Enantioselective Fluoroallylboration of Aldehydes

**Significance:** An enantioselective fluoroallylboration of a variety of aldehydes with B-(3,3-difluoroallyl)diisopinocampheylborane has been disclosed. The resulting 2,2-*gem*-difluorinated homoallylic alcohols have been obtained in good yield and high enantioselectivity.

**Comment:** The described reaction proceeds in one pot. After the synthesis of B-(3,3-difluoroallyl)diisopinocampheylborane out of freshly prepared 1,1-difluoroallene, the aldehyde is added directly to the reaction mixture, followed by an oxidative workup.

**Selected examples:**

- **Et₂O, –78 to 0 °C, 3 h (1.5 equiv)**
  - R = Ph, PMP, Naph, (CH₂)₂Ph, (E)-CH=CHPh, 2-furyl
  - 76% yield, 97% ee
  - 70% yield, 94% ee
  - 71% yield, 93% ee
  - 72% yield, 94% ee

- **NaOH–H₂O₂, 25 °C, 12 h**
  - 70% yield, 91% ee
  - 69% yield, 92% ee

**Key words**
- enantioselective fluoroallylboration
- aldehydes
- 2,2-*gem*-difluorinated homoallylic alcohols

**Category**
- Metal-Mediated Synthesis

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