K. AKAGAWA, J. SEN, K. KUDO\* (THE UNIVERSITY OF TOKYO, JAPAN) Peptide-Catalyzed Regio- and Enantioselective Reduction of  $\alpha,\beta,\gamma,\delta$ -Unsaturated Aldehydes *Angew. Chem. Int. Ed.* **2013**, *52*, 11585–11588.

## Regio- and Enantioselective Hydrogenation Using a Peptide Catalyst

**Significance:** The amphiphilic resin-supported peptide **1** catalyzed the regio- and enantioselective transfer hydrogenation of (2E, 4E)- $\alpha, \beta, \gamma, \delta$ - unsaturated aldehydes **2** with a Hantzsch ester to give the corresponding aldehydes **3** in 47–87% yield with 87–99% ee (14 examples, eq. 1).

**Comment:** In the hydrogenation of the mixture of (2E,4E)-**2b** and (2Z,4E)-**2b**, aldehyde **3b** was obtained in 71% yield with 97% ee (eq. 2). The authors have previously reported the asymmetric transfer hydrogenation of  $\alpha,\beta$ -unsaturated aldehydes with a Hantzsch ester in the presence of resin-supported peptides (*Org. Lett.* **2008**, *10*, 2035; *Tetrahedron: Asymmetry* **2009**, *20*, 461).

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Key words

**Synthesis** 

 $\substack{\alpha,\beta,\gamma,\delta\text{-unsaturated}\\\text{aldehydes}}$ 

**Polymer-Supported** 

Hantzsch esters

asymmetric transfer hydrogenation

peptide catalysis

