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Biomimetic Total Synthesis of (±)-Garcibracteatone
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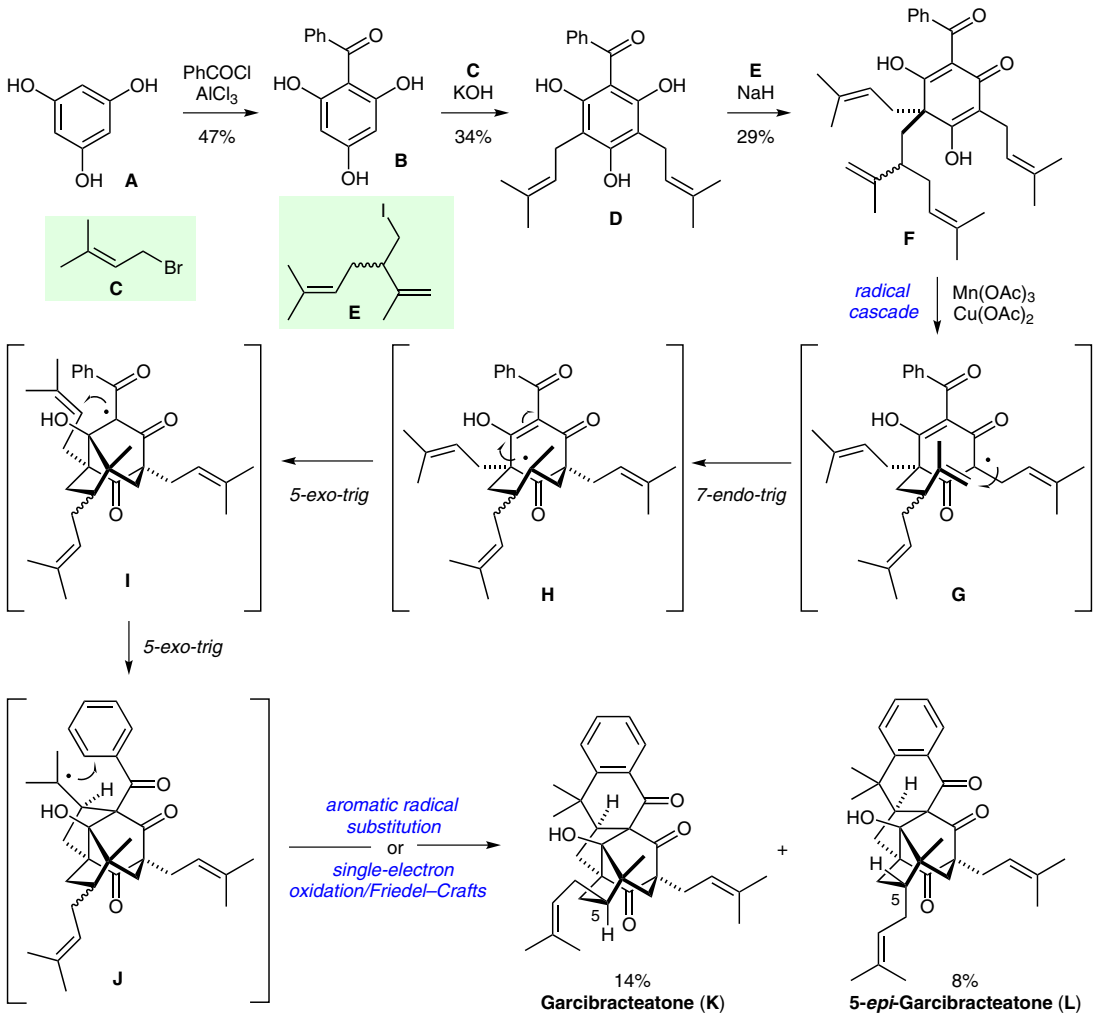
Total Synthesis (±)-Garcibracteatone



Significance: Garcibracteatone (**K**) is the structurally most complex polycyclic polyprenylated acylphloroglucinol natural product that has so far been isolated. The four-step total synthesis presented makes use of a biomimetic radical cascade reaction to build up four rings in one transformation. Additionally, the previously unknown relative stereochemistry at C-5 was assigned.

Comment: Precursor **F** for the key transformation is synthesized from phloroglucinol **A** in three steps by Friedel–Crafts acylation followed by subsequent diprenylation and alkylation with (±)-lavandulyl iodide (**E**). Oxidation of **F** by using $Mn(OAc)_3$–$Cu(OAc)_2$ initiates a radical cascade, which ultimately leads to the formation of the natural product garcibracteatone **K** (14% yield) along with its C5-epimer **L** (8% yield). This key transformation constructs four rings and five stereocenters.

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Category
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