

# Five years of *Nature Chemical Biology*

In reviewing five years of progress in chemical biology, we consider the scientific and organizational challenges ahead for the field.

Five years ago this month, the first issue of *Nature Chemical Biology* appeared online and arrived in mailboxes around the globe. Since then, thanks to the broad support of the chemical biology community, the journal has grown alongside this thriving young discipline. As we look back on five exciting years, we also consider what will be necessary to promote the future success of chemical biology.

Our objective in launching *Nature Chemical Biology* was “to create a top-tier international journal that reflects the diversity and excitement of chemical biology research” (*Nat. Chem. Biol.* 1, 1, 2005). We also felt that the journal should provide a foundation for this growing community of interfacial scientists and facilitate broader conversations among them. With an eye toward these aims, the editorial team has approached each monthly issue with the goal of publishing original research papers of the highest quality and scientific interest, as well as scholarly viewpoints in emerging research areas and broader insights into chemical biology as a field. Over the years, the editorial team has built strong ties with scientists across chemical biology. We appreciate that any success that the journal has enjoyed is due primarily to the superb science and insights contributed by our authors and referees. To celebrate these contributions on the occasion of our fifth anniversary, we have highlighted a cross-section of these outstanding *Nature Chemical Biology* papers, selected to feature the scope and richness of current chemical biology research (pp. 387–389).

Born out of bioorganic chemistry in the mid-1990s, chemical biology is now defining itself as a field that integrates knowledge and techniques from across chemistry, biology and related disciplines. ‘Problem-based’ approaches have been a hallmark of current chemical biology research: chemical biologists are bringing together expertise and techniques from multiple disciplines to address the most important fundamental and applied questions at the interface of chemistry and biology. Scientific successes over the past decade have made the tools and quantitative approaches of chemical biology more accessible. Their wider use has allowed

scientists to address biological questions of increasing complexity with unprecedented molecular precision. This phenomenon, featuring collaboration across disciplinary and geographic boundaries, provides a compelling example of how interfacial research will drive scientific advances and innovation in the years to come.

Interfacial fields offer stimulating synergies and the promise of new discoveries, but they also may lack a sense of scientific and organizational cohesiveness. This is certainly true for chemical biology. From a scientific perspective, though most chemical biology studies integrate both chemical and biological aspects, the expanse of the chemistry-biology interface may give the appearance that chemical biology lacks unifying scientific themes. Moreover, even though chemical biology is still viewed by some as a subdiscipline of chemistry, chemical biologists are increasingly coming from diverse scientific backgrounds and working in various scientific departments. Artificial divisions based on traditional disciplinary structures have complicated the process of assembling cohesive chemical biology organizations within universities and across other institutions. These types of challenges affect chemical biology as a community, but they need not limit it.

As the field transitions into adulthood, chemical biologists need to create and implement plans that will enable chemical biology to transition from an interdisciplinary research field into an independent scientific discipline. The evolution of scientific communities has always been facilitated by organizational shifts designed to advance the shared interests of a growing discipline. The good news is that the field has already made promising strides in this direction. In the past five years, the venues for publishing chemical biology research have expanded significantly. In parallel, chemical biology has seen the emergence of a few national academic societies, some undergraduate and graduate training programs, and a growing number of departments committed to chemical biology research. Databases and standards for reporting and sharing chemical biology data are under active development. To build upon this excellent

foundation, the current scientific leaders of chemical biology need to step forward to coordinate broader initiatives to advance the community in the coming decade.

The future success of chemical biology also depends on the quality of scientific leadership provided by the next generation of chemical biologists. As part of our effort to encourage scientific creativity and ensure that the field’s new voices are heard, *Nature Chemical Biology* is announcing a “Grand challenges of chemical biology” essay competition.

Young investigators who have a permanent research position in academia or industry and are within ten years of completion of their final training appointment (PhD or postdoctoral position) are eligible to submit proposals. Proposals are limited to 1,000 words and a single figure and should provide (i) a short description of the research area and justification for why it represents a grand challenge, (ii) concrete ideas on how chemical biology will advance this area of science and (iii) a discussion of how meeting the challenge will transform the discipline. Though we expect that most proposals will focus on scientific challenges, we also will consider submissions that take up broader issues facing chemical biology (education, funding and so on). Proposals should be submitted at our manuscript tracking system (<http://mts-nchemb.nature.com/>) by 1 August 2010. The editorial team will review all submissions, select the final winners and help the authors finalize their essays for publication at the end of 2010. All details of the competition can be found on our journal web page at <http://www.nature.com/nchembio/grandchallenges/>.

With the past scientific success of chemical biology and boundless opportunities for new insights at the interface of chemistry and biology, it is an exciting time to be a chemical biologist. We hope that *Nature Chemical Biology* has been and will continue to be a key forum for the best research and commentary in the field. The editorial team is extremely grateful for the community’s support of the journal in the past five years, and we renew our commitment to serving our readers, authors and chemical biology as a discipline in the years to come.