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Enzyme-Inspired Axially Chiral Pyridoxamines Armed with a Cooperative Lateral Amine Chain for Enantioselective Biomimetic Transamination

**Novel Pyridoxamines for Enantioselective Biomimetic Transamination**

**Significance:** Zhao and co-workers report a novel pyridoxamine catalyst bearing a lateral amine chain. Using this catalyst, they successfully mimicked the transamination activity of transaminases in converting α-keto acids into the corresponding amino acids with commercially available diphenylglycine as the co-substrate; the reaction gave good yields and showed excellent enantioselectivity.

**Comment:** Transamination of α-keto acids is a significant process for generating various amino acids in biological systems; consequently, great efforts have been made since the 1970s to achieve pyridoxamine-based biomimetic asymmetric transamination. In this work, enantioselectivities in excess of 90:10 were achieved under mild conditions for the first time.

**Selected examples:**
- 98% yield er = 96.5:3.5
- 74% yield er = 94:6
- 90% yield er = 95.5:4.5
- 99% yield er = 96:4

**Proposed mechanism:**

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