Analysis: Quantum Dot may be sold cheap

October 13 2005

Analysts are studying last week's acquisition by Invitrogen of Quantum Dot Corp., the nanotech startup that laid claim to all key life-science applications for quantum dots, trying to guess the sale amount and what it might mean for the industry.

Some nanotechnologists consider the sale of the Hayward, Calif., company a success, seeing it as a corporate leader's validation of the company as worthy of investment. Others are not so sure.

"It's nothing of the sort," Matthew Nordan, vice president of research at Lux Research, the nanotechnology analysis firm in New York City, told UPI's Nano World. "Quantum Dot Corporation had a large amount of venture-capital backing behind it, and the acquisition likely did not come close to matching it."

Venture capitalists had invested roughly $45.5 million in Quantum Dot, and although Invitrogen, the biotech giant in Carlsbad, Calif. -- a nearly $3.75 billion market-cap company -- did not reveal how much it spent to acquire the company, given that it acquired Molecular Probes of Eugene, Ore., in 2003 for six times its market valuation, "I would guess that Quantum Dot ... was acquired for $20 to $25 million at best," Nordan said.

Quantum dots are semiconductor crystals only nanometers or billionths of a meter wide. They fluoresce brightly when they absorb even minuscule amounts of light. Scientists can engineer the specific colors of light that quantum dots absorb or emit with extraordinary precision by

adjusting their size and makeup. For instance, a cadmium-selenide quantum dot more than 6 nanometers in diameter emits red light, while one less than 3 nanometers wide glows green.

Quantum dots "represent the next generation of imaging," said Invitrogen spokesman Eric Endicott. They could help scientists image the behavior of cells and organs to a level of detail never before seen in the $500 million worldwide market for biological-detection agents.

Conventional fluorescent dyes used in the life sciences to help researchers monitor how cells and organs grow and develop normally lose their ability to emit light within seconds. Quantum dots, on the other hand, last far longer, helping investigators to monitor cells and organs in diseased and healthy conditions on a molecular scale in real time.

Quantum Dot "likely spent more money and time getting its gene-expression-analysis system to market than backers felt comfortable with, and ran out of money," Nordan said.

"This acquisition provides us with a deeper portfolio and a significant intellectual property position," Endicott said. "Right now, we're in the very early stages of market penetration with nanocrystals, and these acquisitions position us well for continued growth."

Quantum Dot often had threatened to sue anyone who might be infringing on its patents, so Invitrogen's acquisition "certainly changes the balance of power in an intellectual-property shutdown scenario. Quantum Dot ... could have gone after any company, but it would have just been burning cash," Nordan said. "At the same time, large corporations tend to also be more creative, willing and effective at cross-licensing."

Invitrogen also acquired the BioPixels arm of BioCrystal, in Westerville,

Ohio, and announced an agreement with Georgia Tech Research Corp. in Atlanta for exclusive license to its nanocluster technology. Biopixels provide novel coatings and metal alloys for quantum dots, while nanoclusters are composed of noble metals such as gold or silver that offer up to 10 times the fluorescence of quantum dots.

"These announcements show that a very significant life-sciences corporation is willing to spend money on nanotech -- not piecemeal, but in a concentrated program, as part of a coordinated strategy to corner and drive new products," Nordan said. "It's really a vote of approval for nanotechnology."