Palladium-Catalyzed Conversion of Aryl Triflates to Aryl Fluorides

**Significance:** The biaryl phosphine ligand t-BuBrettPhos in combination with [cinnamyl]PdCl₂ is shown to catalyze the fluorination of aromatic and heteroaromatic triflates using CsF as fluorine source. This reaction proceeds under relatively mild conditions and with high functional group tolerance.

**Comment:** In a few cases, regioisomeric products are observed, but the overall yields remain high. The success of the reaction crucially depends on the sterically demanding t-BuBrettPhos ligand, since it prevents the formation of dimeric [LPdAr(F)]₂, but also promotes reductive elimination of the Ar–F bond due to its large size. This method can be expected to be applicable for the preparation of biologically active aryl fluorides.

**Selected examples:**

- 110 °C, 83% yield
- 80 °C, 63% yield
- 130 °C, 84% yield
- 80 °C, 85% yield (10 mmol scale)
- 80 °C, 83% yield
- 110 °C, 73% yield
- 130 °C, 57% yield
- 110 °C, 73% yield
- 80 °C, 83% yield
- 110 °C, 80% yield
- 80 °C, 63% yield
- 110 °C, 70% yield

R = Alk, Ar, ketones, esters, amines, ethers, nitro up to 85% yield

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**Equation:**

\[
R^+OTf + CsF \xrightarrow{\text{t-BuBrettPhos (6 mol%), [cinnamyl]PdCl}_2 (2 mol%) \text{PhMe, 80–130 °C, 12 h}} R^-F
\]

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**Key words**

- aryl triflates
- aryl fluorides
- palladium

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