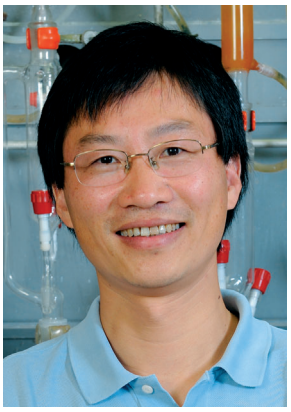

J. Zhu

*The author presented on this page has recently published his **25th article** in Angewandte Chemie since 2000:* "Palladium-Catalyzed Coupling of *ortho*-Alkynylanilines with Terminal Alkynes Under Aerobic Conditions: Efficient Synthesis of 2,3-Disubstituted 3-Alkynylindoles": B. Yao, Q. Wang, J. Zhu, *Angew Chem.* **2012**, *124*, 12477; *Angew. Chem. Int. Ed.* **2012**, *51*, 12311.

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Position:	Professor of Organic Chemistry, Institut des sciences et ingénierie chimiques, École Polytechnique Fédérale de Lausanne
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Awards:	**2002** AstraZeneca Award in Organic Chemistry; **2003** Prix Émile Jungfleisch from l'Académie des Sciences; **2004** Liebig Lectureship from the Gesellschaft Deutscher Chemiker; **2008** Novartis Chemistry Lecture Award; **2009** CNRS Silver Medal; **2010** Prix SCF–DCO, Société Chimique de France
Current research interests:	Total synthesis of natural products; multicomponent reactions; metal-catalyzed domino processes; catalytic enantioselective transformations
Hobbies:	Football, tennis, traveling

I can never resist … a delicious French dessert.

My biggest motivation is … to learn something new every day.

The most exciting thing about my research is … to train the younger generation of chemists and to exploit the serendipitous results that we encounter.

Guaranteed to make me laugh is … films with Louis de Funès.

The best advice I have ever been given is … to go for an academic position.

The most amusing chemistry adventure in my career was … to analyze the extract of water from the River Yvette right in front of the institute (ICSN) with my very first intern, a third year undergraduate student. Later, he became an analytical instead of a synthetic chemist.

My favorite food is … homemade Chinese food.

My favorite quote is … "To study without thinking is futile, to think without studying is dangerous" (Confucius).

I like refereeing because … it forces me to read the manuscript in detail.

What I look for first in a publication is … the authors' names and their affiliations.

If I won the lottery, I would … continue to do chemistry.

My favorite place on earth is … my home.

I chose chemistry as a career because … I got higher marks in chemistry than in other disciplines in the national university entrance exams and was therefore admitted (not my first choice) to the chemistry department.

My not-so-secret passions are … football and tennis.

If I were not a scientist, I would be … a medical doctor.

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

Fundamentally, nothing was changed. We always try to work on projects that we are interested in. When addressing a particular problem, we try to develop an approach that is as rational as possible, but then we are always inspired by unexpected results. As organic chemistry is an experimental science, I believe that the advance of any project in this discipline relies heavily on the dedication and enthusiasm of PhD students and postdoctoral associates. Whatever the approach, the quality of research will reflect the quality of your co-workers. I'm lucky to have the chance to work with a group of talented people.

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

By providing a myriad of molecules, natural or designed, organic synthesis allows emerge of new research fields that are beneficial to the well-being of our society. With advances in the theory of and

mechanistic insight into various reaction pathways, the development and control of new reactive chemical entities and the availability of new techniques that activate otherwise "inactive" functional groups, I'm optimistic that many new reactions and synthetic strategies will de developed in the coming years. I assume that these new synthetic methods and strategies will allow us to devise more efficient, elegant, sustainable, and scalable syntheses of compounds with desired functions. As the science behind the art, organic synthesis can only flourish: "La mode se démode, le style jamais".

