Palladium-Catalyzed Conversion of Aryl Triflates to Aryl Fluorides

**Significance:** The biaryl phosphine ligand t-Bu-BrettPhos in combination with [(cinnamyl)PdCl]₂ 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:**

- **Ph-enol, 110 °C, 83% yield**
- **4-BuO₂C-Ph, 80 °C, 85% yield (10 mmol scale)**
- **80 °C, 63% yield**
- **2-Chlorobenzophenone, 110 °C, 70% yield**
- **130 °C, 84% yield**
- **2,6-Dimethoxyphenol, 110 °C, 73% yield**
- **110 °C, 80% yield**
- **80 °C, 83% yield**
- **2-(4-Methoxybenzyl)benzofuran, 110 °C, 73% yield**
- **130 °C, 57% yield**

**Equation:**

\[
\text{R}^+\text{OTf} + \text{CsF} \rightarrow \text{R}^+\text{F} + \text{t-BuBrettPhos} (6 \text{ mol%})
\]

\[
\text{[(cinnamyl)PdCl]}_2 (2 \text{ mol%})
\]

\[
\text{PhMe, 80–130 °C, 12 h}
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\[
\text{up to 85% yield}
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