

# Merchant Banking Newsletter

Vol.4, Issue 3 October 2006

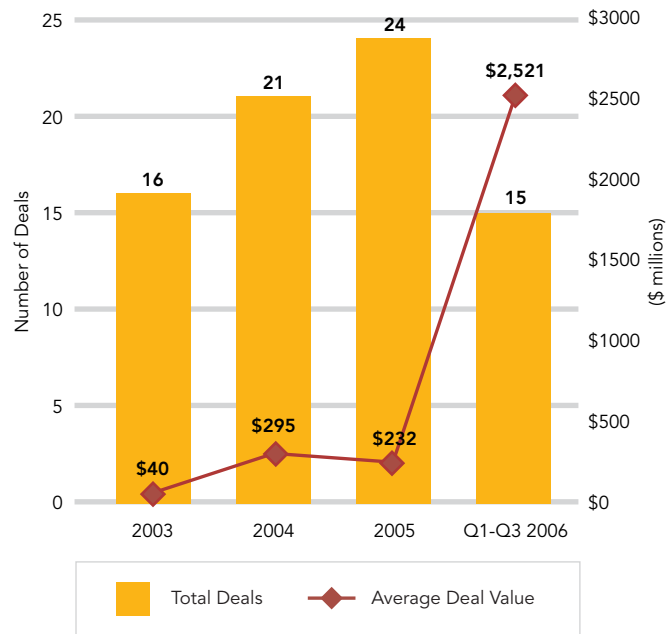
## A REVIEW OF PARTNERING AND M&A TRANSACTIONS IN Q3 2006

In an active quarter for deal making, partnering was the major driver of financing activity in a generally lackluster period for raising capital. Big pharma and big biotech are fiercely competing to build pipelines and smaller biotech players with valuable assets are exploiting their increased negotiation power to form lucrative alliances.

As we move into the final quarter of the year, we highlight a number of key trends:

On an absolute scale, the total number of European deals has dropped by almost a third over the last two years, however the average value of deals has seen a sharp increase in the past year to over ten times the previous years'. During 2006 (to date) the European biotech market has seen a surge of activity by mid-size companies. While past European transactions were dominated by small biotech/biotech acquisitions, 2006 has seen a new wave of consolidation by mid/large European pharma; the need to reach critical mass and bolster R&D budgets, complemented by geographic proximity and the reduction in "national" regulatory borders, are forces driving European combinations. The three largest deals of the past quarter, namely **Merck KGaA/Serono** (\$12B), **Nycomed/Altana** (\$6B), and **UCB/Schwarz Pharma** (\$6B), are all European deals. Headlining these is Merck KGaA's acquisition of privately held Serono SA. Upon this merger, Merck KGaA will become an R&D powerhouse with a budget in excess of \$1 billion. The merger enhances Merck KGaA's pipeline in many areas, including autoimmune (multiple sclerosis), infectious disease, cancer, and particularly women's health. The introduction of the Serono multiple sclerosis franchise with sales of over \$2 billion, 16 compounds in the clinic, and expanded geographic reach will assure Merck KGaA's continued growth over the next several years. These three deals have reshaped the mid-sized pharma landscape. With an increased focus on specialty pharmaceuticals and relatively

