

## BRIDGING THE DIVIDE

Intellectual property issues frequently drive a wedge between academia and industry. But recent initiatives suggest that barriers to data-sharing might not be as insurmountable as often assumed.

When *Nature Reviews Drug Discovery* launched in 2002, there was increasing recognition that integration of the various disciplines involved in drug discovery, and also sharing of information between industry and academia, would be important for future success in pharmaceutical research. So, how much progress has been made?

Well, on the one hand, the benefits of increased interdisciplinary integration have been generally recognized in both research environments in the past few years. Many companies now aim to facilitate interaction between researchers in different areas, as do several recently established academic institutes, such as the Broad Institute in Cambridge, Massachusetts, which brings together chemists and biologists at Harvard, the Massachusetts Institute of Technology and the Whitehead Institute.

But on the other hand, the potential benefits of further industry–academia knowledge-sharing have been less widely realized. There have been encouraging developments recently, such as the joint project between the Broad Institute and the Novartis Institutes for Biomedical Research to unravel the genetic causes of type 2 diabetes. Particularly significantly, this project is making its findings freely and immediately available on the internet, deeming them to be ‘precompetitive’. But so far such willingness to share data is unusual, and in some areas of pharmaceutical research, industry and academia still seem poles apart.

One forum at which this divide was clearly apparent was last year’s Horizon Symposium on ‘Charting Chemical Space’, one of a series of scientific discussion meetings organized by Nature Publishing Group and Aventis. This meeting, which set out to ask how we can best direct our efforts to discover new biologically active small organic molecules, both as tools to explore biology and as potential therapeutics, formed the basis of a recent ‘Insight’ in *Nature*, which is available online at <http://www.nature.com/nature/insights/7019.html>.

As might have been anticipated, a hot topic of discussion was the extent to which academia can become involved in identifying therapeutic small molecules, particularly in the wake of initiatives such as the National Institutes of Health Molecular Libraries Screening Center

Network, which aims to promote the discovery of new chemical tools to understand biology — some of which might aid drug development. Widely differing opinions were expressed by academic and industrial participants about such goals, but some agreement about what each camp could bring to the discovery process was nevertheless reached. Broadly speaking, it was felt that industry could benefit from the ability of academia to pursue novel targets with less concern for financial return, whereas academia could benefit from the experience of the industry related to the chemical characteristics that are important for molecules to be useful modulators of biological systems.

Surprisingly, however, the most vigorous — and largely unresolved — debate arose in a session devoted to the applications of computers in chemistry, on the issue of sharing information about chemical structures and related key properties, such as their absorption, distribution, metabolism and excretion (ADME) characteristics. Building computational models for the prediction of such properties from chemical structures is a focus of a number of academic groups, and these models, if accurate, could have considerable benefits for industry. But experimental data of the requisite quality and quantity needed for academia to build such models with high predictive power is largely held by pharmaceutical companies, who are reluctant to release it owing to intellectual property concerns. Indeed, despite the strong desire of participants from both academia and industry to solve this problem, it seemed at times that such concerns would prevent any kind of solution.

What is needed — as highlighted in the news story on page 180 of this issue — is a way for relevant information to be shared without significantly compromising industry’s intellectual property. Now that this is recognized, the signs that a solution will emerge are encouraging; for example, the topic will form the basis of a symposium at the 229th American Chemical Society National Meeting this month. If this controversial and technically challenging issue can be successfully addressed, this would surely provide encouragement for further efforts to share information to aid academic and industrial pharmaceutical research — after all, the challenge of discovery is one that is common to both.

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