Z. Li, A. García-Domínguez, C. Nevado* (University of Zurich, Switzerland)
Pd-Catalyzed Stereoselective Carboperfluoroalkylation of Alkynes

**Palladium-Catalyzed Carbofluoroalkylation**

\[
\begin{align*}
R^1 &= \text{alkyne} \\
R^2 &= \text{boronic acid} \\
R^3 &= \text{perfluoroalkyl iodide} \\
PdCl_2(PPh_3)_2 \text{ (4 mol%) } & \rightarrow \text{ products in a highly regio- and stereocontrolled manner.}
\end{align*}
\]

**Selected examples:**

- \[
\begin{align*}
\text{Ph} & \quad \text{C}_4\text{F}_9 \\
\text{Ph} & \quad \text{C}_4\text{F}_9 \\
\text{Ph} & \quad \text{C}_4\text{F}_9 \\
\end{align*}
\]

<table>
<thead>
<tr>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>F3C</td>
<td>Ph</td>
<td>C4F9</td>
<td>75%</td>
</tr>
<tr>
<td>Ph</td>
<td>C4F9</td>
<td>OMe</td>
<td>79%</td>
</tr>
<tr>
<td>F</td>
<td>C4F9</td>
<td>Ph</td>
<td>78%</td>
</tr>
</tbody>
</table>

- \[
\begin{align*}
\text{Ph} & \quad \text{C}_4\text{F}_9 \\
\text{Ph} & \quad \text{C}_4\text{F}_9 \\
\text{Ph} & \quad \text{C}_4\text{F}_9 \\
\end{align*}
\]

<table>
<thead>
<tr>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBu</td>
<td>Ph</td>
<td>C4F9</td>
<td>81%</td>
</tr>
<tr>
<td>HBu</td>
<td>Ph</td>
<td>C4F9</td>
<td>70%</td>
</tr>
<tr>
<td>HBu</td>
<td>Ph</td>
<td>C4F9</td>
<td>83%</td>
</tr>
</tbody>
</table>

**Significance:** The authors describe a palladium-catalyzed three-component reaction involving terminal alkynes, boronic acids, and perfluoroalkyl iodides, leading to the desired products in a highly regio- and stereocontrolled manner.

**Comment:** From a mechanistic point of view, the simultaneous addition of both aryl and \(\text{C}_m\text{F}_n\) groups across the triple bond in a radical-mediated process is proposed.