Catalytic *gem*-Difluoropropargylation Using Aryl and Alkenyl Boron Reagents

**Significance:** The authors report the first palladium-catalyzed *gem*-difluoropropargylation of organoboron reagents using *gem*-difluoropropargyl bromides. A wide range of novel molecules with potential use as building blocks in organic synthesis were prepared. The reaction proceeds with high regioselectivity, broad substrate scope, and excellent functional group compatibility.

**Comment:** Whereas in previous reports special phosphine ligands with large bite angles or very bulky substituents needed to be applied, now a simple ligand (o-Tol)₃P can be used. The late-stage introduction of the fluoro substituents is suitable for applications in the synthesis of complex molecules.

**Selected examples:**

- **ArB(OH)₂ + Br\(_{2}\)F\(_{2}\) TIPS Pd\(_2\)(dba)₃ (0.5 mol%) (o-Tol)₃P (3 mol%) K\(_2\)CO₃ (3.0 equiv) dioxane, 80 °C, 24 h**
  - Ar\(_{2}\)F\(_{2}\)TIPS: 77% yield
  - Ph\(_{2}\)F\(_{2}\)TIPS: 58% yield
  - 79% yield
  - 90% yield
  - 78% yield
  - 84% yield
  - 67% yield
  - 87% yield