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### **Education**

Ph. D. (March, 1984), M. Eng. (March, 1981), B. Eng. (March, 1979): Osaka University

### **Academic Carrier**

1984 (April)-1989 (August): Assistant Professor, The Institute of Scientific and Industrial Research, Osaka University

1988 (May)-1989 (August): Post-doctoral fellow, Department of Chemistry, University of Illinois, Urbana-Champaign (supervisor: Prof. Scott E. Denmark)

1989 (September): Assistant Professor, Department of Applied Chemistry, Faculty of Engineering, Osaka University

1992 (September): Associate Professor, Department of Applied Chemistry, Faculty of Engineering, Osaka University

2003 (April)-: Professor, Department of Applied Chemistry, Faculty of Engineering, Osaka University

2007 (April)-: Director of Research Center for Environmental Preservation

2011-: A member of Science Council of Japan

### **Awards and Honors**

Young Chemist Award of the Chemical Society of Japan (CSJ) (1991), The fourth Green and Sustainable Chemistry Award: Minister of Education, Sports, Culture, Science and Technology Prize (2005)

### **Total Publications**

(SCI: 196), Citation (SCI): 7,447 (2011, August), h-index: 46

### **Research Interests**

Development of new catalytic reactions

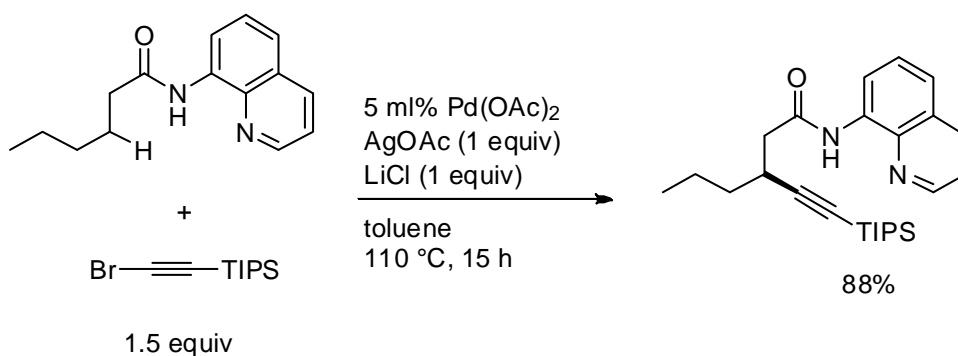
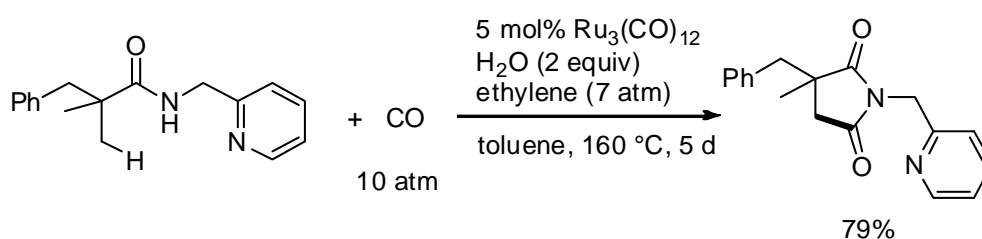
# Transformation of Unactivated C(sp<sup>3</sup>)-H Bonds

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The direct utilization of C-H bonds, which are ubiquitous in organic molecules, is a straightforward method in organic synthesis which avoids the need for the prefunctionalization of starting materials. The utilization of C-H bonds involving the activation of C(sp<sup>2</sup>)-H bonds by transition metal complexes is now a commonly used method in organic synthesis. In fact, a wide variety of catalytic transformations of C-H bonds in arenes, heteroarenes, and alkenes have already been reported. In contrast, functionalization involving the activation of C(sp<sup>3</sup>)-H bonds continues to be a challenge in organic synthesis.<sup>1</sup> I wish to discuss two types of catalytic transformations of unactivated C(sp<sup>3</sup>)-H bonds; carbonylation<sup>2</sup> and ethynylation.<sup>3</sup> In both cases, a choice of bidentate directing groups is important for the reaction to proceed selectively.



(1) Jazzar, R.; Hitce, J.; Renaudat, A.; Sofack-Kreutzer, J.; Baudoin, O. *Chem. Eur. J.* **2010**, *16*, 2654-2672. Li, H.; Li, B.-J.; Shi, Z.-J. *Catal. Sci. Technol.* **2011**, *1*, 191-206.

(2) Hasegawa, N.; Charra, V.; Inoue, S.; Fukumoto, Y.; Chatani, N. *J. Am. Chem. Soc.* **2011**, *133*, 8070-8073.

(3) Ano, Y.; Tobisu, M.; Chatani, N. *J. Am. Chem. Soc.* **2011**, *133*, 12984-12986.