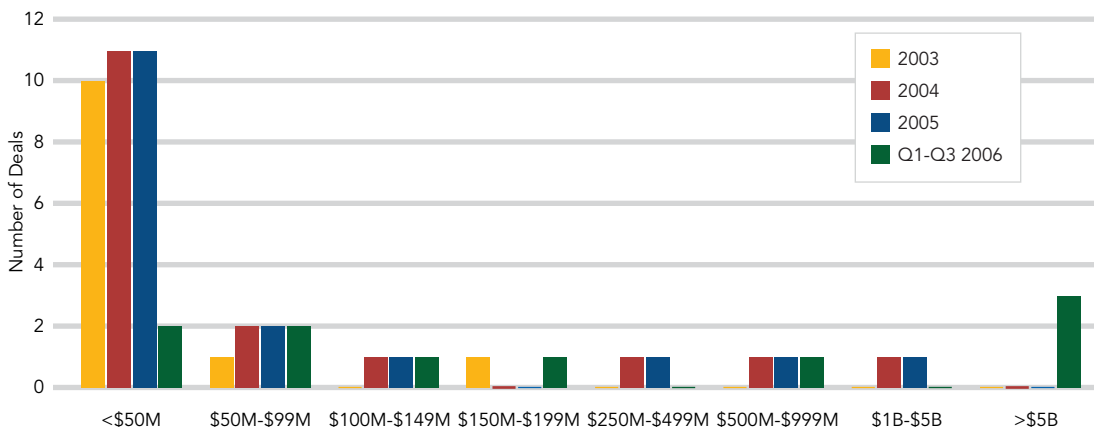
EUROPEAN M&A ACTIVITY:  
TOTAL NUMBER OF DEALS AND AVERAGE DEAL VALUE



Source: Data from Windhover's Strategic Intelligence Systems; Analysis by Burrill & Company

large R&D budgets these new entities are positioning themselves to compete in their markets on a global scale and setting the foundation for accelerated growth. Through their new-found scale in R&D, pipeline, and marketing the midsize European biotechs are aiming to compete with Big Pharma in capturing the specialty product market. Other European firms may follow this lead in recognizing the need for growth and expansion, but whether the increased prowess can lead to triumph in the business development front remains to be seen.

EUROPEAN M&A ACTIVITY:  
TOTAL NUMBER OF DEALS BY TOTAL DEAL VALUES



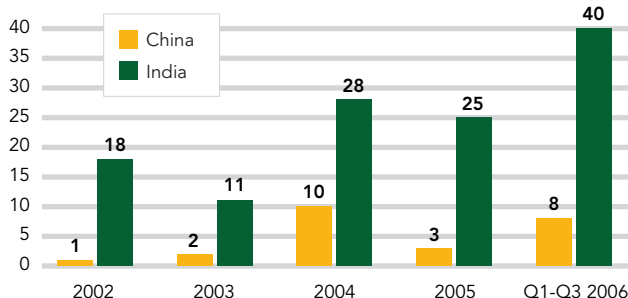
Source: Data from Windhover's Strategic Intelligence Systems; Analysis by Burrill & Company

The growth of emerging markets including China, India, and Africa, is prompting the acquisition of foreign targets to enable international presence and access. In a recent example, **Matrix Laboratories**, an Indian Pharmaceutical company, was acquired by **Mylan Laboratories** of Illinois. The transaction may be an indicator of a new wave of activity on the M&A front in the Indian pharmaceuticals sector.

In order to fill their pipelines, companies continue to partner early stage products; fifty percent of partnering deals within the past quarter with significant terms involved preclinical assets. Furthermore, despite the decrease in the total number of alliances, the number of transactions involving pre-clinical assets has remained steady.

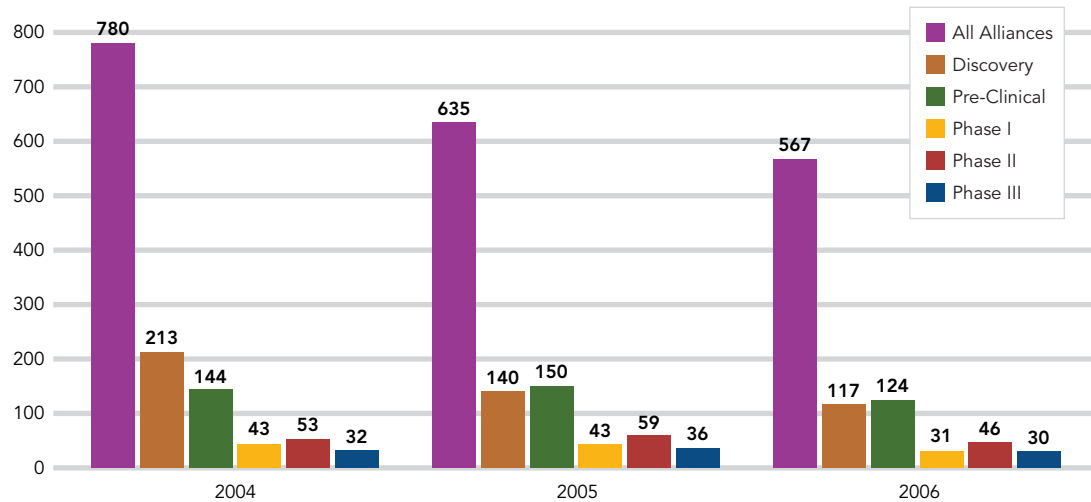
Established biotech players are expanding their therapeutic focus to drive growth - **Gilead**, traditionally focused on viral diseases has made two recent large acquisitions, the latest involving

