



# THE CHANGING SHAPE OF ACADEMIC COLLABORATIONS

WITH THE PHARMACEUTICAL INDUSTRY

## The changing shape of academic collaborations with the pharmaceutical industry

The biennial Association of the British Pharmaceutical Industry (ABPI) Industry/Academic Links Survey reveals a 33% decrease in industrial placements from 2007 figures, relatively stable PhD studentship numbers, increases in postdoctoral research collaboration and more large scale interactions between pharmaceutical companies and universities.

Data reveals that the major industry players increased their dominance in industry/academic interactions, with the 3 largest companies providing at least 80% of industrial placements, PhD studentships and support for research. The corresponding drop in collaborations from other companies naturally raises concern as the training and development of the vast majority of students and researchers in the industry is made vulnerable to the internal conditions and changes within the largest companies.

Despite the 10% increase in studentship numbers over the last 2 years, overall there has been a 6% drop in total number of studentships offered in partnership with industry since 2003. In 2009 the universities where the largest numbers of PhD students were placed include Imperial College London, Manchester, Oxford and Cambridge, who together accounted for nearly a third of all studentships reported. Postdoctoral research collaborations<sup>i</sup> have increased by 17% over the last 2 years; in 2009, 384 collaborations with 127 academic organisations were reported. Manchester, Imperial and Cambridge were the top academic partners, accounting for almost a quarter of reported collaboration. Despite this increase, over 50% of reporting companies did not support post-docs in the UK and what was not captured by the survey was that some of the companies that are currently supporting this research do so for shorter amounts of time due to additional costs incurred through full economic costing. This has driven an increase in 'Academic Consultancies' which allow for a one way flow of information from the academic to the company and are a less expensive alternative to fully costed postdoctoral support.

Data on postdoctoral and research collaborations also highlights a large number of collaborations with overseas institutions. The survey found that over 25% of all postdoctoral research reported was in conjunction with institutions outside of the UK, the majority of which are in the US. ABPI data collected in 2007 shows that, at that time, approximately 10% of postdoctoral collaboration reported was overseas. The fact that UK sites have initiated such a large proportion of overseas partnerships in the last two years raises concerns over research spending being steered away

from Britain and towards countries currently conducting research in areas of interest.

Data was also gathered on large scale strategic partnerships with academic institutions for specific research goals. Despite this being less quantifiable, it can provide an accurate view of where industry money is being invested. For example the significant increase in projects in the US is clearly echoed by the multimillion dollar ventures with the Harvard Stem Cell and Immune disease institutes. Pharmaceutical companies are also working together more in the UK, sharing the cost of underpinning research. For example The Division of Signal Transduction Therapy at the University of Dundee, now in its 12th year, is the largest ever UK pharmaceutical industry/ academic collaboration, and is a joint venture with support from several companies, as is the MRC Centre for Drug Safety Science at Liverpool, and the EPSRC AZ/GSK/Pfizer co-funded studentships in chemistry.

A major set back in industry/academic relations, is the sharp decrease in undergraduate industrial placements offered by companies. Only 355 placements were reported in 2009 compared to 530 in 2007. Several companies reported not offering any placements, or lowering their intake in 2009 due to site closures and re-organisation. Taking on undergraduates for placements can be perceived as expensive; they are usually fully funded by industry and students need training and time to adjust to working in an industrial environment.

A severe consequence of this decrease in industrial placements offered is the likely decrease in highly skilled graduates: industry recruiters concur that new STEM (science, technology, engineering and maths) graduates significantly lack core practical skills. The 2008 ABPI Industry Skills report states that most industry employers would only consider hiring graduates who had at least completed a summer placement.<sup>ii</sup> Having completed a year long industrial placement therefore can vastly improve a candidate's employability. The top universities that continue to secure placements were Bath and Manchester, who together provided over 20% of the 355 placement students. Universities themselves continue to stress the importance of these placements, recognising that the practical training students receive in industry is becoming increasingly difficult to deliver within academia alone<sup>iii</sup>. Certain skills are exceptionally difficult to provide, e.g. barriers to the delivery of *in vivo* skills leave graduates with little or no relevant experience. Since industrial placements equip students with practical and analytical skills, a steep drop in their figures suggests a need to

encourage a wider range of companies including SMEs and contract research organisations to begin or expand placement programmes. Effective coordination between industry and higher education institutions will also be necessary to develop highly employable STEM graduates. The University of Bristol for example, in collaboration with partnering companies, trains placement students in practical skills prior to their year in industry<sup>iv</sup>. The value of undergraduate placements extends beyond practically benefiting individual students and companies. Placements serve as a valuable pathway between industry and academia and if this downward trend continues, further to a decline in skills, industry could run the risk of losing this unique connection.

The majority of graduate and postgraduate roles in industry are in R&D and effective links with academia at all levels will be essential if the UK Pharmaceutical industry wishes to maintain its status as a leading innovator and compete against emerging countries such as China and India who are becoming increasingly able to deliver the necessary skills. STEM skills are sought after across many other sectors, and this demand for analytical and numerically adept individuals is expected to grow in the future<sup>v</sup>. If the pharmaceutical industry wishes to retain the top STEM talent, relevant skills and a tangible interest in science and research need to be generated among university students and graduates and furthering industry/HE collaboration may be the key.

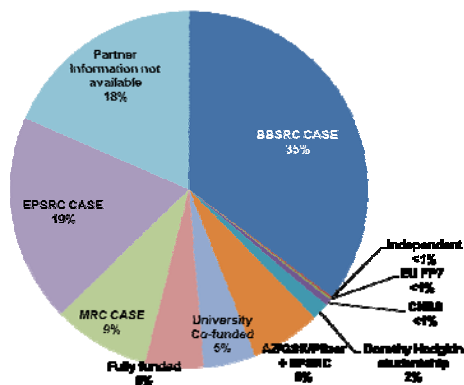


Figure 1: Funding Partners for PhD Studentships

### Combined number of studentships and placements at UK universities

65-100	Manchester
55-64	Imperial
	Bristol
45-54	Bath
	Oxford
	Cambridge
35-44	Nottingham
	Leeds
	Kings College London
25-34	Cardiff
	York
	Sheffield
	Strathclyde
	Glasgow
	Liverpool
	Southampton
15-24	Newcastle
	UCL
	Birmingham
5-14	Edinburgh
	Kent
	Warwick
	Loughborough
	Surrey
	Leicester
	Dundee
	Durham
	CPE Lyon
	Queen Mary, London
	St Andrews

Figure 2: Universities providing the most PhD and undergraduate placement students

<sup>i</sup> AstraZeneca reported UK research collaborations

<sup>ii</sup> Skills Needs for Biomedical Research, ABPI, 2008. p15

<sup>iii</sup> South East Universities Biopharma Skills Consortium Project, Final Report March 2010 p11-12

<sup>iv</sup> Skills Needs for Biomedical Research, ABPI, 2008 p26

<sup>v</sup> Taking Stock: CBI Education and Skills Survey, CBI, 2008 p26-27