



Amphiphilic immobilized diphenylprolinol alkyl ether catalyst on PS-PEG resin

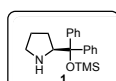
(Department of Chemistry, Graduate School of Science, Tohoku University¹
Institute for Molecular Science²)

Shusuke Hattori,¹ Seitaro Koshino,¹ Yasuhiro Uozumi,² Yujiro Hayashi^{1*}

Background

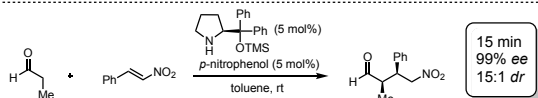
Jørgensen-Hayashi catalyst

- Strength**
- Easily available
 - Effective for various reactions via enamine or iminium ion
 - High stereoselectivity



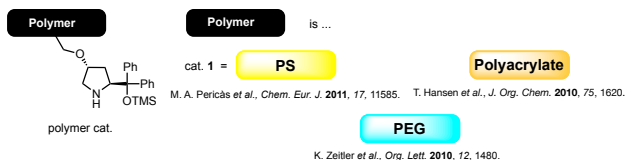
- Weakness**
- Reusability

immobilization on polymer

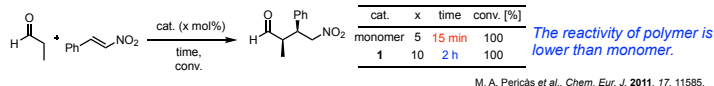
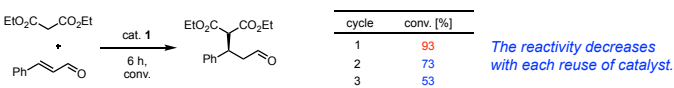


Y. Hayashi et al., *Angew. Chem., Int. Ed.*, 2005, 44, 4212.
Y. Hayashi et al., *Helv. Chim. Acta*, 2011, 94, 719.

Previous works

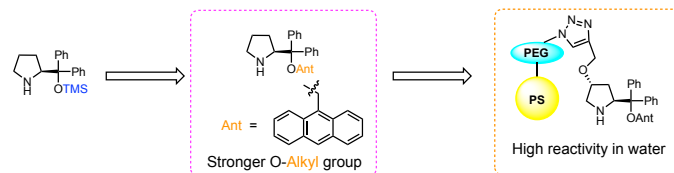


Challenge

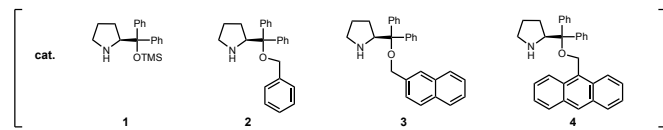
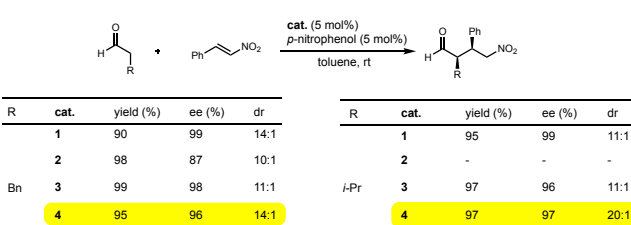


Strategy

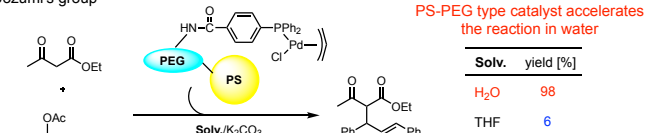
How to prevent deactivation and improve the reactivity



Choice of Alkyl group

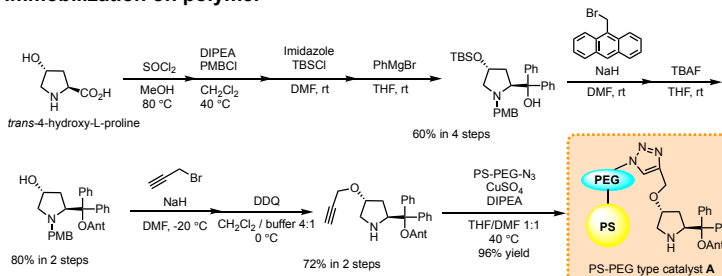


Uozumi's group¹⁾

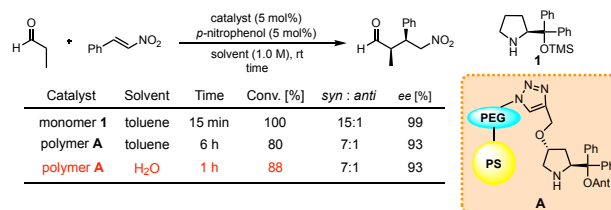


1) Y. Uozumi et al., *Tetrahedron Lett.*, 1997, 38, 3557.

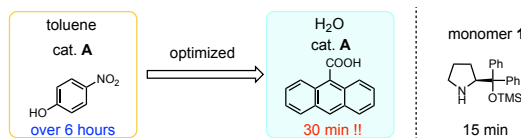
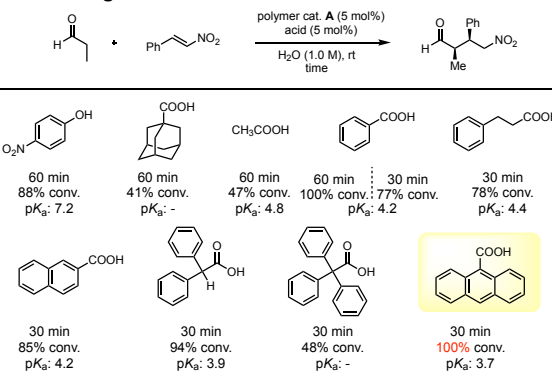
Immobilization on polymer



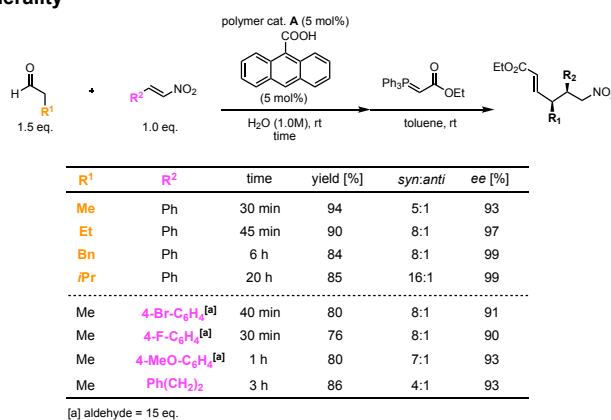
Effect in aqueous media



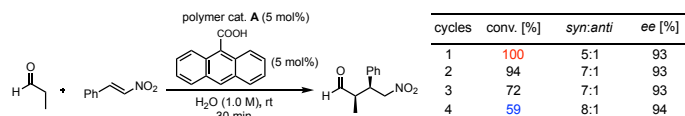
Additive screening



Generality



Reusability



Conclusion

