From the Editor

When Will You Adopt a Method?

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The widespread adoption of a new technology or a method in the lab can appear, at first glance, to be a random event. Many articles are published every year describing new tools or novel approaches that could save time and resources, but for some reason a number of these developments never quite hit lab benches. Why? Is there a resistance to change? Or could it be the result of difficulty in implementation? The classic example of this is in the field of microfluidics, where a great number of technical advances have been reported in the literature, but their uptake in basic research labs and clinical settings can be scattershot.

As I see it, pushing a technology forward into widespread use requires two elements: (i) readily available, easy-to-obtain instrumentation and toolkits, and (ii) a “killer app” with which to apply the technology. High-content imaging screens can be a goldmine of information for researchers. The ability to explore a cell under different conditions, or image proteins and structural components under stress, can help investigators tease apart the effects of different chemicals, small molecules, or RNAs on cellular physiology. Of course, such imaging screens require complex setups and an informatics infrastructure to handle the volumes of data generated during a screen; furthermore, modifying screening conditions to suit a particular assay can pose substantial challenges to many investigators. But expanding the numbers of such screens performed and the range of data collected could be a crucial step in enhancing our knowledge of how cells function at a more global level.

Over the past few years, high-content imaging has started to move from the realm of emerging technology to become a more commonplace research approach. This has been the result of numerous efforts to commercialize imaging systems alongside the development of toolkits and software analysis modules for those interested in performing these screens. Uptake of an emerging technology does require an initial commercialization step in many instances,

but equally important is further refinement, which usually comes through the incremental advances reported in scientific literature. For high-content imaging, early studies did demonstrate the power of the approach to dissect basic biological processes and understand the effects of drugs on cells in specific cases. In the current issue of *BioTechniques*, R. Peravali, J. Gehrig, and colleagues from the Karlsruhe Institute of Technology in Germany and the University of Birmingham demonstrate a method that adapts commercially available imaging systems to specifically look at zebrafish embryos at high resolution. Such applications, and the modifications employed, are the next step in the evolution of this technology, creating the opportunity for more investigators to apply imaging screens to their research questions.

With instrumentation and other tools in place, high-content imaging does appear to be moving towards the more widespread adoption phase. The question of what could be the “killer app” for high-content imaging might still be on the table. Perhaps it won’t be one application, but rather a series of screening approaches that enable greater biological insight. But this portion of the adoption process often takes time and requires significant developer and user involvement. Adapting technology and making it easier to use, such as the approach reported in Peravali, Gehrig, et al., is a critical step toward finding any “killer app;” and as a methods journal we are pleased to be part of the journey towards adoption. 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).

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