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NANOTECHNOLOGY GOLD RUSH YIELDS CROWDED, ENTANGLED PATENTS

New report from Lux Research and Foley & Lardner LLP assesses 1,084 nanotech patents; finds that nanotech winners and losers could be decided by courts and not consumers

New York, NY – April 21, 2005 – A gold-rush mentality has taken hold in nanotechnology, and patents are the precious resource being hoarded. As of late March 2005, 3,818 U.S. nanotechnology patents had been issued with another 1,777 patent applications awaiting judgment. But entrepreneurs' ability to turn their patents into cash may be limited by crowded claims that overlap with one another, according to a new report from Lux Research entitled "The Nanotech Intellectual Property Landscape." The report was developed in partnership with patent attorneys in the nanotechnology practice at law firm Foley & Lardner LLP.

"Nanotech researchers worldwide are steadily filing patents in the hopes of creating 'tollbooths' for future products incorporating nanomaterials," said Lux Research Vice President of Research Matthew Nordan. "Nanomaterials – the 'building blocks' of nanotechnology, like carbon nanotubes and quantum dots – have seen particular focus. Our comprehensive patent review shows that the patent landscape for these materials is complex and fragmented. Because so many patents have been filed relating to nanomaterials, and so many of them seem to overlap, companies that want to use these building blocks in products will be forced to license patents from many different sources in order to do so."

To analyze the landscape of nanotechnology IP, Lux Research and Foley & Lardner systematically reviewed 1,084 U.S. patents – representing 19,485 claims – that relate to five nanomaterials: 1) dendrimers, 2) quantum dots, 3) carbon nanotubes, 4) fullerenes, and 5) nanowires. The patents were reviewed manually on a claim-by-claim basis; no software automation was used. The team broke down patents for each nanomaterial platform by application and rated them according to how much "white space" remains for new claims and how entangled existing patents look, using a rigorous, quantitative methodology.

The report concludes that:

- Dendrimers pose the biggest question mark, scoring low on white space and freedom from entanglement for all commercially significant applications. A large number of relevant claims have been assigned from pioneer Dow to one start-up company, Dendritic Nanotechnologies.
- Quantum dots have particularly knotty entanglement for general claims that cover the materials themselves and not any specific application. This fact casts doubt on the commercial value of quantum dot IP.
- Carbon nanotube patents look messy in electronics, but promising in energy and healthcare and cosmetics. The common assumption that carbon nanotube patents are both numerous and overlapping across all important application categories is incorrect.
- Fullerenes look relatively unentangled, but crowded with abandoned patents. The good news: Fullerenes show less entanglement than the previous three categories. The bad news: Many patents issued may be useless – inventors have given up on a third of them by failing to pay patent maintenance fees.
- Nanowire patents number few and seem distinct – but Nanosys looms large. Nanowire patents offer a good opportunity to license the most important ones on an exclusive basis without worrying about IP entanglement – so good that start-up Nanosys has already attempted to do it.

"Looking into the future, while some nanotech patent litigation is inevitable, those who have their own patents will have some leverage with which to avoid a self-destructive IP war," said Stephen B. Maebius, chair of the Nanotechnology Industry Team at Foley & Lardner LLP. "The stage is set for a wave of cross-licensing agreements by start-ups, and bundles of IP for specific applications licensed by groups of large corporations. We advise companies filing nanotech patents to go for claims of intermediate scope - not just broad claims - recognizing that the courts might not uphold all broad claims, as has been the case with a number of biotech patents. Firms licensing nanotech IP should define fields of

use with great care, given that most nanotech inventions cut across multiple industries and may find commercial applications in diverse fields."

The report and its underlying data set are available immediately to clients of Lux Research's Nanotechnology Strategies advisory service. For information on how to become a client, contact Steve Mills at (646) 723-0163.

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