

Fusing Industries

In the last few years, technologies previously used aggressively in the semiconductor space, such as microfabrication, have been implemented in biotechnology, resulting in a large number of small companies backed with venture dollars. Most biopharma executives will not yet have heard of many of these companies. On the flip side, nanotech companies looking to apply their technologies to the life sciences industry must become familiar with the leading biotech and pharma companies.

Executives in both the nanotechnology and biopharma industries must learn about their new competitors (and potential partners) in order to gain market share in this emerging sector.

**Nanotechnology and life sciences are colliding—
Do you know your new competitors?**

Unique Benefits of this Briefing

- *Market growth opportunities* are identified from numerous exhibits detailing market applications, both near term and visionary
- *The potential benefit for this marketplace* is recognized through an overview of the applications of nanotechnology in the life sciences industry, both in research and medicine
- *Business approaches and value propositions* of recently established companies in multiple niches of nanobiotechnology applications are identified through in-depth profiles
- *The overall position of this technology* in today's society is presented via an introduction and history of nanotechnology in an easy-to-read and readily absorbed format

Essential Questions Answered

- What is nanotechnology?
- What is nanobiotechnology?
- What applications are being pursued for nanobiotechnology?
- What companies are employing nanobiotechnology?
- What may be the future applications for nanobiotechnology?
- What is the potential for commercialization?

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Nanobiotechnology

Commercial Opportunities from Innovative Concepts

By Ian J. Mehr, Ph.D., M.B.A.

90 Pages • 10+ Exhibits • 31 Company Profiles • Published April 2002

Going small is getting huge!

The overall market impact
of nanotech applications
is projected to reach
nearly \$300 billion
within the next 12 years.

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Nanobiotechnology

Commercial Opportunities from Innovative Concepts

Nanobiotechnology is the application of nanotechnology, the study of things on the “nano” scale, where a nanometer is one billionth of a meter (10⁻⁹ meter), within the life sciences. The goal is to invent devices that combine engineering and biology—thus, bioengineering of the super-small.

The potential impact of products built around nanobiotechnology is tantalizing:

- Tiny machines that would roam the body, finding and destroying viruses or cancer cells
- Super fast drug discovery at a fraction of today’s cost
- Ultra-specific drug targeting
- Biosensors for pollutants not possible with current technology
- Medical devices that use biomotors with moving parts no larger than a protein

D&MD’s Executive Briefing, **Commercial Opportunities for Nanobiotechnology**, introduces and describes the core components of nanotechnology, and the applications of nanotechnology within the life sciences industry. Further, the horizon for products from nanobiotechnology are described, as well as companies involved in this field.

Nanotechnology is much more than just “very small stuff” and the potential applications in the life sciences industry include a diversity of applications currently being researched that have **near-term impact potential**.

This Briefing is the one source that can quickly bring biopharma executives up-to-speed on:

- The current state of this nascent industry
- What applications are under development
- Who the major players are in this field

Don’t risk your company’s full market potential

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Companies Profiled

| | | |
|-----------------------------|--------------------|-------------|
| Aclara | Handy Lab | Nanogen |
| Affymetrix | Life Sensors | Nanoprobes |
| Arrayx | Luna nanoMaterials | NanoSpectra |
| C Sixty | MEMGen | NanoSphere |
| Caliper | MetriGenix | Nanostream |
| Carbon Nanotechnologies | MicroCHIPS, Inc. | Ntera |
| Cell Robotics International | Micronics | Quantum Dot |
| Fluidigm | NanoBio | SurroMed |
| | Nano-C | Targesome |
| | NanoCarrier | US Genomics |

Need more info?

For a **FREE** complete Table of Contents and Executive Summary visit www.drugandmarket.com/9072

Exhibit: Relative Size at the Nanoscale

| Size Range (nanometers) | Example Objects |
|-------------------------|---|
| 0.1 | Atoms |
| 1.0 | Buckytubes & Buckeyballs Eight oxygen atoms Width of a DNA strand |
| 10 | Molecules |

Exhibit: Potential Applications for Buckeyballs

| Potential Use | Company/Group Pursuing Application |
|-------------------------------------|------------------------------------|
| Photodynamic therapy for cancer | C Sixty |
| HIV protease inhibition | C Sixty |
| Oxidative stress reduction for CNS | C Sixty |
| X-ray & MRI contrast agent | C Sixty; Luna NanoMaterials |
| Stents and medical devices/reagents | C Sixty; Carbon Nanotechnologies |

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About the Author

Dr. Ian J. Mehr is President of Dianoetica, Inc., a life science consulting company. Dr. Mehr has more than a decade of experience in life sciences, and currently serves as Director of Business Development at Paradigm Genetics, a functional genomics company. Previously, Dr. Mehr was Strategic Business Director, Genetics and Business Development Director of Pharmacogenomics with Laboratory Corporation of America, a clinical and esoteric testing company with revenues of more than \$2 billion per year. At LabCorp, Dr. Mehr led the implementation of a pharmacogenetics testing business and the development of collaborations with external technology providers. Dr. Mehr holds a Ph.D. in molecular biology from Northwestern University Medical Center and an M.B.A. in business strategy from Cornell University’s Johnson Graduate School of Management.

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