



Massachusetts governor Deval Patrick (centre) listens with Boston mayor Thomas Menino as Pfizer's Sally Susman announces an expansion of the firm's research operations in Boston.

## PHARMACEUTICALS

# Drug buddies

*The pharmaceutical industry is seeking stronger ties with academia in a bid to speed up drug development.*

BY HEIDI LEDFORD

When pharmaceutical company Pfizer announced on 8 June that it is teaming up with eight research institutions in the Boston area to hunt for candidate drugs, the news was cheered from all sides. The governor of Massachusetts, Deval Patrick, praised the US\$100-million, five-year deal for the jobs it would bring to the region. Eric Buehrens, interim chief executive of Beth Israel Deaconess Medical Center, one of the academic partners, extolled the benefits to scientific research. Pfizer says that the partnerships will accelerate development of the next generation of drugs.

The agreement is the latest sign of a growing trend in the pharmaceutical industry, which is trying to cut costs and improve efficiency by outsourcing the earliest phases of drug discovery. "All the drug companies are looking for a new model," says Mark Pepys, a professor of medicine at University College London who is collaborating with London-based GlaxoSmithKline (GSK). For academics facing tight research budgets, the deals bring financial benefits — and potentially fraught relationships

with the companies and their academic peers.

"My big fear is that we're going to create a polarization within academic centres," says Kenneth Kaitin, director of the Tufts Center for the Study of Drug Development in Boston. "There will be those that partner with industry and in some cases will be looked on more negatively by their academic peers, and those that would never partner with industry because they feel that betrays their academic purity."

Pfizer's partnership is the third agreement it has brokered with institutions since November under a new programme that includes deals with a group of research centres in New York, and an \$85-million collaboration with the University of California, San Francisco. Other major pharmaceutical firms, including GSK and AstraZeneca, have also been busy snatching up academic partners (see Table). In 2006, AstraZeneca initiated 271 interactions, including collaborations and other agreements, with academia. By 2010, that number had more than doubled to 594.

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Discoveries made in academic labs have long fuelled industrial drug

development. Greg Wiederrecht, vice-president for external scientific affairs at Merck, readily ticks off the company's drugs that originated in this way. The development of Gardasil, a vaccine against human papillomavirus, began in a lab at the University of Queensland in Australia, for example. RotaTeq, a rotavirus vaccine, was developed with technology from the University of Pennsylvania and the Wistar Institute in Philadelphia. But these relationships are becoming more important as the industry closes its research labs in response to falling profits (see *Nature* 470, 154; 2011).

Tightening federal budgets are also putting financial strains on academic labs, making industry collaborations more attractive. "Every academic centre is looking at all this money flying around and asking: 'how do we get a piece of this action?'" says Kaitin.

Yet industry's need for secrecy, and its tendency to change its research focus abruptly, can conflict with the more open and stable academic environment. Pepys experienced this first-hand in the 1990s when the Swiss drug-maker Roche abruptly terminated its collaboration with his team. He faced a long and costly battle to retrieve the intellectual-property rights to a compound developed during the project. A little later, Roche agreed to work on the compound with him again, only to prematurely end the collaboration a second time. Once more, Pepys had to fight to continue his work. "It was a very expensive and tedious process that has delayed the drug by about ten years," he says. "And the clock on the patent is ticking."

Nevertheless, Pepys notes that without Roche's help, he would not have been able to develop a compound that, he hopes, will soon be ready for clinical tests in people with Alzheimer's disease. "Nobody except big pharma can make a medicine effectively," he says.

Industry, too, has had its share of frustrations. Shiv Krishnan, a senior director at French drug-maker Sanofi's branch in Bridgewater, New Jersey, notes that Hoechst, a German life-sciences company that Sanofi acquired, paid \$70 million in the 1980s to fund research at Massachusetts General Hospital. In the end, however, the firm had little to show for it, Krishnan says. "And why?" he asks. "Because it wasn't collaborative. It was: I'll send you the cheque and you let me know when you have something."

In recent years, industry has taken a more focused and collaborative role in academic research. In its latest agreement, Pfizer says it will set up a lab in Boston that will house about 50 researchers — half of them Pfizer employees, the rest Pfizer-funded postdocs from participating academic labs. The team will work on projects selected by an oversight board comprised of academics and Pfizer executives. The company hopes to develop up to 30 projects from the three agreements, says Anthony Coyle, who is directing the programmes for Pfizer.

Pfizer's programmes are unique in the size of their financial commitments, but not in ▶

## HIGHLIGHTS FROM INDUSTRY-ACADEMIA COLLABORATIONS ANNOUNCED THIS YEAR

Company	Academic institutions	Therapeutic area
Pfizer	Seven New York medical institutes	Biological drugs
Sanofi	University of California, San Francisco	Ageing, diabetes and inflammation
Gilead	Yale University, Connecticut	Cancer
GlaxoSmithKline and AstraZeneca	University of Manchester, UK	Inflammation
AstraZeneca	National Institute of Health and Medical Research, France	Cancer, inflammation and respiratory and autoimmune diseases
Takeda	Kyoto University, Japan	Obesity and schizophrenia

► their pursuit of active collaboration: earlier this year, Sanofi announced similar agreements. Pepys, meanwhile, is working directly with GSK scientists to develop a drug against amyloidosis, a disease caused by a build-up of amyloid protein.

The various deals also aim to smooth over tensions between industry and academia. Duncan Holmes, who heads GSK's Discovery Partnerships with Academia initiative, says that the company will give research partners a year's notice if it chooses to end a collaboration and that, if it that happens, academics would be free to continue with the project. To ease worries about publication restrictions, many agreements stipulate the terms for publication ahead of time. Yet some academics wonder whether the trend towards industry

collaboration will harm academic credibility. Some hospitals and universities, including Harvard University, have cracked down on industry relationships after it emerged over the past few years that researchers had received consulting and speaking fees from companies with a vested interest in their research.

Research agreements do not generally raise the same conflict-of-interest alarms as speaking fees, for example, which can be seen as marketing a product for a company, says Eric Campbell, a sociologist at Harvard Medical School in Boston. Also, many institutions vet the language in the contracts, he notes, and industry money is deposited into institutional accounts rather than given directly to investigators.

But Campbell also notes that industry collaborations can restrict or delay publication

and lead to a publication bias in favour of a company's product. "You should not in any way accept the notion that these giant institutional agreements are without tremendous danger," he says.

Furthermore, academia's growing appetite for industry funds could tip the balance of power at the negotiating table. "The pressures on a university president are intense," says Howard Brody, a bioethicist at the University of Texas Medical Branch in Galveston. He advocates the creation of an external organization to oversee large-scale collaborations with the drug industry. "We have to remember that institutions have conflicts of interest, just like individuals do," he cautions.

Kaitin, however, says that industry is just as desperate to collaborate, if not more so. "Earnings at these companies are falling through the floor and investors are losing confidence," he says. ■

## CORRECTION

The News story 'Egypt invests in science' (*Nature* **474**, 266; 2011) wrongly identified Susan Hockfield as a member of the board of trustees appointed to run a proposed non-profit science city near Cairo. She is not a member of this board.