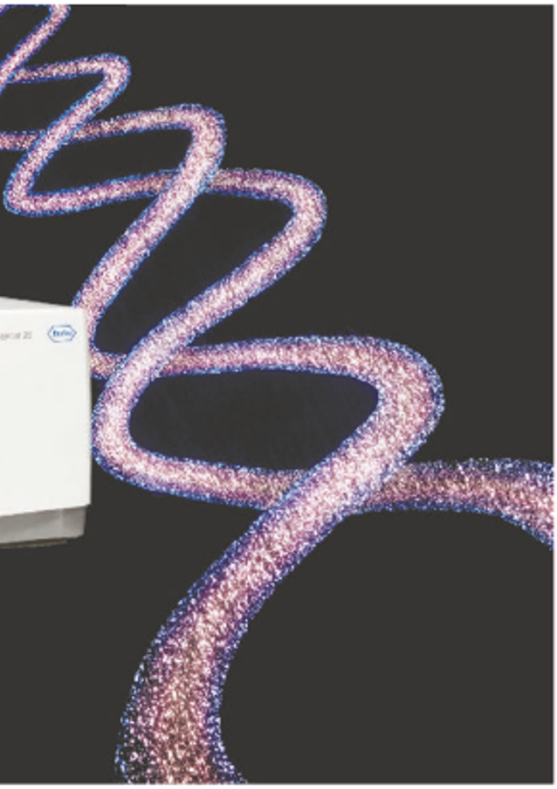

454 LIFE SCIENCES/PHOTOLIBRARY

the length of the individual reads. Most of the new technologies sacrifice length for parallelism and speed even more than 454 does. Early academic shakedowns suggest that Solexa's system produces chains of only 25 base pairs. Rothberg says he expects to increase 454's read lengths to 500 base pairs.

Magic number

Last month, 454's parent company CuraGen, also founded by Rothberg, hired investment bankers to study the possibility of spinning 454 off as a publicly traded firm. Such a move might provide the company with the capital to create machines that can sequence a human genome for the cost of a sophisticated test in a hospital — the idea Rothberg started with.

Might the move generate a magic $454 million of capital? Rothberg denies the rumour that he named his company after the investment he thought it would take to reach his goal. He will say only that the name relates to a code. Maybe he'll tell the secret to Noah when he gives him his own genome sequence as an 18th birthday present. ■

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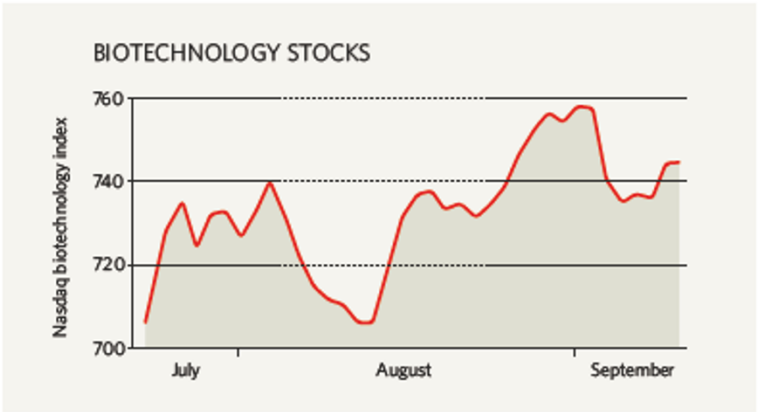
IN BRIEF

BEEP BEEP! IBM has won a US$110-million contract to build the world's first petaflops supercomputer, which will run a thousand trillion computations a second. Los Alamos National Laboratory in New Mexico commissioned the machine, known as Roadrunner, to simulate nuclear explosions. When completed in 2008, Roadrunner will cut calculation times from months to weeks, according to John Hopson, Los Alamos's director for simulations. The current holder of the speed record, Blue Gene/L, is also an IBM machine — housed at rival weapons lab Lawrence Livermore in California. Hopson says Blue Gene/L's architecture makes it inefficient at running some types of weapon simulation. Roadrunner will use a more conventional architecture, achieving its speed by brute force and the use of specialized coprocessors — some of which were originally designed for PlayStation 3 games consoles.

PILL PUSHERS China's Development and Reform Commission has released plans for an invigorated drug industry. In the next five years, 5% of income from pharmaceutical sales will be reinvested in research and development. China's 5,000 or so drug companies currently invest an average of only 1% in research. This is partly because many of the firms are small, and because profit margins are low for a lot of their products — there are 300 aspirin makers in the country. Pharmaceutical companies in the United States, by comparison, typically invest 16% of revenue in research and development. The Chinese commission says it hopes to see five companies with sales of 5 billion yuan (US$600 million) a year by 2010. Specific targets include the production of 10 to 15 new drugs and vaccines for infectious diseases, and the commercialization of 20 to 30 traditional Chinese medicines.

MARKET WATCH



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

The holiday season is typically quiet in the markets. Having fallen steadily since February, the Nasdaq biotechnology index flattened in July, and then managed to start climbing from mid-August. The index is up 5.7% over the past eight weeks, but still down 6.8% since the start of the year.

Good second-quarter results from most of the leading biotech companies accounted for much of this gentle growth. Smaller companies with larger gains included Neurochem from Quebec, Canada: its share value rose 88% in just under three weeks after the US Food and Drug Administration issued an 'approvable' letter for its amyloidosis treatment, Kiacta, on 11 August.

Such a letter signals the agency's readiness to approve the drug, provided it meets additional conditions — in this case more information on its efficacy. For a stock to rise on receipt of such a request is a rarity: because it is not a full marketing approval, an approvable letter almost always sends a stock down. When Encysive Pharmaceuticals of Houston, Texas, received such a letter for its heart-disease drug candidate Thelin in July, its share value fell 37% overnight.

Another large gainer this summer was Pozen of Chapel Hill, North Carolina, itself recovering from heavy losses following an approvable letter for migraine drug Treximа in June. Pozen's shares rose 27% at the end of July, when the company responded to the letter, and jumped a further 39% in early August when it announced a deal with AstraZeneca worth $375 million. ■

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