Synthesis of (R)-Rolipram

**Significance:** Rolipram is a phosphodiesterase-4 (PDE-4) inhibitor that displays potentially useful anti-inflammatory, antidepressant and antipsychotic effects. The key step in the micro-scale synthesis depicted is the palladium-catalyzed asymmetric allylic alkylation of nitromethane with the allylic carbonate A. High regio- and enantioselectivities were observed using the ferrocene-based SIOCPHox chiral ligand B.

**Comment:** The scope of the asymmetric allylic alkylation of nitromethane was explored using eleven aryl-substituted allyl methyl carbonates giving yields of 80–92% (one exception) and enantiomeric excesses of 90–98%. The reaction was also applied to an asymmetric synthesis of the anti-spasmodic agent (R)-baclofen.

**Category**
Synthesis of Natural Products and Potential Drugs

**Key words**
(R)-rolipram
(R)-baclofen
asymmetric allylic alkylation
nitromethane
allyl carbonates
palladium

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