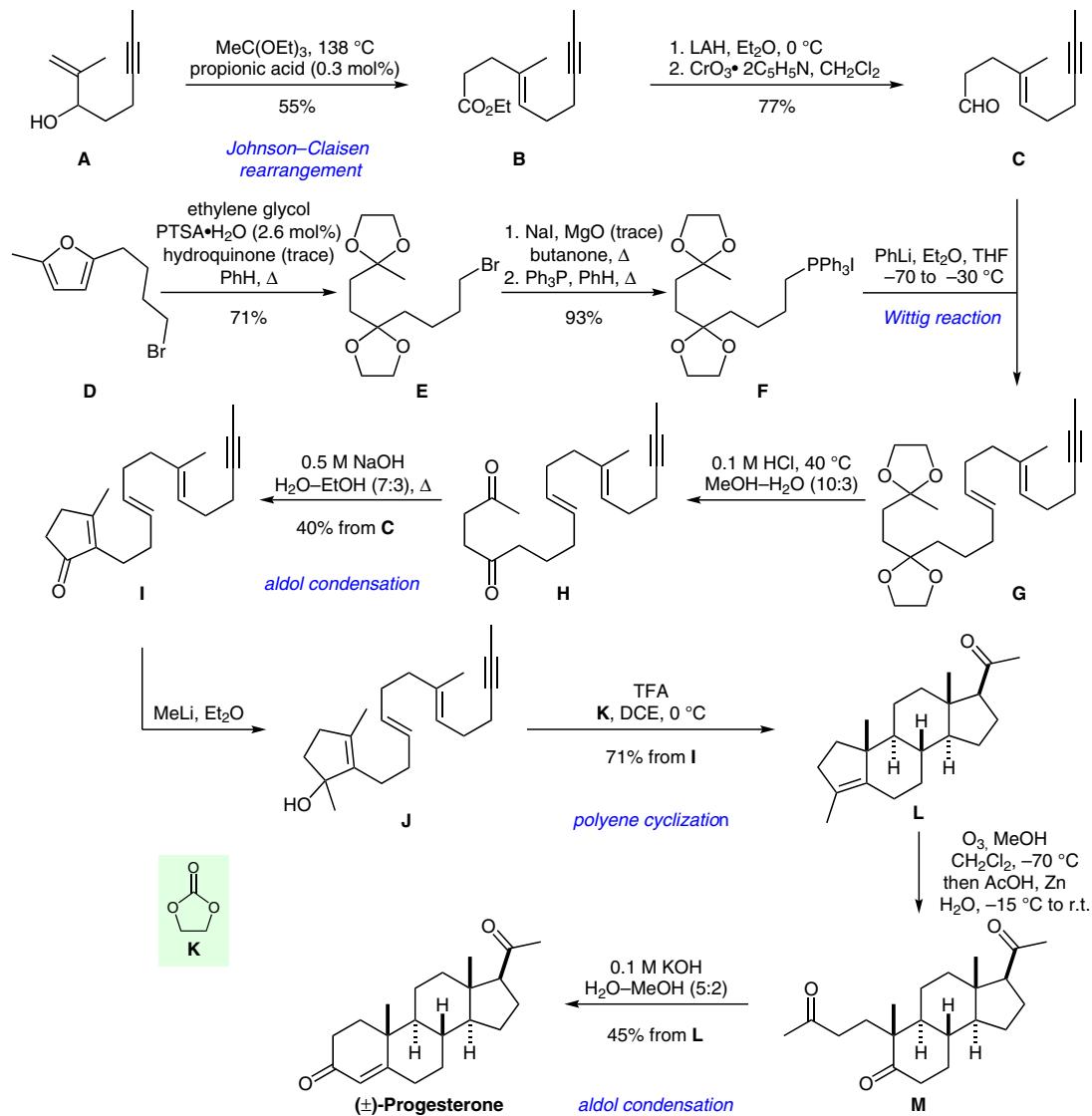


# Total Synthesis of ( $\pm$ )-Progesterone



**Significance:** In 1971, Johnson and co-workers published the total synthesis of racemic progesterone relying on a biomimetic, cationic polyene-cyclization. Similar polyene cyclizations have been used frequently in the total synthesis of various natural products ever since Johnson's seminal studies.

**Comment:** The synthesis relies on a convergent coupling of aldehyde C and Wittig reagent F to yield diketal G. Elaboration into cyclization precursor J enables the key acid-mediated polyene cyclization forging three rings and setting six stereocenters with excellent diastereorecontrol. Ozonolysis of olefin L followed by aldol condensation yields racemic progesterone.