H. Yamamoto

*The author presented on this page has recently published his **25th article** since 2000 in Angewandte Chemie:* "Catalytic Asymmetric Claisen Rearrangement of Enolphosphonates: Construction of Vicinal Tertiary and All-Carbon Quaternary Centers": J. Tan, C.-H. Cheon, H. Yamamoto, *Angew. Chem.* **2012**, *124*, 8389–8392; *Angew. Chem. Int. Ed.* **2012**, *51*, 8264–8267.

# Hisashi Yamamoto

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| **Date of birth**: | July 16, 1943 |
| **Position**: | Professor, Chubu University (Japan); Emeritus Professor, University of Chicago (USA); Emeritus Professor, Nagoya University (Japan) |
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| **Education**: | 1967 Undergraduate degree, Kyoto University<br>1971 PhD with E. J. Corey, Harvard University<br>1971 Postdoctoral work with J. Tsuji, Toray Industries Inc. (Japan) |
| **Awards**: | **1995** The Chemical Society of Japan Award; **2002** Le Grand Prix de la Fondation de la Maison de la Chimie; Medal of Honor with Purple Ribbon (Japan); **2004** Yamada–Koga Prize; **2006** Tetrahedron Prize; **2007** The Japan Academy Award; **2009** ACS Award for Creative Work in Synthetic Organic Chemistry; Grand Prize, Synthetic Organic Chemistry Society of Japan; **2012** Noyori Prize; Fujiwara Prize |
| **Current research interests:** | Lewis and Brønsted acid catalysts for chemical transformations; supersilyl reagents for rapid synthesis of complex molecules; catalytic asymmetric oxidation; design of metal catalysts |
| **Hobbies**: | Good food, good restaurants, and good friends; golf |

**I chose chemistry as a career because …** it is so beautiful and yet still mysterious. I decided to be a chemist when I was 10 years old and I have never to this day regretted that rather early decision.

**I** would not want to use whatever luck I might have for the lottery … but rather would like to use it for my work in chemistry.

**M**y favorite place on earth … I love every place in which I have lived so far: Kobe, Ashiya, Kyoto, Boston, Hawaii, Nagoya, and Chicago. Japan for the good cuisine, Boston for the scholarly life, Hawaii for its great climate, Nagoya for great chemistry, Chicago as the most beautiful city in US.

### *What is your biggest motivation?*

I have long admired the late Kozo Masuda, a famous professional Japanese chess (Shogi) player. His popularity did not derive from being an undefeatable champion; rather what was so special about his game was that he invented completely original strategies and tactics in every match he played. Famous professional Shogi players today make use of the same strategies in their games. When people asked Mr. Masuda why he insisted on inventing new strategies, his answer was simple: "I would like to devote my entire life solely to creating novelty" ("shinte isshou"). He is the hero of my science and my life.

### *What was your most enjoyable research topic?*

During the 1980s, I was interested in the chemistry of bulky aluminum reagents, which gave me numerous opportunities to discover new reactions. The results with these bulky aluminum reagents are always quite different from from those observed in classical organic chemistry. I really enjoyed these reactions almost every day! Furthermore, they gave me an important entry into our Lewis acid chemistry, especially into the development of acid catalysts. In addition, our recently developed supersilyl chemistry grew out of our previous research on bulky aluminum reagents. In fact, the amazingly high diastereoselectivities observed with supersilyl reagents remind me of when we first observed these values a number of years ago.

### *What is your favorite food?*

I love excellent Japanese cuisine, especially that occasionally found at small restaurants located in the countryside of Japan. What I believe is important is the chef's tenacity in finding the ultimate taste. This probably arises from good foods being part of the culture, which I have frequently found in other countries such as Belgium, Portugal, Spain, Italy, and southern France.

### *How has your approach to chemistry research changed since the start of your career?*

Many years ago, every discovery in chemistry was important. Now target-oriented approaches in chemistry are quite popular and we are forced to pursue a specific aim in a way that is beneficial for human beings. However, I still believe that serendipity is the soul of chemistry, and even under these circumstances we can still appreciate and respect its value.

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***How do you think your field of research will evolve over the next 10 years?***

I believe all the known common organic transformations will be upgraded to catalytic processes. Furthermore, there will be more sequential and robust reactions to create complex molecules.

***What is your favorite saying?***

In addition to "shinte isshou", I like the word "Jikon", which is a saying in Zen Buddhism. This simple but rich word means living wholeheartedly in the present, not in the past nor the future.

**My 5 top papers:**

1. "Selective Reactions with Organoaluminum Compounds": H. Yamamoto, H. Nozaki, *Angew. Chem.* **1978**, *90*, 180–186; *Angew. Chem. Int. Ed.* **1978**, *17*, 169–175.
   This paper is my valedictory review article for aluminum-based reagents developed in Kyoto.
2. "Selective Reactions Using Organoaluminum Reagents": K. Matuoka, H. Yamamoto, *Angew. Chem.* **1985**, *97*, 670–683; *Angew. Chem. Int. Ed.* **1985**, *24*, 668–682.
   Following the previous review, this is the second account of aluminum-reagent-based chemistry that is focused on the bulky reagents studied in Japan and Hawaii.
3. "Designer Catalysis: Combined Acid Catalysis for Asymmetric Synthesis": H. Yamamoto, K. Futatsugi, *Angew. Chem.* **2005**, *117*, 1958–1977; *Angew. Chem. Int. Ed.* **2005**, *44*, 1924–1942.
   The combined acid catalysis of Lewis and Brønsted acid catalysts is summarized. Although we already described the importance of this concept several times, this is the first review of the topic, with a number of examples.
4. "Lewis Acid Promoted, O-Selective Nucleophilic Addition of Silyl Enol Ethers to N=O Bonds": N. Momiyama, H. Yamamoto, *Angew. Chem.* **2002**, *114*, 3112–3114; *Angew. Chem. Int. Ed.* **2002**, *41*, 2986–2988.
   After this first report, the O-nitroso aldol reaction quickly became an effective oxidation tool.
5. "Rapid Total Syntheses Utilizing 'Supersilyl' Chemistry": B. J. Albert, Y. Yamaoka, H. Yamamoto, *Angew. Chem.* **2011**, *123*, 2658–2660; *Angew. Chem. Int. Ed.* **2011**, *50*, 2610–2612.
   Supersilyl chemistry is still going, but this paper is definitely a milestone for us.

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