From the Editor

Gems in 2013

Nathan Blow, Ph.D., Editor-in-Chief, *BioTechniques*

Over the past 30 years, *BioTechniques* has published a number of articles that have shaped the way research is performed in the lab. Our 30th anniversary this year provides the rare opportunity to look back on some of these articles and observe their impact – both at the bench and also as harbingers of change in the larger scientific community.

How did we identify the eight papers that we are calling our “Gem” articles? The first selection criterion we utilized was total number of citations. While researchers have questioned the value of using citation numbers to compute metrics such as impact factor, I would argue there is great value in examining the number and scope of citations a single article receives. The issues with citation number as related to impact factor metrics tend to be: (i) the impact factor can be greatly skewed by small numbers of articles garnering large numbers citations, and (ii) in some instances the impact factor calculation does not take into consideration a long enough period of time to truly assess an article’s influence. But what can we learn by just looking at citation numbers?

When it comes to the first bone of contention with the impact factor calculation, there have been a number of examples where a small number of articles skew the impact factor of a journal. Review articles are the most obvious culprits here – reviews tend to garner more citations than other article formats, such that the more reviews published, the higher the impact factor of the journal. With this in mind, when we examined article level metrics hunting for Gem articles, we eliminated reviews from consideration. Although there have been a number of powerful and important reviews published in these pages over the years, our goal was to locate primary research articles that expanded traditional lab techniques, creating new avenues for research in a variety of fields.

Longevity is another parameter not fully reflected in current impact factor calculations; if only looking at impact factor, many articles that have had, or will have, tremendous influence in the scientific community are lost in the two-year citation window. Does this mean these articles are less influential? The growing use of a five-year impact factor is a move in the right direction here, but one still has to view impact factors with a grain of salt. With this in mind, we placed no

arbitrary publication time constraints on our Gem selection process, and as you will see this month, the first two papers we highlight are rather old.

In the end, the exercise of identifying Gem articles has taught me that, how you use citation data is critical. If we only look at metrics such as the impact factor or the h-index to see who or what is influential, we miss those articles with the greatest impact over long timespans. The flipside is also true: for every article that establishes a new technique and garners thousands of citations, boosting a journal’s impact factor in the process, there are many more with significantly fewer citations that still provide an insight or piece of data that sparks an important discovery. And here is where the true beauty of scientific publishing lies – behind every paper is a story, an idea, a hard-fought grant, a collection of data that took time and patience to gather, a series of unseen, late-night discussions amongst the authors, and a basic discovery; as such, it is only fair to look at each individually and not as a collective. So, while we started our selection process using citation numbers, in the end, we went beyond this to really assess overall contributions; some Gem articles will have thousands of citations while others may have less, but each made a lasting impact within the lab.

We are pleased to present our first two Gem articles for 2013 (with six more to follow in future issues). These papers have been faithfully reproduced from the original print versions in order to give a glimpse back at the genesis of these important techniques and tools. Take a few moments to look over the articles, and our accompanying Commentaries, admiring them for what they are – beautiful methodological insights that decades later still provide inspiration to scientists at the bench. Please share your thoughts with us by posting at our Molecular Biology Forums under “To the Editor” (<http://molecularbiology.forums.biotechniques.com>) or sending an email directly to the editors (bioeditor@biotechniques.com).

“Beautiful insights that even after 20 years can still provide inspiration to scientists at the bench.”

BioTechniques 54:111 (March 2013) doi
10.2144/000113993