New

Private Companies Report from The Freedonia Group

Biotechnology

Pharmaceuticals

Report # 1363 **December 2000** **$ 3200**

Key Findings:

- Hundreds of private and start-up firms are pursuing pharmaceutical biotechnology growth opportunities through research in advanced medicines that offer significant improvements over existing therapies.
- In 1999, two private and start-up firms had total biotechnology pharmaceutical product and/or service revenues in excess of $50 million.
- Smaller private and start-up firms are able to meet the substantial funding requirements necessary to compete in the industry, often by receiving equity investments from drug makers or by issuing initial public offerings.
- While a few private and start-up biotechnology pharmaceutical firms concentrate on a single drug target area, most are active in research spanning multiple indications, largely due to the broad application potential of the major technologies.
- Among private and start-up companies, participation is greatest in the development of therapies for cancer, diabetes, central nervous system disorders and cardiovascular disorders.
- California and Massachusetts have the largest numbers of private and start-up biotechnology pharmaceutical operations, with over 150 each. Other leading states include Colorado, Illinois, Maryland, New Jersey, New York, North Carolina, Pennsylvania, Texas and Washington.
- Demand for biotechnology pharmaceuticals in the US is expected to increase 13 percent annually to $28.6 billion in 2004.

Report Features

This report profiles 110+ privately-held and start-up US companies developing and/or producing biotechnology-based pharmaceuticals, as well as drug discovery technologies, and assesses the role these companies play within the industry. Each company profiled was interviewed regarding their product lines, sales and/or employment.

Market Overview — presents the economic factors which will dictate growth in the US biotechnology pharmaceuticals market, and contains Freedonia industry demand forecasts to 2004.

Industry Structure — identifies the leading private and public companies in the biotechnology pharmaceuticals industry, and analyzes private company merger and acquisition, and IPO activity. The report also contains listings of private and start-up firms by key product and state.

Company Profiles — the main body of the report profiles privately-held and start-up companies active in the industry.

Report Benefits

Save hours of time researching difficult to find private company information and identifying players in key product and market segments. Freedonia has used its vast resources of published and proprietary information, as well as one-on-one interviews, to identify and profile more than 110 privately-held and start-up companies in a specific industry. Companies are organized by product and/or market in easy-to-read tables.

Identify companies for investment, merger, and/or acquisition opportunities based on size, products, and location.

Understand barriers to entry based on industry concentration and market shares.

Measure your **market** and **sales potential** based on demand forecasts.

Develop strategies based on size and geographic location of competitors.

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Preliminary List of Private Companies Profiled

The Freedonia Group: Private Companies Report #1363 – "Biotechnology Pharmaceuticals"

Otogene USA Incorporated
4010 Stone Way North, Suite 120
Seattle, WA 98103
County: King
County Code: 53033

Phone: 206-634-2559
Fax: 206-634-2
Web Address:

SAMPLE PROFILE

Annual Sales: … company
Employment: 1 … y, 11/00)
Principal Owner(… gene AG
Key Executive: Jonathan Kil, President

Key Products: development of biomedical therapeutic products for hearing impairment

Census Code SIC(s): 8731
SIC Description(s): commercial physical and biological research

Otogene, a subsidiary of Otogene AG (Germany), develops biomedical therapeuti products designed to correct the biological cause of hearing impairment. Otogene has developed molecules that modulate the function of gene products necessary to stimulate the regeneration of cells that are essential for hearing. Systems for delivering therapeutic to target cells within the inner ear have also been designed. Otogene, which has filed patent applications for many of its proprietary screening and assay technologies, plans to enter preclinical testing on its drug candidates in 2001. The Company intends to market its products in the US, Japan and the European Community.

TABLE III-5
(continued)

SELECTED OTHER PRIVATE & START-UP
BIOTECHNOLOGY PHARMACEUTICAL COMPANIES

SAMPLE TABLE

Company	Corporate Sales (mil $)*	Indication: Antibiotic/Antifungal	Diabetes	Hepatitis	Heart Disease	Neurological Conditions	Other/Unspecified	Technology: Combinatorial Chemistry	Gene Therapy	Monoclonal Antibodies	Recombinant DNA	Other/Unspecified
Evolutionary Genomics									●			
GeneTrol Biotherapeutics											●	●
Genteric									●			
GenVec									●			
GlycoTech									●			●
GPC Biotech	4	●			●		●		●		●	
Hawaii Biotechnology Group	<2	●					●	●	●		●	

Eos Biotechnology Incorporated (continued)

associated with cancer and other diseases. Eos will then use Medarex's monoclonal antibody technology, known as HuMAb-MOUSE, to create fully human antibodies to those targets. The initial product resulting from this

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Eos Biotechnology Incorporated
225A Gateway Boulevard
South San Francisco, CA 94080
County: San Mateo
County Code: 06081

Phone: 650-246-2300
Fax: 650-583-3881
Web Address: ht

SAMPLE PROFILE

Annual Sales: … erify, 11/00)
Employment: …)
Key Executive: … President and CEO

Key Products: development of novel therapeutic and diagnostic products through the application of high-throughput genomics, bioinformatics and biological processes; and commercialization of reagents

