Enantioselective Allyl– Allylsilane Cross-Coupling Catalyzed by Iridium

**Significance:** An iridium-catalyzed cross-coupling of allylic alcohols with allylsilanes is reported. A series of chiral 1,5-dienes were prepared in good yields (up to 95%) with excellent regio- (up to >25:1) and enantioselectivities (up to >99% ee).

**Comment:** This allyl–allylsilane cross-coupling proceeds with excellent regio- and enantioselectivity under operationally simple conditions. The utility of this reaction is demonstrated in the enantioselective synthesis of the pyrethroid insecticide protrifenbute.

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Selected examples:

- 2-Naph: 79% yield, >99% ee
- Ph: 87% yield, >99% ee
- MeO: 69% yield, 99% ee
- F3C: 87% yield, >99% ee
- OAc: 84% yield, 99% ee
- Br: 85% yield, >99% ee
- OMe: 65% yield, >99% ee
- 2-Naph: 61% yield, >99% ee

Synthesis of (−)-protrifenbute:

- 10 mmol scale, 75% yield, regioselectivity (25:1)
- 9-BBN regioselectivity (9:1)
- 94% yield

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