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Efficient Asymmetric α-Oxyamination of Aldehydes by Resin-Supported Peptide Catalyst in Aqueous Media

**Supported Peptide for Asymmetric α-Oxyamination of Aldehydes**

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**Significance:** A polystyrene-poly(ethylene glycol) resin supported peptide catalyst bearing terminal five-residue Pro-D-Pro-Alb-Trp-Trp combined with polyleucine was prepared. The polymeric peptide was successfully applied to the asymmetric α-oxyamination of aldehydes with TEMPO in the presence of a catalytic amount of FeCl₂ and NaNO₂ to give the corresponding products under aqueous aerobic conditions with up to 87% yield and 93% ee (5 examples).

**Comment:** The Kudo group has previously reported asymmetric hydrogenation (K. Akagawa et al. *Tetrahedron: Asymmetry* 2009, 20, 461; K. Akagawa et al. *Org. Lett.* 2008, 10, 2035) and asymmetric Friedel–Crafts alkylation (K. Akagawa et al. *Tetrahedron Lett.* 2009, 50, 5602) in aqueous media with this catalyst. The polyleucine moiety between the tryptophan and the resin support not only provides a hydrophobic environment, but also effects the stereoselectivity of the reaction.