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years,” says the 51-year-old laboratory manager. Piezoceramics — which convert electricity into mechanical motion, or vice versa — are used in actuators and other car components. But they contain toxic lead. Scientists around the world had struggled to remove the metal without sacrificing performance.

Just-in-time ceramics

But Takatori and his team developed, with some help from the client, a lead-free ceramic that performed just as well as established materials. It was a close call: the project didn't come to fruition until two months before the deadline, when one team member noticed some crystals of an experimental material that were shinier than usual — and delivered ten times more piezoelectric performance than previous tests. Details of the material, a blend of sodium, tantalum and other chemicals, were published as soon as they had been patented (Y. Saito *et al.* *Nature* **432**, 84–87, 2004).

Such innovations, along with the company's manufacturing prowess, have fuelled the ascendancy of Toyota's car division. In the year ended 31 March, Toyota made a record group net profit of ¥1.2 trillion, more than GM, Ford and DaimlerChrysler combined, and a contrast with the loss that GM announced for the first quarter of 2005. Some analysts expect Toyota to displace GM as the world's largest car maker within five years.

Saito says that the laboratory has had a low profile — but that more will be expected of it as Toyota becomes more innovative. “We'll have to be able to produce more creative things from scratch,” he predicts. ■

IN BRIEF

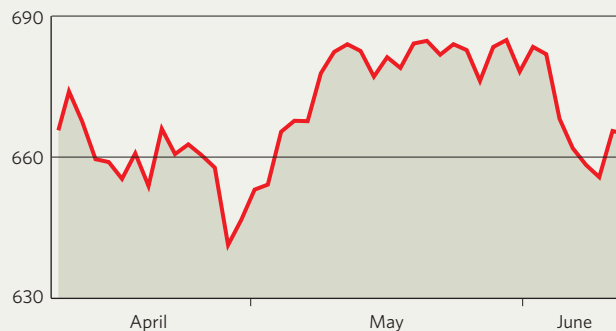
INTEL INSIDE CHINA The world's largest semiconductor manufacturer is establishing a \$200 million venture-capital fund to support emerging companies in China. Intel, which has already invested in dozens of small Chinese companies through an established international venture fund, said the new fund will support companies in hardware, software and computer services. The chip maker says it expects its investment to stimulate innovation in the region, and nurture potential suppliers and customers — as well as making money.

ADVERT AVERSE Television commercials and other advertisements aimed directly at patients are to be dropped by Bristol-Myers Squibb during a product's first year. The New York-based company also pledged to run all of its consumer advertisements past the US Food and Drug Administration for comment, with immediate effect. The announcement reflects growing unease in the drug industry about the cost of mass-market advertising — and its potential to hurt the industry's public image.

PATENT CHANGE FLOATED A proposed reform to US patent law would give precedence to the first person to file for a patent, rather than the first to invent — bringing it in line with most of the rest of the world. The software industry favours the bill, which is sponsored by Lamar Smith (Republican, Texas), chair of the House subcommittee on intellectual property, and the US Patent Office supports parts of it. But other players, including universities and the biotechnology industry, are less enthusiastic. The bill is the opening shot in what could be a multi-year effort to get patent reform through Congress.

MARKET WATCH

Biotechnology stocks



This week Wood Mackenzie, an Edinburgh-based research and consulting firm, reviews recent trends in biotechnology stocks.

After sliding all year, the Nasdaq Biotechnology index steadied in early April, and rose modestly before falling back again last month. The levelling-out reflected good news in the sector, including a couple of large acquisitions and some promising clinical trials results.

In the first acquisition, announced in late April, Shire Pharmaceuticals of Basingstoke, UK, agreed to buy Transkaryotic Therapies for about \$1.6 billion. This company, based in Cambridge, Massachusetts, has both late-stage candidates and approved products for treating rare diseases, which will supplement Shire's portfolio. Then GlaxoSmithKline agreed to buy Corixa, an immunotherapeutics company in Seattle, for \$300 million.

Shares in Transkaryotic and Corixa each rose sharply on the acquisition news.

In mid-May, Cambridge-based Vertex announced positive results in early clinical trials of its drug candidate VX-950 for treating hepatitis C infection. The May meeting of the American Society of Clinical Oncology heard positive news on oncology treatments from several companies including Genentech, whose two drug candidates, Avastin and Herceptin, are showing survival benefits in breast cancer. Although not listed on the Nasdaq, Genentech's exceptional performance helped reinforce investor confidence in biotechnology.

But not all companies fared so well. Shares in OSI Pharmaceuticals of Melville, New York, fell 17% over the two months as investors lost confidence in the approved cancer drug Tarceva, which the company developed with Genentech.