TEACHING & LEARNING

# A Nobel Laureate Explores the Quiet Revolution of "Click Chemistry"—and Why It Matters Now




When Morten P. Meldal participated in pioneering the path to "click chemistry," he did not simply identify a new category of reactions; he changed the way chemists think.

In his address at National Taiwan University on January 26, 2026, the Danish Nobel laureate—recipient of the 2022 Nobel Prize in Chemistry—characterized his work as not just a technical breakthrough alone, but as part of a broader intellectual shift. His lecture, "*Chemistry for a Sustainable World — Everything Is Chemistry and How That Influences Our Choices,*" unveiled how reimagining the logic of chemical design could reshape science itself—and, ultimately, the future of the planet.

Click chemistry, he observed, is built on a deceptively simple foundation: reactions that are fast, reliable, and precise—"like snapping together the pieces of a puzzle."


Morten P. Meldal, recipient of the 2022 Nobel Prize in Chemistry and Professor of Chemistry at the University of Copenhagen.

By favoring efficiency, mild conditions, and selectivity, such reactions reduce waste, conserve energy, and render chemical processes more predictable. In an era defined by environmental strain, those qualities are not merely desirable; they are absolutely essential.

But the deeper impact of click chemistry, Meldal suggested, lies in how it frees the scientific imagination. When reactions become dependable—when they behave less like fragile isolated experiments and more like modular building blocks—researchers no longer need to concentrate on the intricacies of chemical synthesis. Instead, they can shift their attention to larger, more complex—and more promising-- challenges: designing targeted medicines, improving diagnostic tools, engineering intelligent materials. What emerges is not just a faster science, but a different one heralding a paradigm shift.

## Chemistry at the Center of Everything

Meldal maintained that modern chemistry can no longer be understood in isolation. In a world grappling with climate change, energy transitions, and post-pandemic recovery, the discipline has become deeply intertwined with physics, biology, medicine, engineering and environmental science.

Together, these fields form what he described as a dynamic and interdependent network of knowledge—one in which advances in one domain ripple across others.

## The Role of Education in an Uncertain World

Yet despite the promise of such scientific interconnection and innovation, Meldal turned his attention to a more urgent concern: how societies prepare for the future. “The only real way to prepare for global challenges is through education,” he said.

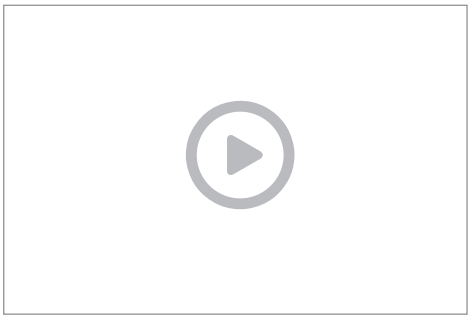
He warned of what he called a growing “autocratic trend” in parts of the world—an increasing concentration of power that, in his view, threatens not only political systems but also the capacity to solve complex global problems. Scientific literacy, he argued, is a critical safeguard.

Education, he emphasized, must begin early—and it must be relatable and intuitive for the students. Rather than teaching bookish abstract theory, he advocated for teaching fundamental principles through everyday experiences: demonstrating how water molecules behave, for example, to help children grasp the science behind floods and climate change. Emerging technologies, including artificial intelligence, could play a transformative role in this effort by making invisible processes visible and translating knowledge across languages and contexts. Ideas that once were difficult to communicate, he suggested, can now be rendered immediate and accessible to young students.

In Meldal’s informed view, chemistry is not merely a discipline; it is a way of seeing—and it charts a way of choosing. In a world facing increasingly complex challenges, those choices may prove as consequential as the reactions themselves.

Prof. Meldal presenting his lecture to NTU faculty and students, as well as more than 100 high school students.

NTU President Wen-Chang Chen (right) presenting the Raymond Soong Chair Professorship trophy to Prof. Meldal (left).



Highlights from Prof. Morten P. Meldal’s lecture, “Chemistry for a Sustainable World — Everything Is Chemistry and How That Influences Our Choices.”