BIOTECH DEALS INVOLVING CHINESE AND INDIAN COMPANIES



Source: Data from Windhover's Strategic Intelligence Systems; Analysis by Burrill & Company

NUMBER OF PARTNERING DEALS BY DEVELOPMENT STAGE

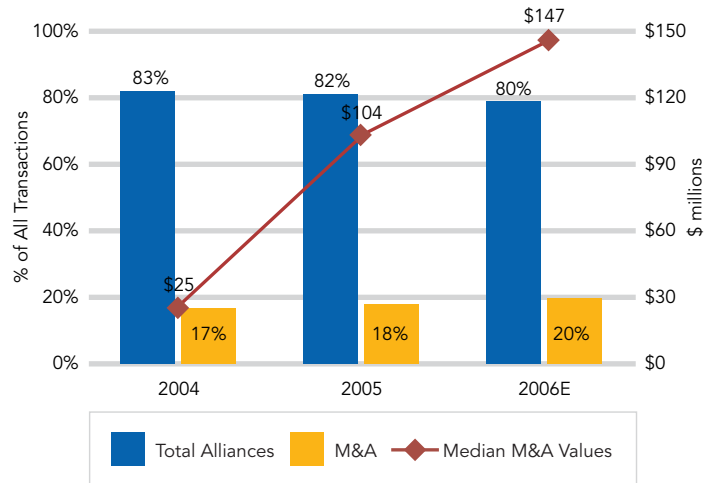


Source: Data from Windhover's Strategic Intelligence Systems; Analysis by Burrill & Company

**Myogen** with a lead compound for Hypertension. Larger companies are seeking growth areas outside of their traditional niche markets and diversifying their pipelines in order to reduce risk. With similar strategic expansion goals, **Cephalon**, traditionally a drug delivery company, rapidly built a pipeline and franchise in oncology through a series of acquisitions (**Salmedix**, **Trisenox**, **Zeneus**) in the last half 2005.

Given the difficult IPO market M&A is playing a larger role in realizing investor exits, especially for private investors seeking greater multiples for late stage products. M&A transactions continue to increase in deal value and numbers.

PHARMA/BIOTECH DEALS: PERCENTAGE OF M&A DEALS AND MEDIAN M&A DEAL VALUES



Source: Data from Windhover's Strategic Intelligence Systems; Analysis by Burrill & Company

