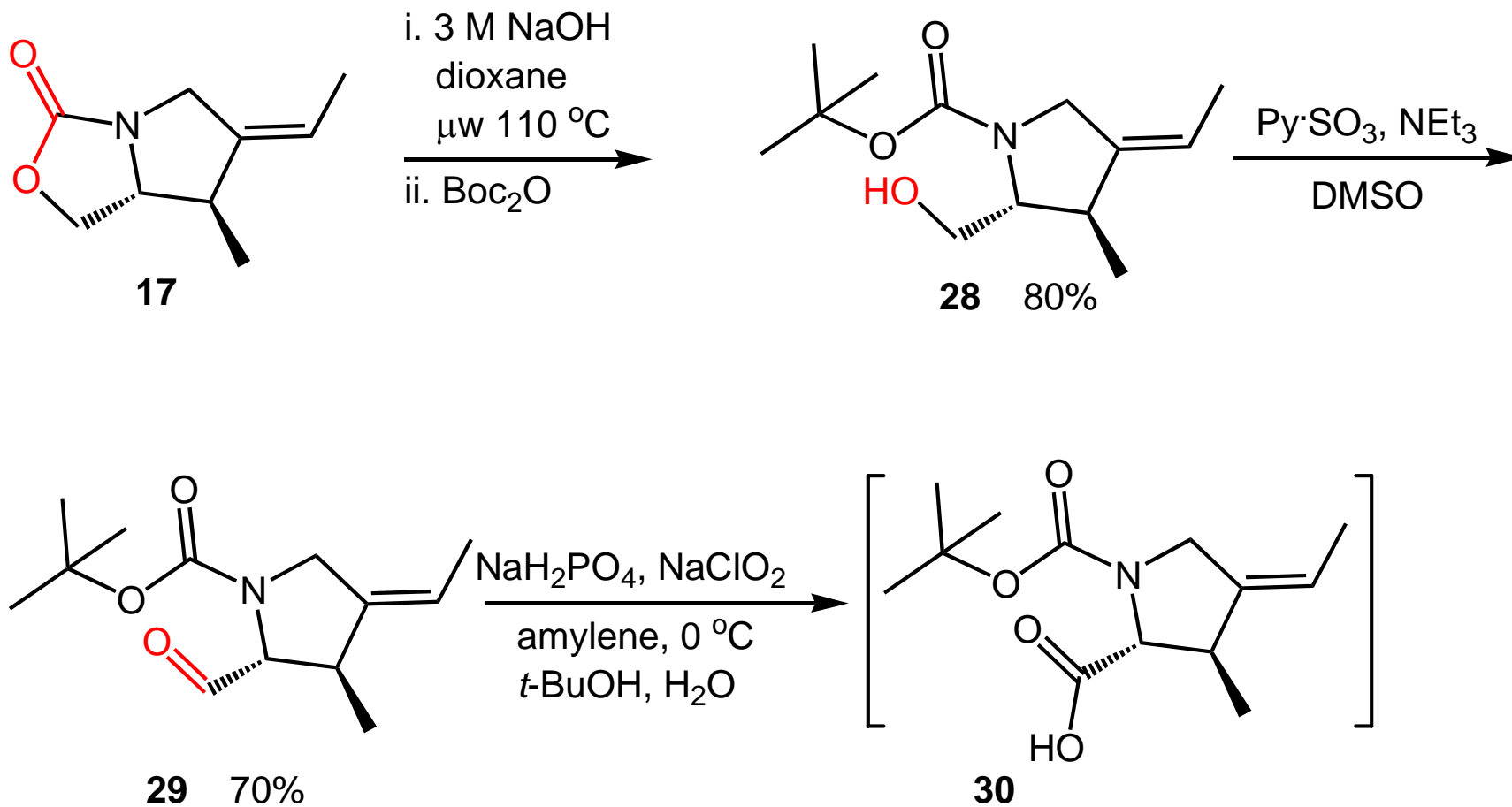
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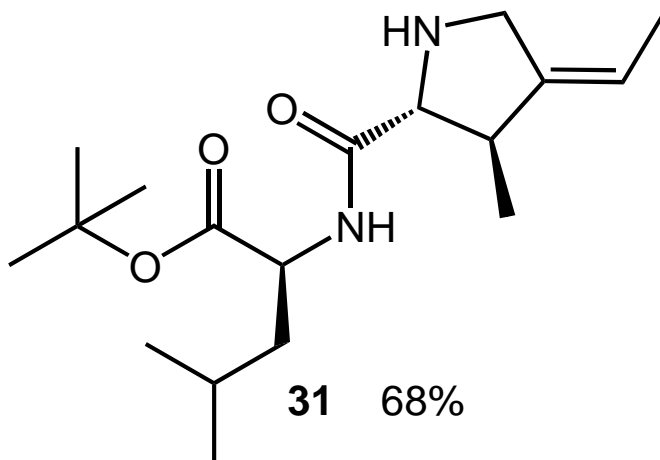
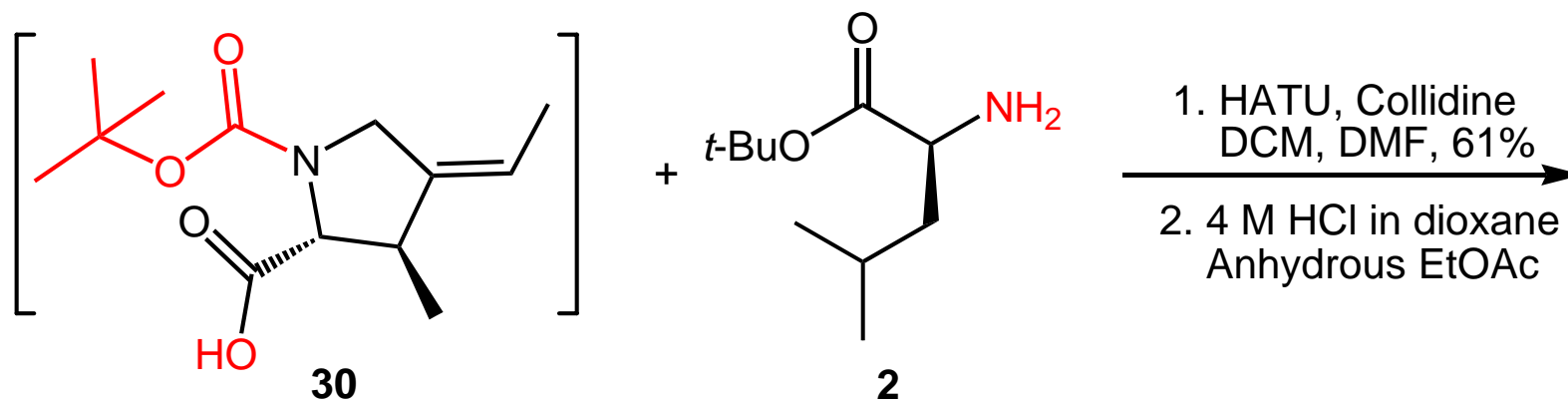
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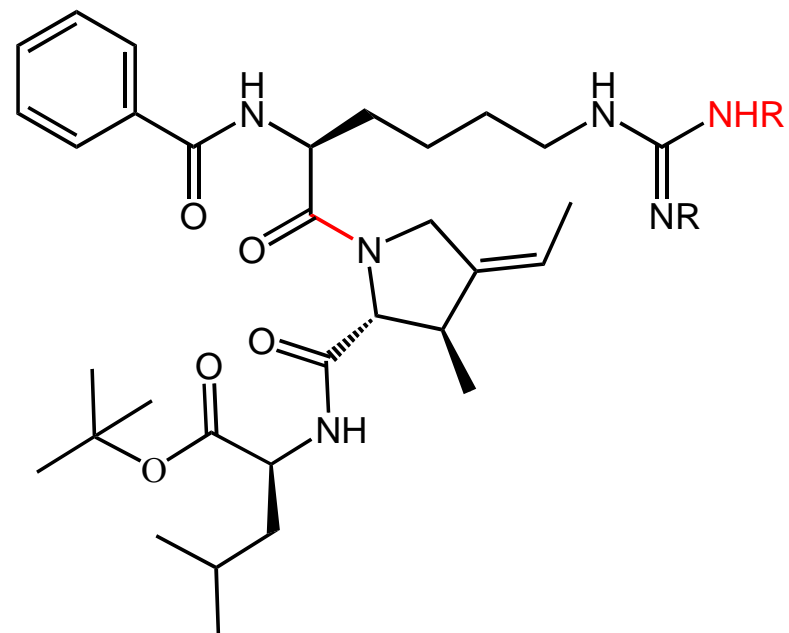
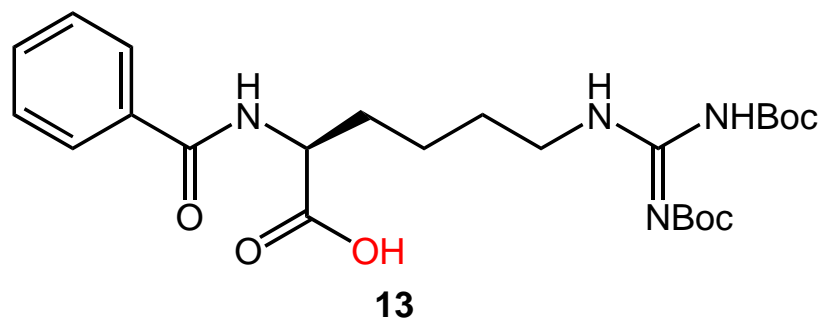
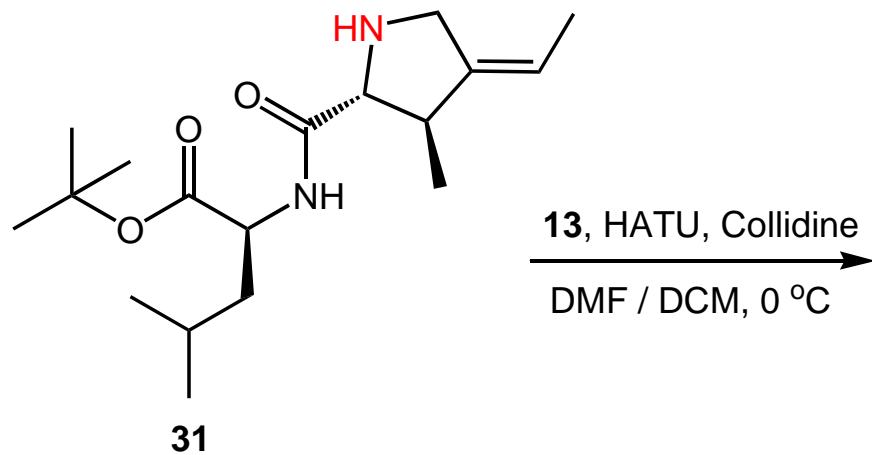
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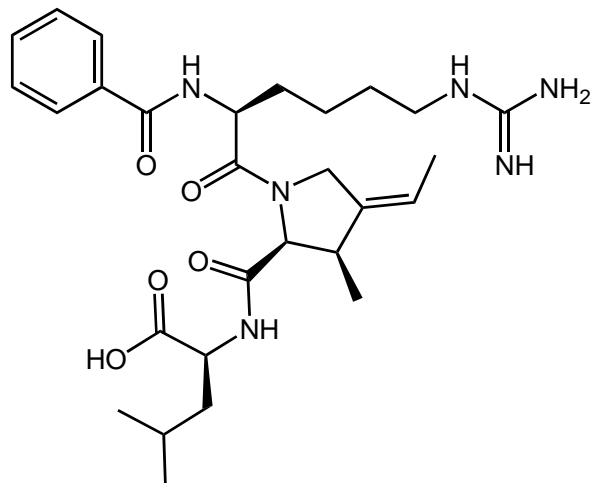
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Recently, Fenical and co-workers reported on the isolation and characterization of four novel 3-methyl-4-ethylideneproline-containing peptides, lucentamycins A-D, from the fermentation broth of a marine-derived actinomycete identified as *Nocardiopsis lucentensis* (Figure 1). Importantly, lucentamycins A and B displayed significant in vitro cytotoxicity, IC_{50} values of 0.2 and 11 μ M, respectively, against HCT-116 human colon carcinoma. On the basis of the biological activity of lucentamycin A and the broad spectrum of biological activity (antibiotic, antifungal, anticancer) of other agents derived from *Nocardiopsis*, a total synthesis campaign targeting lucentamycin A to provide sufficient material for biological evaluation seemed warranted. Moreover, the lucentamycins were attractive as a target for our Program in the synthesis of unnatural analogues coupled with biological evaluation and target elucidation.

