

Maintaining a Competitive Advantage Necessitates Laboratory Training

Introduction and Summary

As the biotechnology industry matures and moves from research, to development and manufacturing, and as foreign competition increases it is critical that a trained workforce is maintained and allowed to flourish by supplementing college based education with specific or customized hands-on training provided by professional training organizations. Additionally the bottom-line can be increased when fewer procedures need to be repeated and more products pass quality control with less waste because laboratory-based employees better understand the nature of their work.

Background

It is well established that many college graduates with A.A., B.S. and Ph.D. degrees in biological sciences are not prepared to enter the biotech workforce and perform at levels expected in the industry. In "Educating Biotechnicians for Future Industry Needs," a report from a conference sponsored by the National Science Foundation and the American Association of Community Colleges, 2008, several conclusions and recommendations were reached. First, the biotech industry hungers for skilled workers. Second, and directed at community colleges, colleges, universities, government agencies and *importantly* the biotech industry, participants need to be given a realistic and more relevant biotech industry-based education. Quoting from A. Stephan Dahms (in *Biochemistry and Molecular Biology Education, Vol 29, (2001 pp.206-208)* as companies and dynamic industry clusters such as biotechnology mature, the nature of competitive advantages shifts, and the sustenance of competitive advantage relies not only on corporate technology, patents and strategic position, but also on how companies develop and manage their workforce. Biotechnology company survival, maturation and success are ultimately linked to the nature of the organization and its employees. Dahms goes on to correctly state that realistically, even the most prescient US institutions of higher education are hard-pressed to develop specialized training programs and add more to the traditional curriculum, which by itself is exploding from the amount and depth of new basic knowledge. Unfortunately, 8 years later the same can still be said. To compound matters further for managers and their new-hires in the biotech industry, employees do not have many options in the way they upgrade their laboratory skills or gain scientific knowledge around big picture issues or specific laboratory techniques. Managers and other technical personnel are performing their duties, and are more often-than-not, pressed for time themselves and unavailable to, or fully, answer questions. When questions go unanswered costly mistakes can happen, leading to a loss in productivity and frustration on the employees' and employers' part.

Solution

The simple and cost effective solution to these issues is training, training and more training. We and others have found that investing in employee training offers a number of substantial benefits to both the employer and employee. For example, the European Centre for the Validation of Alternative Methods has put in place guidelines on Guidance of Good Cell Culture Practice (GCCP) to promote awareness of a broad range of important issues in cell culture in workers coming to use cells for their work for the first time and to remind others of the fundamental aspects of good practice in cell and tissue culture. This happens to be one area where lab-lore and a lack of scientific knowledge by workers stands out, based on industry evaluations.

“One of the most important assets to a biotech company is a well trained and enthusiastic work force” says Paul Silber, Ph.D. Dr. Silber is currently a Biotechnology Investor and was the Founder and former CEO of In Vitro Technologies, a Maryland bioscience company that supplied cells, enzymes, and research services and products to pharma and biotech companies. “We found that bringing many of our new lab staff up to speed took significant time and energy, and one way to accelerate this process was by sending them to the cell culture workshops at BioSciConcepts. These workshops helped our staff learn the specifics of animal cell culture, how to trouble-shoot and most importantly, it gave them a chance to get comfortable with routine cell culture manipulations. They'd come back to work with new and valuable job-related knowledge and much greater confidence in their lab skills. I and my management team considered this training as a very worthwhile investment.”

Dr. Linda Dillon Jones, Talent Management and Organization Development, Johns Hopkins Medical Institutions, states, “Technicians who work in research and clinical environments also need skills to perform accurate and effective technical procedures and maintain a safe and productive work environment. Yet, many people who work in these environments manage to be hired for their educational backgrounds, without ever having past experience in a lab or training in laboratory techniques. This can create not only a dangerous situation, but also one in which time and money is wasted on experiments that need to be redone, or worse yet, results that are inaccurate and misleading. Mistakes are compounded as inaccurate or inconclusive information is passed along to investigating teams. The cheapest and easiest way to improve quality is always at the earliest opportunity, and the opportunity that is closest to the point of origin. Training for laboratory staff pays off in ways that go beyond counting. Further, we have found that researchers and other professionals who rely on the output of laboratories benefit from better understanding the work that goes on in these environments. BioSciConcepts workshop participants gain an appreciation of basic laboratory procedures, new ways to increase productivity, and are given

tips on how to establish and maintain a safe and effective working environment and use the results they receive to their best advantage.”

Maintaining a competitive workforce, increasing retention and optimizing productivity are all documented issues in the biotech industry. In fact, according to Dahms, high on lists of the top ten greatest hurdles to commercial success, at number two or three is employee acquisition and retention. Management must maintain cohesive and consistent programs to promote employee training aimed at increasing proficiency in laboratory techniques. Often companies do not have the manpower, time, space or, believe it or not, the expertise to provide this type of training to their employees and as a result these opportunities are missed. Fortunately, these obstacles can be overcome by utilizing second party training providers who can accommodate individual employees in regularly scheduled workshops or groups of employees from an individual company in private or customized workshops.

To help address these critical issues we have developed a proven series of specific laboratory based hands-on workshops geared towards enhancing laboratory skill sets by teaching best practice techniques in combination with lectures to solidify what is learned. All participants perform real experiments on the best equipment and learn all basic topics relating to the course chosen. At BioSciConcepts we offer 4-day workshops in cell culture geared towards those interested in growing animal cells; molecular biology workshops for those interested in cloning DNA, performing PCR, or expressing and purifying recombinant proteins; and a baculovirus expression workshop for those wishing to learn about working with a virus. As a professional full-time training organization we have the expertise and flexibility to customize content for a particular client or develop new content as needed and we also will come to you to train your scientists, on-site at your location. See our client list, testimonials workshop information and dates by visiting our web-site at www.biosciconcepts.com