

Meet Dr. Harunobu Mitsunuma, Thieme Chemistry Journals Awardee 2026!



Dr. Harunobu Mitsunuma received his PhD from the University of Tokyo (Japan) in 2015 and subsequently worked as a medicinal chemist at Sumitomo Dainippon Pharma. In 2017, he returned to academia as a postdoctoral researcher at the University of Tokyo and was promoted to assistant professor in 2018. Since 2022, he has also served concurrently as a PRESTO researcher.

Thieme: Which field of organic chemistry are you interested in the most and why?

Dr. Mitsunuma: I am most interested in the development of new chemical transformations based on catalyst systems. In particular, I am fascinated by reaction design that combines multiple catalytic functions in a synergistic manner. A single catalyst often has inherent limitations, but when different catalysts cooperate, entirely new reactivity and selectivity can emerge. I find this concept especially exciting because it allows us to access transformations that were previously difficult or even impossible.

Thieme: Following that, what is the focus of your current research activity?

Dr. Mitsunuma: My current research focuses on the development of new catalytic methods for sp^3 C–H bond activation using catalyst systems. Since sp^3 C–H bonds are ubiquitous in organic molecules yet generally inert, their selective transformation remains one of the central challenges in synthetic organic chemistry. My goal is to develop catalytic strategies that directly convert these abundant but unreactive bonds into useful functional groups.

Thieme: What do you think about the modern role and prospects of organic chemistry?

Dr. Mitsunuma: I believe the modern role of organic chemistry goes far beyond simply making molecules. It is now a central discipline that supports solutions to major societal challenges, including healthcare, energy, materials science, and sustainability. Organic chemistry provides the molecular foundations for pharmaceuticals, functional materials, and environmentally conscious synthetic processes. In particular, there is an increasing demand for reactions that are more efficient, selective, and sustainable, using fewer steps and milder conditions, and producing less waste.

Thieme: Which difficulties are there for young upcoming chemists in your field? Do you have any tips?

Dr. Mitsunuma: One major difficulty for young chemists today is the increasing complexity and competitiveness of the field. The volume of published work is enormous, and it is already challenging just to keep up with recent developments. In addition, it is no longer enough to report a new reaction; researchers are also expected to clearly demonstrate its significance, mechanism, and advantages over existing methods. This means that young chemists need both broad knowledge and deep expertise at the same time. A possible solution is to identify a scientific question that you genuinely find interesting, rather than simply following trends. Superficial novelty alone rarely leads to strong research. It is much more important to understand why a problem matters and what makes it fundamentally exciting.

Thieme: What is your most important scientific achievement to date and why?

Dr. Mitsunuma: My most important scientific achievement so far has been the development of catalytic concepts in which multiple catalyst functions cooperate to unlock new reactivity, particularly for the transformation of challenging sp^3 C–H bonds. I consider this important because it is not simply about achieving one specific reaction, but about demonstrating a broader design principle: that synergistic catalyst systems can create reactivity and selectivity beyond the reach of a single catalyst.

Thieme: Could you tell us something about yourself outside the lab, such as your hobbies or extra-work interests?

Dr. Mitsunuma: Outside the laboratory, I enjoy watching sports and exploring ramen shops. I like sports not only for the excitement of the games, but also because I enjoy observing strategy, teamwork, and the way small decisions can influence the outcome. I also enjoy visiting ramen shops, especially when I travel for conferences or meetings. I find it interesting that even within the same category of food, each shop has its own philosophy, balance, and style. These activities help me refresh my mind outside work, and I think they also provide a good balance that supports creativity and long-term motivation in research.
