Stereoselective Synthesis of All-Carbon Tetrasubstituted Alkenes

**Significance:** The stereoselective synthesis of various all-carbon tetrasubstituted alkenes is disclosed, employing a two-step protocol which includes the stereoselective generation of an alkenyl pseudohalide followed by stereospecific palladium-catalyzed cross-coupling. The appropriate tetrasubstituted alkenes are obtained in good yield and with good diastereomeric ratios, providing mainly the Z-isomers.

**Comment:** The reaction is proposed to proceed via a ketene intermediate which is stereospecifically attacked by a lithium organyl to form the tri-substituted enolate moiety attached to a pseudohalide group [OTf or OP(O)(OR)₂]. This moiety may be converted into other functional groups by palladium-catalyzed cross-couplings to give the corresponding all-carbon tetrasubstituted alkenes.

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**Category**

Metal-Mediated Synthesis

**Key words**

lithium, magnesium, palladium, tetrasubstituted alkenes

**SYNFACTS of the month**