introduction

During the five years or so that I have been writing these Introductions I have been struck by the fact that the majority of articles submitted to any given number of *DDW*s, although covering a variety of topics, often follow a common general theme.

This could be coincidence; it may be due to the skill of the Editor-in-Chief in making selections; or, most likely, it is a reflection on the preoccupations of those in the world of drug discovery at any given time. Whatever the reason, this issue carries articles reassessing matters which, like the poor, are always with us but only resurface from time to time. Examples are: the role of contract research organisations (CROs), how big pharma organises its R&D to improve productivity, the role of immunomodulation in therapy, university technology transfer and assessment of drug safety.

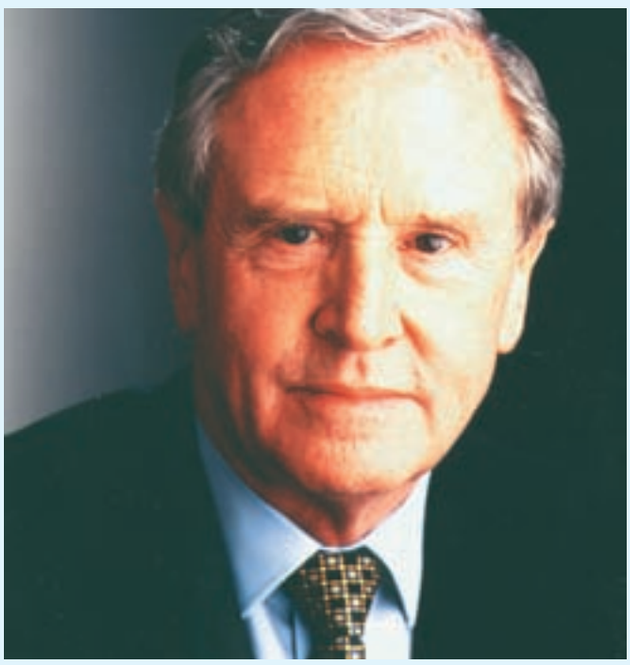
As always, not all the articles are concerned with new slants on familiar themes; the remainder deal with new or improved technologies designed to improve the drug discovery and development process.

Articles dealing with the role and performance of CROs are usually written by their customers. Our contributor is, however, from a CRO and states "perhaps it's time for a realistic look at what the future could hold for CROs – as seen from the inside!" He notes that the quality of service provided by CROs is all important to their clients and suggests that if that they get that right then there is more likelihood that strategic alliances (which have been talked about for the past five years at least) will develop especially between CROs and big pharma. This is perhaps more likely to happen with CROs which provide a 'one-stop shop' covering the needs of the client across the spectrum of activities involved in discovering and developing new drugs. He believes that outsourcing should be seen as a legitimate alternative to the use of in-house resources even when capacity is not an issue.

There is an on-going debate about how very large R&D groups, ie those in big pharma companies, should organise themselves to improve their productivity in terms of quality and numbers of useful new medicines receiving approval to market. The conventional wisdom appears to be that, for discovery at least, small is beautiful and that some way should be found to mimic the situation in small entrepreneurial companies where productivity is allegedly higher. To that end some companies have organised themselves into relatively small autonomous centres usually specialising in particular therapeutic areas – the jury is probably still out regarding the effectiveness of this. We carry an article describing a different approach by Wyeth which has 're-engineered' its R&D and linked the compensation of its scientists to performance of pre-specified, completely transparent objectives. This has lead to a significantly improved R&D performance, specifically achieving its objective of submitting two NDAs per year.

Immunomodulation has, for many years, represented an attractive approach to the treatment of cancer, viral infections and other significant diseases but enthusiasm has waxed and waned somewhat. Cytokine-based drugs have been shown to be effective but do have marked and well recognised side-effects due to their lack of selectivity. We carry an article which states there is a 'new wave of enthusiasm' for immunomodulators as evidenced by recent big deals between pharma and biotech involving immunomodulation technologies based, in the main, on CpGs which produce a controlled release of endogenous cytokines. The next target will presumably be to develop orally active small molecules which, similarly, produce appropriate cytokine responses.

Universities and other publicly owned institutions have always, in theory at least, represented a potential source of innovation which can be converted into practice by industrial concerns. Technology transfer is certainly more common and more effectively operated than it used to be especially in some parts of the world but there is still a perception that much intellectual capital is being wasted. To that end a new model of technology transfer called U2B has been developed and is described within these pages. Essentially it is based on companies exchanging their common stock to finance the outsourcing of basic research to publicly funded bodies which, in return, receive undiminished royalties from successful products.



Drug safety is an ever present preoccupation with the pharma and biotech industries. Recent high profile examples of drugs being withdrawn from the market for safety reasons have done nothing to lessen this preoccupation. One of our contributors quotes data indicating that 70% of late stage drug failures result from safety concerns and a very high percentage of the overall cost of drug development is associated with establishment of safety but even so problems still arise. He opines that to address this serious issue we need 'to become not only more efficient but smarter as well'. Part of the process of 'becoming smarter' would involve ensuring that all the knowledge available to an organisation (which in the context of safety for example is very considerable) is utilised efficiently. The use of the Semantic Web, described in the article, is advocated.

Various technological advances are covered in this issue of *DDW*. They all represent refinements in existing technologies to meet requirements which have emerged as experience with the technologies has broadened. Cell-based assay automation, for example, is not new but a review of its current status indicates how suppliers have responded to the changing needs of users. Dedicated systems offering very high throughput with full automation are now less in demand than more compact, lower throughput systems offering greater flexibility.

The separation, identification and analysis of biomolecules are essential steps in much modern drug discovery. Techniques often involve the labelling of the biomolecules meaning that the substance being studied is not the pure biomolecule. An advance is represented by Label-Free Intrinsic Imaging (LFII) used in both proteomics and genomics and described within this issue.

Pure RNA is widely used in drug research laboratories but suppliers face a heterogeneous market since the precise needs of investigators are varied. This is both a challenge and an opportunity for suppliers and is discussed in one of our articles

I shall now await the articles for our Winter issue to see what common theme, if any, emerges

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