Census Code SIC(s): 8731
SIC Description(s): commercial physical and biological research

Eos Biotechnology is engaged in the development of novel therapeutic and diagnostic products through the application of high-throughput genomics, bioinformatics and biological processes. The Company's initial product development efforts are in therapeutic antibodies. Eos also operates a reagents division which is involved in the commercialization of reagents for the research laboratory market. Eos' largest shareholders are Affymetrix Incorporated, Bay City Capital, ProQuest Investments, Venrock Associates and Zesiger Capital Group. In September 2000, Eos completed a private equity financing which raised $28 million. Participants included existing investors, as well as the Company's corporate collaborators and new investors. A September 1999 private equity placement of Eos' preferred stock raised $27 million.

In February 2000, Eos formed a strategic partnership with Medarex Incorporated (Princeton, New Jersey), which represented Eos' first major alliance for the discovery and development of antibody therapeutic products. In the multi-year partnership, Eos is to identify and validate novel antibody targets

continued . . .

Information in profiles obtained from primary sources. Sales and/or employment figures verified by majority of companies

Profiles include:

- 20+ AID/HIV biotechnology pharmaceutical companies
- 70+ cancer biotechnology pharmaceutical companies
- 100+ other biotechnology pharmaceutical companies

* Every attempt has been made to profile all US-based private companies with corporate sales in excess of $50 million.

More than 110 private and start-up company profiles, ranging from detailed descriptions (over 95% of profiles) to brief company overviews

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Biochips

The US biochip market - poised to take advantage of the flood of information from the Human Genome Project - will reach $1.7 billion in 2004. Explosive growth will be led by a range of applications in biomedical research that streamline the drug discovery process and create more powerful tools for diagnosis, disease management, and toxicological monitoring. This study analyzes the US biochip industry to 2004 and 2009 by type, application and market. It also evaluates market share and profiles key firms.

#1365 .... 12/2000 .... $3600

Biotechnology in Agriculture – *Private Companies Report*

Most firms active in the $1.6 billion US agricultural biotechnology industry are privately-held and/ or start-ups, the top two of which had total revenues of at least $25 million in 1999. An additional 21 such companies had total sales of at least $25 million, including revenues not related to ag biotech. This report profiles over 100 private US ag biotech companies (e.g., Cargill, EDEN Bioscience). The report also includes market shares, recent acquisitions and IPOs, cooperative agreements, and industry forecasts.

#1349 .... 11/2000 .... $3200

Biotechnology Pharmaceuticals

US demand for biotech drugs will grow almost 13% annually. Gains will be driven by new products as continuing advances in biotechnology enable drug researchers to develop safe and effective medicines for conditions not adequately treated with conventional pharmaceuticals. Faster regulatory review will also benefit demand. This study analyzes the $15.7 billion US biotech drug industry to 2004 and 2009 by type, technology and application. It also presents market share and profiles key companies.

#1338 .... 10/2000 .... #3700

In Vitro Diagnostics - Private Companies Report

Four private US producers had total *in vitro* diagnostics (IVD) sales of at least $50 million in 1999. The largest of these is one of the seven leading IVD manufacturers in the US. Private producers also hold significant positions as suppliers of particular types of IVD equipment. This report profiles over 100 private US firms (e.g., bioMerieux, Nova Biomedical, Dade Behring, Home Diagnostics). The report also reviews acquisitions, forecasts industry demand and lists firms by product and location.

#1333 .... 10/2000 .... $3200

Industrial & Specialty Enzymes

Specialty and industrial enzymes demand in the US will grow over 7% annually, spurred by the advent of novel biocatalysts targeted at a myriad of end uses (e.g., textiles, cosmetics). Medical and diagnostic enzymes will remain the leading end use by value. The enzyme industry will continue to benefit from biotechnology-based approaches to production. The study details the $1.8 billion US enzymes industry to 2004 and 2009 by product and market. It also presents market share and profiles key firms.

#1318 .... 09/2000 .... $3500

Pharmaceutical Chemicals

US demand for pharmaceutical chemicals will increase 7% annually. Bulk hormones and related agents will see the fastest growth based on new bioengineered compounds for cancer, diabetes and infertility. Respiratory chemicals will also do well spurred by improved asthma and allergy therapies. This study analyzes the $14.6 billion US pharmaceutical chemicals industry to 2004 and 2009 by therapeutic class, regulatory status, and production source. It also presents market share data and profiles key industry players.

#1311 .... 08/2000 .... $3800

Chiral Chemicals

The US market for chiral chemicals will grow nearly 10% annually, driven by regulatory and competitive incentives to improve active drug ingredients. Pharmaceutical chemicals will be the largest and fastest growing market. Leading non-drug markets include amino acids for polymers, along with enzymes and peptides for medical diagnostic and research investigations. This study analyzes the $6 billion US chiral chemicals industry to 2003 and 2008. It also presents market share data and profiles selected companies.

#1182 .... 09/1999 .... $3500

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