

## **Times are a changing: The shift in partnership between academia and industry**

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A number of research based pharmaceutical companies have major facilities in the UK to interact with the excellent academic research base, and recruit graduates, postgraduates and post doctoral fellows from research led universities. The pharmaceutical sciences remains the only area where the UK can claim to match and frequently outperform other G8 countries. The two-way flow of skills and knowledge and the long-term partnerships between academia and industry, has been one of the historical strengths of the UK in creating a strong innovation led economy.

A major factor to the success of the UK government's vision of a science and innovation led economy is to retain R&D investment from multi-national companies to provide access to scientific knowledge and to support the supply of graduates and skilled postgraduates and postdoctoral research associates. This partnership has been grossly underfunded by government(s) and respective research councils and has primarily been supported via the industry.

The need for postgraduate and postdoctoral workers remains key to the industry. However, figures indicate that there has been a 14% reduction in PhD studentships and almost 25% for postdoctoral grants since 2003. This is an issue of major concern for the future of the academic-industry partnership.

The major reasons for the worrying decline in the level of activity between industry and academia includes the escalating costs for funding academic research with the introduction of full economic costing (FEC), introduced in the UK in 2005, and increasing difficulty in negotiating contracts particularly in relation to intellectual property ownership. Challenges associated with intellectual property rights have not been made easy as a raft of universities, including the University of Bath, have signed long-term partnerships (25 years) with publicly quoted IP commercialisation companies. These agreements have provided academics, with innovative ideas and marketable technologies, the opportunity to seek seedcorn and early stage VC funding directly via this investment fund as well as direct access to experts with well-established links with investors.

For academic groups with established links with the industry for research funding, the restructuring and on-going cuts in R&D departments has had direct knock-on effect on the level and type of funding available to academics. As a result, the long term funding requirements and thinking of university based research projects no longer fits the dynamic nature of the pharmaceutical industry, which increasingly demands the meeting of short term goals. This dichotomy has led to the opportunity and the successful rise of spin-out companies with specific expertise from university research groups, offering short term solutions to these specific problems associated with the industry.

However, with respect to inhalation research there remains significant gaps in our knowledge and understanding, particularly in relation to powder technology and material sciences. It may be the case that academics are in a position to further support the industry in understanding the source and inefficiencies of current practices within the manufacturing of these products rather than supporting short-term industrial R&D exercises into product design.

The presentation will cover this changing landscape, and highlight where successful long-term academic-industrial partnerships has led to scientific insights and discoveries, which has led to the increase knowledge and the continuous improvement of inhaled product design.