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An Unconventional Approach to the Enantioselective Synthesis of Caryophylloids
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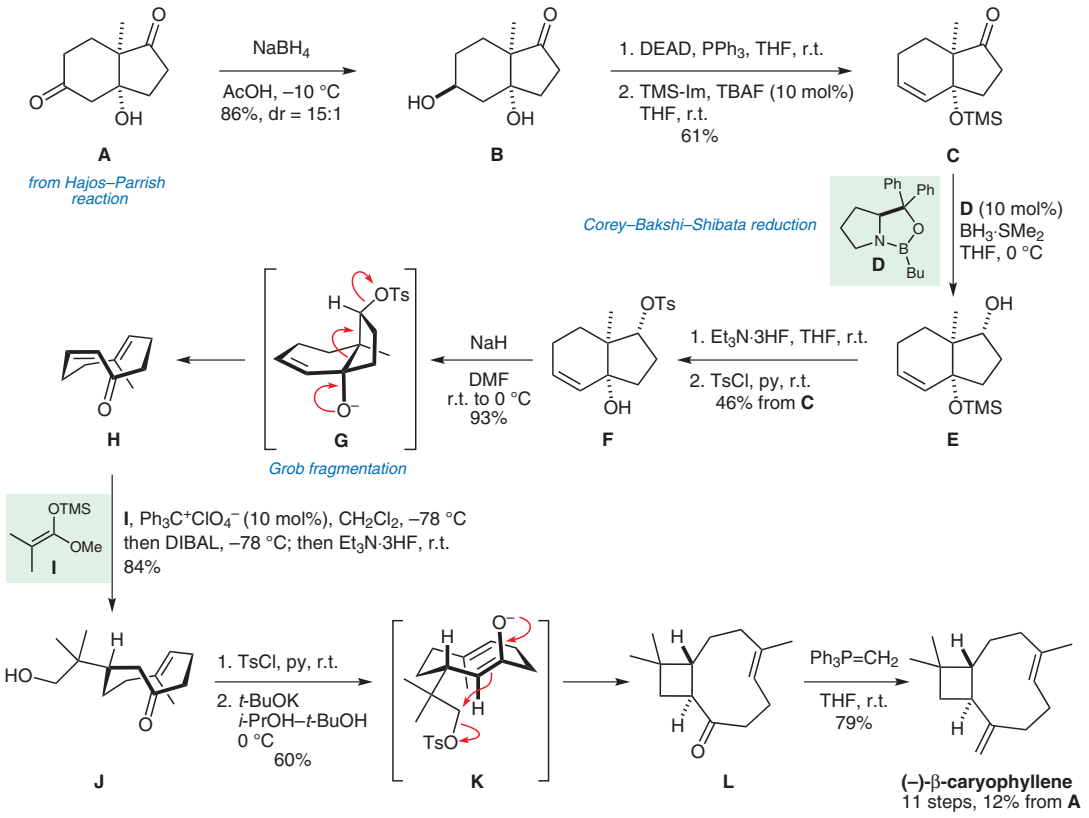
Synthesis of (–)-β-Caryophyllene



Significance: The synthesis of β-caryophyllene and coraxenolide A by Larionov and Corey is distinctive because it is a rare example of the use of planar chirality in natural product synthesis. Both enantiomers of (2*Z*,6*E*)-6-methylcyclonona-2,6-dienone (**H**) were prepared and used as chiral precursors for the synthesis of the (–)-β-caryophyllene and coraxeniolide A.

Comment: The absence of stereoselectivity in the reduction of **C** with $NaBH_4$ was overcome by using the CBS reduction. Planar chiral **H** was obtained as a single enantiomer that is stable against racemization at room temperature owing to restricted C–C bond rotation in the 9-membered ring. By contrast, cyclononene racemizes in a few minutes at room temperature.

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