Roche takeover bid poses challenge to Illumina

A merger could stifle innovation, say observers.

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Swiss pharmaceutical company Roche wants to buy Illumina to increase its stake in the DNA sequencing technology industry.

If drug giant Roche succeeds in its plans for a merger, the sequencing-technology firm Illumina will struggle to maintain its dominance in the sequencing industry, say those who have worked in it for many years.

Roche, based in Basel, Switzerland, announced its intention to buy Illumina, based in San Diego, California, for US$5.7 billion on 25 January. Illumina's board of directors will respond formally by the end of next week, but on 26 January adopted a 'poison pill' provision that would dilute the value of Roche's eventual stake in the company.

Roche is betting that the sequencing industry, which currently focuses on research, will soon see applications in diagnostics and drug discovery, and its offer has spurred a rally in genome-technology stocks, which took a beating last year (see 'Research cuts hit the DNA business').

"This is an enormous vote of confidence in Illumina, and a recognition that the high-value applications for sequencing technology are relatively near on the horizon," said Jorge Conde, co-founder of Knome, a genome-interpretation company based in Cambridge, Massachusetts.

But some observers worry that Illumina's success might be difficult to maintain if the merger goes through. The offer comes at a critical time, just as Illumina faces is facing its most serious competition in years, and may soon need to shift to a new sequencing technology to keep its lead in the market.

"This is a fast-moving space, and you can quickly become obsolete," says Timothy Harris, a bioengineer who helped to develop the technology sold by Helicos Biosciences, also in Cambridge. "The really impressive thing about Illumina is that it has maintained a clear lead for six years. But things almost never get better when big companies buy little ones."

Roche's previous acquisitions of sequencing-technology firms underscores that danger. In 2007, it bought 454 Life Sciences, a company in Branford, Connecticut, founded by biotech entrepreneur Jonathan Rothberg. But Rothberg and many other key 454 employees soon left, and 454 now lags in market share behind Illumina and Life Technologies of Carlsbad, California.

Rothberg then went on to found the firm Ion Torrent in Guilford, Connecticut, which was acquired by Life Technologies in 2010 (see 'The $1,000 genome: are we there yet'), and is emerging as Illumina's most serious competitor in years.

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On the basis of Roche's history, observers say that it will be difficult for the giant to avoid driving away the Illumina employees who have led the company to success. That includes chief executive Jay Flatley, who is widely credited with transforming the firm from a vendor of DNA probes into a powerhouse that has steadily driven down the cost of sequencing since it acquired the genetic-analysis firm Solexa, then based in Hayward, California, in 2006.

Track record

"Having hired many people from 454 before and after the Roche acquisition, I would imagine that Jay will be asking how they won't squelch the innovation from one of the most innovative companies of our generation," says Kevin McKernan, who developed the SOLiD sequencing technology sold by Life Technologies and helped to convince the firm to buy Ion Torrent. "The temptation to institute the buyer's methods upon the acquired is a very powerful force rarely overcome."

In fact, Flatley watched the sequencing-technology company he co-founded — Molecular Dynamics in Sunnyvale, California — flounder after it was bought by Amersham Pharmacia Biotech in 1998. Flatley has said that Amersham "didn't invest in it".

"Molecular Dynamics was a thriving little company, and it just died under Amersham's supervision," says one sequencing-technology entrepreneur, though he adds that Illumina is a much larger company than Molecular Dynamics was.

Many observers expect that Roche will succeed in its latest bid, given the pattern of Roche's recent acquisitions.

Genentech, which is based in South San Francisco, for instance, staved off Roche's advances for months but was eventually acquired for $46.8 billion in 2009. At the time, Genentech employees worried about Roche's ability to maintain the science-focused culture that transformed that company into a biotechnology powerhouse (see 'Roche vows to keep Genentech culture'), and key Genentech employees, including chief executive Arthur Levinson and product-development president Susan Desmond-Hellmann, did leave after the acquisition, although Levinson still chairs Genentech's board.

Most of the Genentech products that are now up for approval by the US Food and Drug Administration — including the cancer drug Erivedge (vismodegib) that was approved on 30 January (see 'Ahead of schedule, first hedgehog inhibitor drug gets the green light') — were already in advanced development at the time of the acquisition, so it's too early to know whether the company is maintaining its edge. But the Genentech experience may actually end up helping Illumina, says Stephen Quake, a bioengineer at Stanford University in California who co-founded Helicos.

"Hopefully those discussions have sensitized Roche to the importance of such issues and, in that sense, Illumina may be in a better position than 454," Quake says.

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Updates

Updated: Roche announced on 31 January that it will nominate a slate of independent candidates for election to Illumina Inc.'s board of directors at the company's annual meeting this year.

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