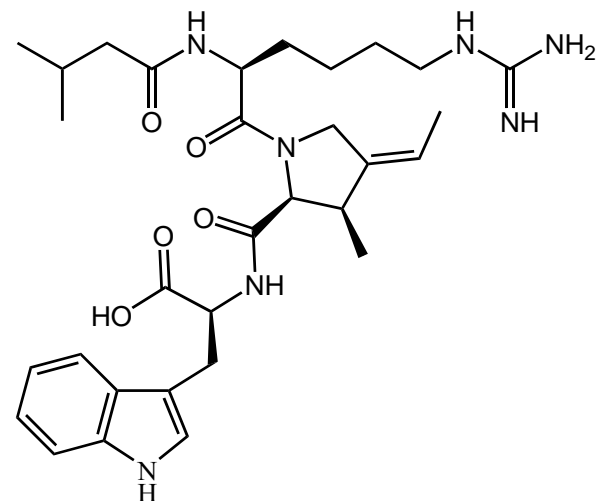
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Thus, synthetic efforts toward the lucentamycins A-D,**1-4**, have been reported culminating in the total synthesis of 8-*epi*-lucentamycinA (**33**). The synthesis features a titanium mediated cycloisomerization reaction to construct the key, epimeric nonproteogenic 3-methyl-4-ethylideneproline **30**. The convergent synthetic route afforded 8-*epi*-lucentamycin A **33** in 15 steps, with a 10 step longest linear sequence, and an over all yield of 2.2%.

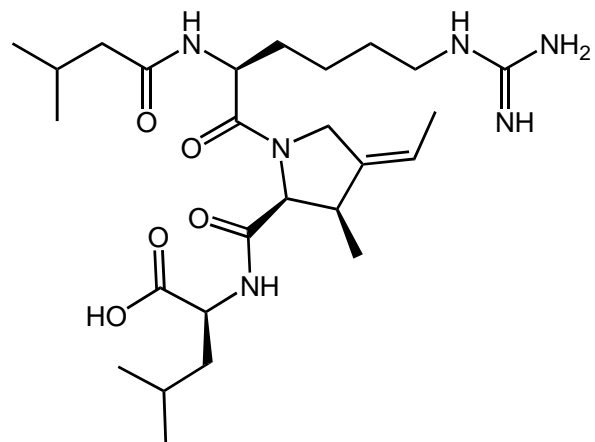
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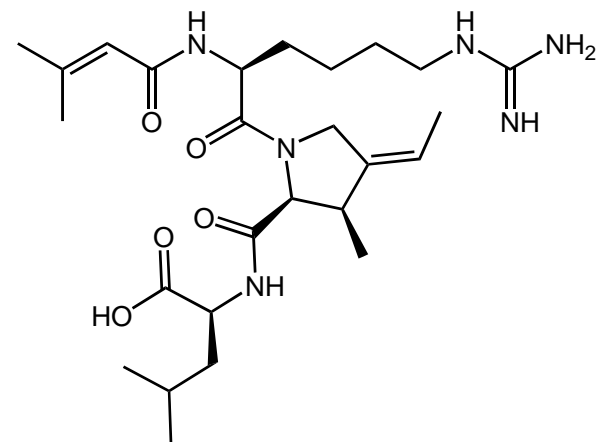
Lucentamycin A



Lucentamycin B



Lucentamycin C



Lucentamycin D