Azides and Nitriles in Palladium-Catalyzed Decarboxylative Allylation

**Significance:** Homoallylic azides and cyanides are synthesized in enantioenriched form through a palladium-catalyzed decarboxylative allylation on indanones. These functional groups had seen little (CN) to no (N₃) reported use in the title reaction.

**Comment:** The products are obtained in very good yield and mostly with high enantioselectivity. The starting materials can be synthesized in one step from the corresponding β-keto esters using hypervalent iodine reagents developed in the authors’ laboratories.

**Selected examples:**

- ![Example 1](image1.png)
  - X = N₃, 86% yield, 87% ee
- ![Example 2](image2.png)
  - X = CN, 92% yield, 89% ee
- ![Example 3](image3.png)
  - X = N₃, 85% yield, 95% ee
- ![Example 4](image4.png)
  - X = CN, 92% yield, 89% ee
- ![Example 5](image5.png)
  - X = N₃, 85% yield, 92% ee
- ![Example 6](image6.png)
  - X = CN, 96% yield, 85% ee

**Modifications of the obtained products:**

- ![Modification 1](image7.png)
  - CuSO₄ · 5H₂O (20 mol%), sodium ascorbate, t-BuOH–H₂O
  - 94% yield
- ![Modification 2](image8.png)
  - Ph₃P, THF, 0 °C, then H₂O
  - 53% yield