

# University–industry collaboration in the pharmaceutical sciences



The author explains why strategic alliances with academic centres have never been more important for industrial innovation

**E**arly in 1996, *The New England Journal of Medicine* published a special article entitled 'Relationships between academic institutions and industry in the life sciences'<sup>1</sup>. This presented the results of a survey on collaboration with university groups among 210 companies, including all of the prominent pharmaceutical firms. It was found that 90% of the companies were engaged in relationships with one or more academic institutions in 1994; 59% supported research, providing an estimated \$1.5 billion, or about 11.7% of the industry's budget for R&D funding in that year. Compared with 1984, when a similar review was conducted, the involvement of industry with academia had increased.

## Innovation management

This trend is in line with predictions by Drews<sup>2</sup> on principles for innovation management in the pharmaceutical industry for the 1990s. He suggested that 'more often than in the past manufacturers have to look for partners who can offer skills and results which are complementary to their own. Only the formation of functional links with other groups can produce the broad scope of scientific opportunities that is needed to obtain a sufficiently large number of intelligent options for the development of novel drugs. Today it is less important to achieve a critical mass in a given research area than to obtain a critical quality: try to integrate research groups effectively into networks of international scientific cooperation'.

To these observations I would like to add that no single company can afford to continually hire scientists in accordance with the speed that science in the biomedical area develops; correspondingly, the turnover of science is considerably higher than the turnover of scientists. Collaborations and the formation of strategic alliances, both with other companies and with academic

institutions, have become essential ingredients of current innovation strategies. Collaborations between companies have recently been reviewed in this journal<sup>3</sup>. These have become even more necessary because of the heavy emphasis of society on the need for innovations that truly deliver cost-benefit for the patient and the payer. For example, if a (high-priced) biotechnology product does not deliver superior treatment to a (generic) alternative, it will not find a place in today's very price-sensitive health care market<sup>4</sup>.

## Balancing academic and industrial objectives

In order to ensure that collaboration between industry and academia in fundamental and strategic pharmaceutical research is fruitful, and meets expectations on both sides, some important considerations should be borne in mind. On both sides, the scientific benefit should be clearly defined in terms of perspectives and expectations. The scientific input should preferably originate from both sides, and be interactive in terms of a continual exchange of information. Patent protection is an essential issue for discoveries with a potential application; a patent protects and thereby encourages industrial investment, and at the same time discloses the finding, which is in agreement with the academic objective to publish. Clear agreements on the patent conditions, on financial compensation for research efforts and on potential royalties should be established. Also, the agreements should be guaranteed for a reasonable period of time and not subject to a constant debate on 'go' or 'no go' decisions.

At the university level, conflicts of interest and of commitment should be avoided by both individual scientists and institutions. Individual conflicts may involve reduced commitment to the primary objective of the institution, financial or other interest in third parties, and deviations from the standards of scientific conduct. The institution may be faced with challenges to research autonomy, such as priority conflicts, questions of 'who funded what' and thereby on property rights, and on the freedom of publication and teaching.

Awareness of such potential conflicts may lead to measures for controlling them, for example by requiring full disclosure, defining criteria for fulfilment of research and teaching obligations, and by strict regulations on issues such as ownership of research results and shares, and membership of company boards. It is important that the management of a university institute has a clear and open policy on such matters and encourages its scientists to comment on collaborative efforts and agreements.

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