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The drug industry

From bench to bedside

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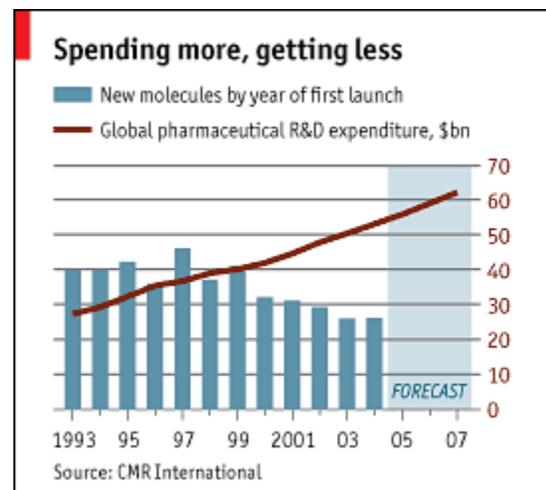
From The Economist print edition

Could a new business model revive drug discovery?

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"RAILROADS and telegraphs needed the modern corporation and semiconductors and software needed venture capital," says Gary Pisano. The Harvard Business School professor argues in a new book* that the drug industry is also in desperate need of a new business model. As the baby-boom generation ages, America, Europe and Japan will face an explosion in health-care costs unless researchers find new treatments.

Alzheimer's is a good case in point. The cost of caring for patients with the disease is estimated at \$250 billion a year globally. Although Alzheimer's was identified 100 years ago this week, there is still no cure. More frustratingly, say experts, the majority of research money is not being spent on the most promising new areas of genetics. Why not?



The answer goes to the heart of what ails drug companies. Large pharmaceutical firms used to be engines of innovation, but a big fall in share prices, the onslaught of generic drugs and bureaucracy from recent mega-mergers has tripped them up. Research productivity and approval rates for mass-market drugs aimed at rich consumers are falling (see chart). Big firms have grown risk averse, developing lots of imitations of blockbuster drugs and fewer novel ones. The squeeze will get worse as a dozen top-selling drugs lose patent protection over the next two years.

Nimble biotech firms, however, have a good record of innovation. But the bursting of the biotech bubble has left them starved of cash. Except for a few stars like California's Amgen and Genentech, the industry makes no profits at all. Venture funding has shrivelled up in America, and Europe is not doing much better. The good news is that new business models and cash are coming. Three former executives from SmithKline Beecham, Novartis and Aventis have founded Care Capital, a \$175m investment fund that favours novel drugs over "me too" bets. When Novartis recently got rid of a drug that failed to tackle Alzheimer's, for example, this group

grabbed it for its potential as an obesity treatment. Kleiner Perkins, a legendary Silicon Valley venture fund, recently unveiled a \$200m fund targeting research into pandemics. John Doerr, a partner at the firm, says it will invest to accelerate innovation, "and we're in a hurry."

Symphony Capital, an American private-equity firm with \$315m allocated to drug-development financing, has done some two dozen unorthodox deals in which it pours money into new joint ventures in return for control of a firm's intellectual-property rights. The Milken Institute, a charity, recently convened a gathering of leading financiers, executives and relevant experts to craft even more unusual approaches to drug funding.

Charities and government agencies are getting cleverer too. They usually have lots of red tape, turf wars and are risk-averse. Rudolph Tanzi, a geneticist at Massachusetts General Hospital, believes this "sucks the life out of young investigators with sharp ideas." Most of the conventional research being done on Alzheimer's focuses on just four genes discovered many years ago that contribute only 30% of the genetic basis of the disease, ignoring the 20 or so uncharted genes thought to be responsible for the remainder of the problem. Mr Tanzi argues this ignores the most promising pathways.

His attempts to get official funding were rejected, so he turned to the Cure Alzheimer's Fund (CAF), which was started by several families with venture-capital experience. It provides funding quickly, but with strict milestones, financial controls and supervision. It agreed to fund Mr Tanzi and a network of leading researchers. That has allowed them to get powerful statistical software and hardware for rapid genetic screening not yet in common use. The effort echoes the private-sector push to decode the human genome.

As a result, Mr Tanzi and the CAF team are well on their way to decoding the "Alzheimer's genome" within the next two years. This could lead to a cure. It might even produce a new business model to help cure the industry's own ills.

* "Science Business" by Gary Pisano. Harvard Business School Press, to be published November 14th 2006.

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