My 5 top papers:

1. "S_NAr-Based Macrocyclization: An Application to the Synthesis of Vancomycin Family Models": R. Beugelmans, G. P. Singh, M. Bois-Choussy, J. Chastanet, J. Zhu, *J. Org. Chem.* **1994**, *59*, 5535 – 5542.
   This paper deals with the use of intramolecular S_NAr reaction for the synthesis of strained cyclophanes that have an *endo* aryl – aryl ether bond. This cycloetherification method, initially aimed at solving the vancomycin synthesis problem, has since been used by many groups, academic and industrial alike, as a key step in the synthesis of different classes of natural products and medicinally relevant compounds.
2. "A Five-Component Synthesis of Hexasubstituted Benzene": P. Janvier, H. Bienaymé, J. Zhu, *Angew. Chem.* **2002**, *114*, 4467 – 4470; *Angew. Chem. Int. Ed.* **2002**, *41*, 4291 – 4294.
   We were working on the concept of "substrate design" for the development of novel multicomponent reactions. This paper illustrates nicely the potential of such an approach in the synthesis of complex druglike heterocycles. In this five-component reaction, seven functional groups were involved in a sequence of nine elementary reactions leading to the creation of a hexasubstituted benzene ring with the formation of seven chemical bonds (5 C–C and 2 C–N bonds). Heating a toluene solution of readily available starting materials in the presence of a catalytic amount of camphorsulfonic acid is all that was needed to trigger this mechanistically complex process.
3. "Total Synthesis of Ecteinascidin 743": J. Chen, X. Chen, M. Bois-Choussy, J. Zhu, *J. Am. Chem. Soc.* **2006**, *128*, 87 – 89.
   Ecteinascidin 743 (Et 743), a marine natural product with a complex molecular structure, displays potent antitumor activities and has been commercialized as an anticancer drug since 2007 (Yondelis and Trabectedin). Like taxol, this alkaloid is yet another showcase of the importance of organic chemistry, as laboratory synthesis is the only means to date to solve the supply problem. This paper describes a convergent and efficient total synthesis that is scalable and amenable to the synthesis of analogues. Importantly, the chemistry we learnt during this exercise allowed us to develop original synthetic routes to several other polycyclic tetrahydroisoquinoline-containing alkaloids.
4. "Brønsted Acid Catalyzed Enantioselective Three-Component Reaction Involving α Addition of Isocyanides to Imines": T. Yue, M.-X. Wang, D.-X. Wang, G. Masson, J. Zhu, *Angew. Chem.* **2009**, *121*, 6845 – 6849; *Angew. Chem. Int. Ed.* **2009**, *48*, 6717 – 6721.
   The Ugi four-component reaction is without doubt one of the most important multicomponent reactions. Initially developed for the synthesis of peptidelike structures, it has now been extended to a huge variety of heterocycles. The downside of this reaction is the difficulty encountered to control the absolute configuration of the newly generated stereogenic center. In collaboration with the group of Prof. M.-X. Wang (Tshinghua University), we presented the first catalytic enantioselective Ugi-type reaction leading to enantioenriched 2-aminoalkyl-5-aminooxazoles. Enantioselective addition of isocyanide to imine remains an unsolved problem, the results reported in this paper provided nevertheless an optimistic view regarding the future development of this powerful reaction.
5. "Palladium(II)-Catalyzed Intramolecular Diamination of Alkynes under Aerobic Oxidative Conditions: Catalytic Turnover of an Iodide Ion": B. Yao, Q. Wang, J. Zhu, *Angew Chem.* **2012**, *124*, 5260 – 5264; *Angew Chem. Int. Ed.* **2012**, *51*, 5170 – 5174.
   Pd^0-catalyzed cyclization of *ortho*-alkynylanilines is a powerful method for the synthesis of 2,3-disubstituted indoles. Fundamentally, it consists of adding one nucleophile and one electrophile across the triple bond. We showed in this paper that $Pd(OAc)_2$, under oxidative conditions, could initiate a domino process that allow the introduction of two nucleophiles across the triple bond. The results of ongoing research clearly indicated that, in addition to amides, other carbon nucleophiles could enter into this catalytic process, leading to diversely functionalized indoles. We are looking forward to further exploiting the reaction scope and understanding the reaction mechanism.

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