

Chemistry & Biology: a challenging balancing act

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Several years ago, I attended a Keystone meeting on the mechanism of transcriptional activation. One of the speakers concluded his talk by listing a number of outstanding questions concerning the structure of a particular type of domain shared by many activator proteins. At a poster session later that day I told this speaker that one of my graduate students had, in fact, already answered one of the questions posed at the end of his lecture and that we had published the result. The speaker was quite surprised that he had missed this paper and asked me for the reference. When I told him, he regarded me with a somewhat incredulous expression and inquired why we had published such an interesting result in such an obscure journal. The article had appeared as a Communication to the Editor in the *Journal of the American Chemical Society*.

That a leading molecular biologist would place the flagship journal of the chemical community somewhere below Better Homes & Gardens on his 'to read' list may strike chemists as remarkable. But, on the other hand, how many synthetic chemists sift through *Genes & Development* or *Molecular & Cellular Biology*? It is precisely to address this problem that *Chemistry & Biology* was launched. By publishing informative reviews, thought-provoking crosstalk features and, of course, cutting-edge original research papers on science at the chemistry–biology interface, *Chemistry & Biology* was designed to be a venue where chemists and biologists could trade ideas, make each other aware of important research opportunities and generally interact in an intellectually satisfying way. By several measures, the journal is a big success. It has an impact rating comparable or superior to many more mature publications and

seems to be held in high regard by the practitioners of chemical biology, as evidenced by the many high-quality publications that appear regularly. So, as a new year (century, millenium) dawns, what are the major issues that the journal and the chemical biology community in general must address? I would like to suggest here that a major challenge will be to engage a much greater fraction of the general molecular and cellular biology community in *Chemistry & Biology* in particular and chemical biology in general.

My own informal and unscientific impression, based on day-to-day interactions with biologists, is that *Chemistry & Biology* has a much lower visibility in the mainstream molecular/cell biology community than it does amongst organic chemists. Few of these researchers think about publishing in *Chemistry & Biology* and most don't read it. There are several reasons for this. One is the sheer size of the molecular biology community and the remarkable pace with which the field moves. Long before *Chemistry & Biology* debuted, there were already a daunting number of journals that had to be at least scanned in order to keep up with one's particular area of interest. It is difficult for any new journal in the biological area to rise above this dense forest of established publications. This information overload is compounded by the fact that (to be really honest) most biologists don't understand organic chemistry. With a few shining exceptions, the area of chemical biology is dominated by individuals who have been trained as chemists and then picked up some level of expertise in molecular biology/biochemistry. So it is difficult for a mainstream molecular or cell biologist to be interested in many of the more mechanistic and synthetic

articles that appear in the journal. That's OK; one can't know everything and most of us don't read all of the articles in any single journal anyway. But my strong impression is that most biologists, if they know about the journal, think that everything in *Chemistry & Biology* is of this ilk. There is the mistaken perception is that if you don't use ChemDraw frequently in the preparation of a manuscript, then it probably isn't suitable for *Chemistry & Biology*. For this reason, the journal is off the radar screen of many of these individuals.

Although it is tempting to say "so what?" and just assume that no single journal can appeal to everyone, here is the rub (actually one of several rubs). Many chemical biologists are focused on the development of new techniques, grounded in chemical thinking, that allow biological problems to be probed in ways not possible with standard biological methods. Although the details of this type of research and the thinking that goes into the design of these methods are best appreciated by researchers with a strong chemical background, the final product will be mostly useful to biologists who may not appreciate how something works, but are very happy to use an effective and innovative technique nonetheless. A real danger to the journal is that these chemical biologists will take their best papers elsewhere if they conclude that only a small fraction of the potential users will see it in *Chemistry & Biology*. I use technology development as an example because it is near and dear to my own heart. But one could make a similar argument for the identification of a natural product receptor that opens up new insights into a particular biological pathway or many other

types of research in which chemical biologists engage.

So, what's the answer? Certainly this problem will self-correct over time as more and more biologists realize what chemistry can do for them and as a new generation of scientists are trained in programs where biology and chemistry are more freely mixed. But, in the short term, how can we jump start the process of getting more traditional cell and molecular biologists interested in *Chemistry & Biology* and, by extension, chemical approaches to biological questions? My first thought, free Dallas Cowboys season tickets with every new subscription, probably won't fly with the publishers, but there are other mechanisms. One is to convince more biologists to publish in *Chemistry & Biology* (everyone wants to read their own papers). As a new Associate Editor, I hope to foster this by inviting prominent molecular biologists to write Crosstalk articles as one way to begin to better engage them in a dialogue with the chemical biology community. But more importantly, we need to convince more of the biological community to consider publishing original research in *Chemistry & Biology* when appropriate. This will require some beating of the bushes and, in the process, correcting some of the misconceptions about suitable content mentioned above.

Although articles that feature bioactive small molecules, synthesis and so on will, and should, continue to be a staple of the *Chemistry & Biology* portfolio, there is ample room for more traditional molecular biological work if it of obvious interest somewhere down the line to chemists. The discovery of any new protein, gene or protein-protein interaction that might constitute a potential drug target is an obvious example of this type of publication. Another would be a mutagenesis study that revealed how, in principle, a biological pathway could be

manipulated if one had a molecule that could mimic the effect of a particular mutation.

I'd like to ask everyone with a stake in the health of *Chemistry & Biology* as the voice of the chemical biology community to aid in this process. When we go to biology meetings, give seminars in biology departments and at biotechnology companies, or have lunch with our biological colleagues at home, we should make every effort to encourage their participation in the journal. I would hope that in the future when I tell a prominent molecular biologist about a result published in *Chemistry & Biology* the response will be: "I enjoyed reading that article!"