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High-Value Alcohols and Higher-Oxidation-State Compounds by Catalytic *Z*-Selective Cross-Metathesis
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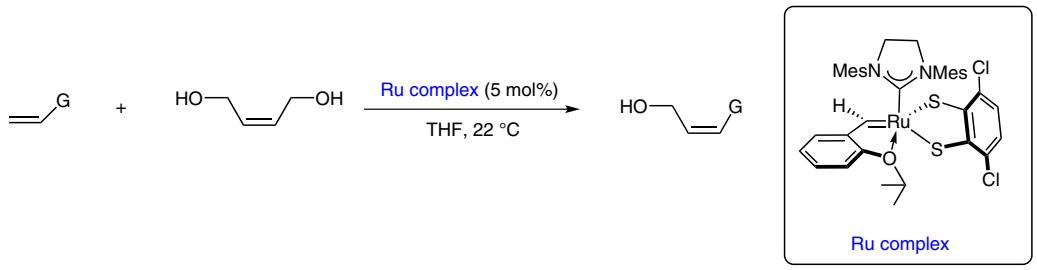
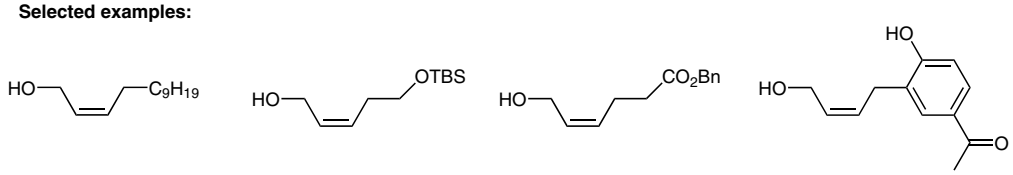
Ruthenium-Catalyzed *Z*-Selective Cross-Metathesis of Allylic Alcohols



Selected examples:

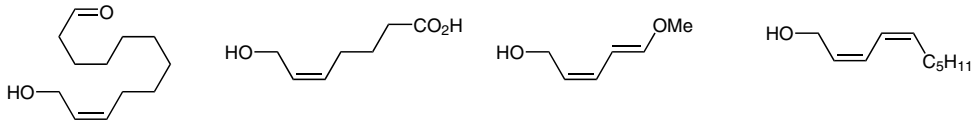


72% yield
Z/*E* = 96:4

65% yield
Z/*E* = 93:7

80% yield
Z/*E* = 98:2

68% yield
Z/*E* = 98:2



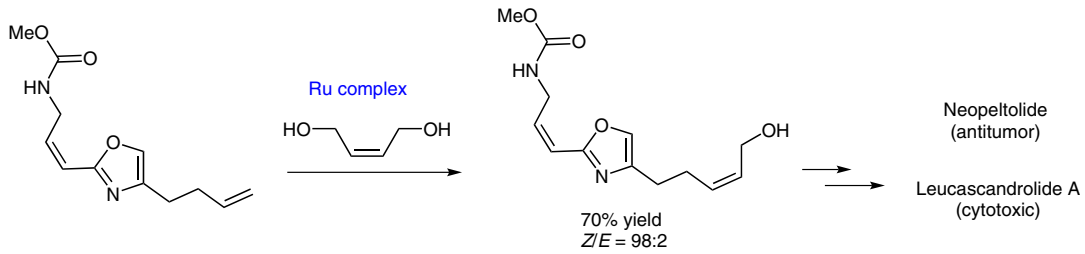
80% yield
Z/*E* = 94:6

70% yield
Z/*E* = 96:4

63% yield
Z/*E* = 92:8

54% yield
Z/*E* = 87:13

Application to a formal total synthesis:



70% yield
Z/*E* = 98:2

Significance: The authors describe a ruthenium complex catalyzed *Z*-selective cross-metathesis to afford (*Z*)-allylic alcohols. The reaction conditions are very mild and a wide range of functional groups (for example, aldehydes, carboxylic acids, phenols, and enol ethers) is tolerated.

Comment: Using a ruthenium–disulfide complex, highly valuable (*Z*)-alkenes are obtained from easily available alkenes and (*Z*)-allylic alcohols. Theoretical studies provide a better understanding of this catalyst design.

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