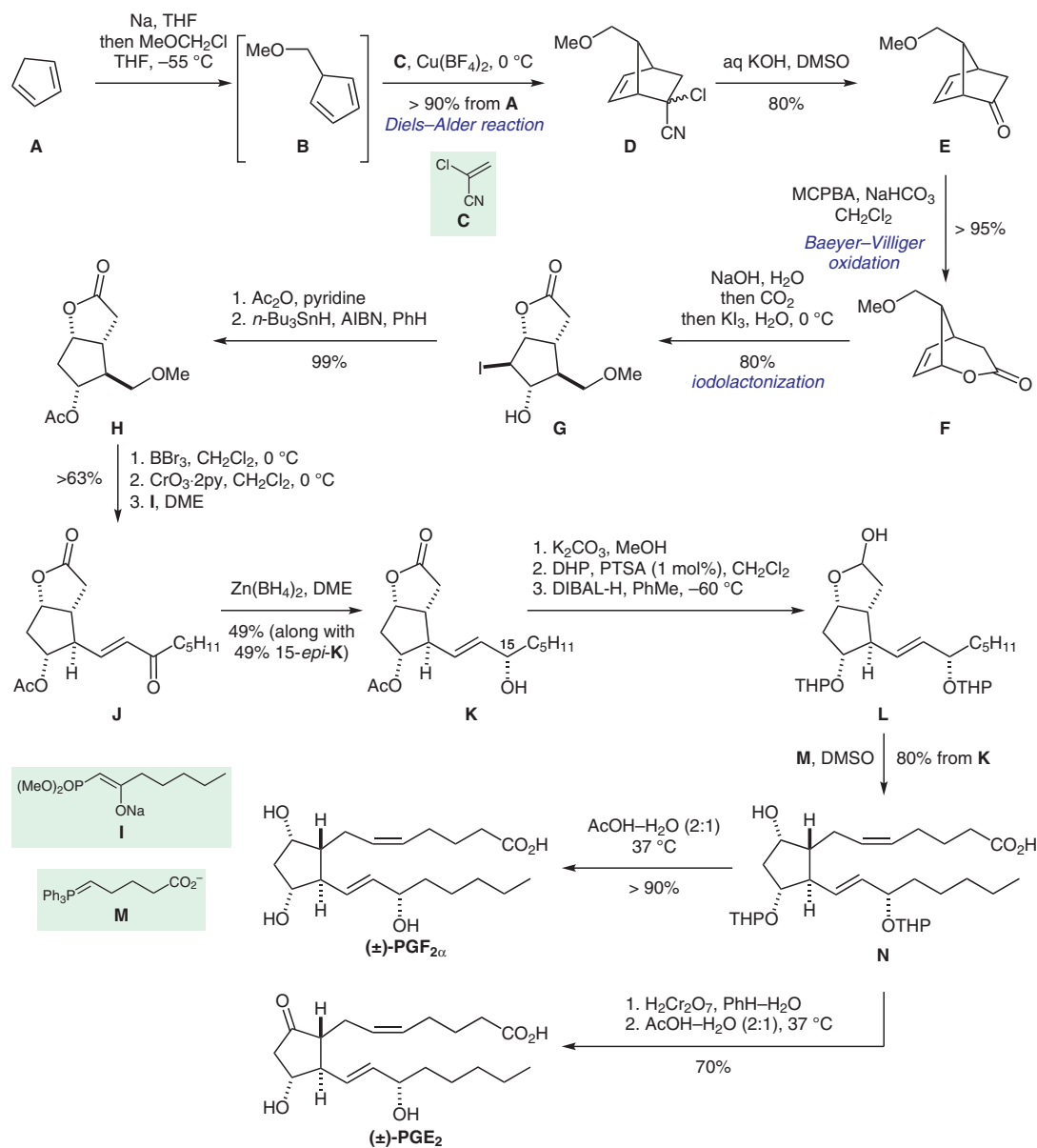


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Stereo-Controlled Synthesis of Prostaglandins F_{2α} and E₂ (*dl*)

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Synthesis of Prostaglandins F_{2α} and E₂



Significance: In 1969, Corey and co-workers reported a landmark total synthesis of prostaglandins PGF_{2α} and PGE₂ which play an important role as hormones in mammalian tissue. Strategic application of a [2.2.1]-bicycloheptane enabled expedient access to the highly substituted cyclopentane core.

Comment: Bicycloheptane **D** was accessed through Diels-Alder reaction between diene **B** and **C**. Subsequent Baeyer-Villiger oxidation followed by hydrolysis and iodolactonization furnished lactone **G**, which was transformed into the natural products by a sequence involving two olefinations.