Gold(I)-Catalyzed Stereoselective Synthesis of Deoxyglycosides

**Significance:** Deoxyhexose structures can be found in a wide range of natural products. The authors have developed an α-stereoselective catalytic synthesis of deoxyglycosides from glycals by using Au(I)/AgOTf.

**Comment:** The reaction can be applied to a broad range of glycals and alcohols to give α-deoxyglycosides in high yields and with excellent selectivity. The utility of the reaction was demonstrated by the synthesis of oligosaccharides through the coupling reaction followed by deprotection.

**Selected examples:**

<table>
<thead>
<tr>
<th>Structure</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Structure 1" /></td>
<td>89%</td>
</tr>
<tr>
<td><img src="image2.png" alt="Structure 2" /></td>
<td>76%</td>
</tr>
<tr>
<td><img src="image3.png" alt="Structure 3" /></td>
<td>78%</td>
</tr>
<tr>
<td><img src="image4.png" alt="Structure 4" /></td>
<td>79%</td>
</tr>
<tr>
<td><img src="image5.png" alt="Structure 5" /></td>
<td>85%</td>
</tr>
</tbody>
</table>

**Proposed mechanism:**

\[
\text{[((4-F_3C)C_6H_4)_3P]AuCl} + \text{AgOTf} \rightarrow \text{AuLnOTf} + \text{BH}_3
\]

\[
\text{R}^1\text{OH} + \text{AuLnOTf} \rightarrow \text{BnO} \quad \text{89% yield}
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