## Burrill Partnering Newsletter Third Quarter 2006

### SELECTED ALLIANCES IN Q3 2006

LICENSEE	LICENSOR	PRODUCT(S)	THERAPEUTIC AREA(S) OR INDICATION	PHASE OF DEVELOPMENT	EST VAL (\$M)
GSK	ChemoCentryx	Chemokine & chemoattractant receptors	Inflammatory disorders	Development	\$1,500
Roche	Actelion	(S1P1) receptor agonists	Multiple autoimmune disorders	Phase I	\$630
Genentech	Inotek	Poly-ADP polymerase (PARP) inhibitor	Oncology	Phase II	\$600
Janssen	Vertex	Hepatitis C virus (HCV) protease inhibitor VX-950	Infectious Disease	Phase II	\$545
MedImmune	Infinity	Intravenous IPI-504	Oncology	Phase I	\$500
P&G	ARYx	ATI-7505	Gastroesophageal reflux disease (GERD) and gastroparesis	Phase II	\$435
AstraZeneca	Pozen	Combination naproxen/esomeprazole	Pain	Phase III	\$375
Elan	Archemix	Aptamer therapeutics	Autoimmune disease	Development	\$350
Amgen	Predix	S1P1 modulators	Autoimmune Disease	Preclinical	\$308
Novartis	Cell Therapeutics	Xyotax (poliglumex paclitaxel)	Oncology	Phase III	\$285
King	Ligand	Avinza	Pain	Marketed	\$265
Sandoz	Momenta	Generic protein-based drugs and biologics	Not disclosed	Development	\$260
Eisai	Ligand	ONTAK, Targretin capsules, Targretin gel 1% and Panretin gel 0.1%.	Oncology	Marketed	\$205
Elan	Transition Therapeutics	AZD-103	Alzheimer's disease	Phase I	\$200
Enzon	Santaris Pharma A/S	SPC2968 SPC3042	Oncology	Preclinical	\$200
Novartis	Genelabs Technologies	HCV Therapies	Infectious Disease	Preclinical	\$200
Wyeth	Biotica	mTOR inhibitor	Cancer and inflammation	Preclinical	\$195
Pfizer	TransTech Pharma	TTP488 Other compounds	Alzheimer's disease	Phase II	\$155
Novartis	ProStrakan	Antibodies	Bone related diseases	Preclinical	\$140
AstraZeneca	Dynavax	Toll-like receptor 9 agonist immunostimulatory sequences	Asthma & COPD	Preclinical	\$136
Ipsen	Tercica	Marketing Increlex Somatuline Autogel	Endocrinology		\$124
Tibotec	Medivir	MIV-210	HBV/HIV	Preclinical	\$111
BMS	Medivir	Polymerase inhibitor assets	HIV	Preclinical	\$105
Servier	Plexxikon	Renin Inhibitors	Renal failure, hypertension and vascular disease	Development	\$100
Ipsen	GTx	Acapodene	Oncology	Phase III	\$79
Oscient	Reliant	Cholesterol-lowering drug Antara	Cardiovascular	Marketed	\$78
Wyeth	Intercell AG	IC31TM adjuvant	Vaccines	Development	\$77
Nuvelo	Archemix	Thrombin-inhibiting aptamer	Cardiovascular	Preclinical	\$54
Serono	Syntonix	Inhaled drug for infertility	Reproductive Health	Preclinical	\$54

Source: Burrill & Company

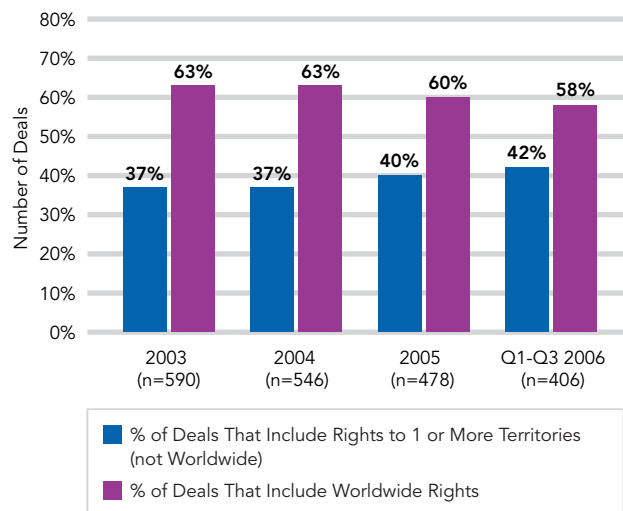
GLOBAL COMPETITION IS DRIVING THE INCREASE  
IN REGIONAL LICENSING DEALS

A recent flurry in significant-sized licensing deals between biotech and their much larger pharma counterparts that specifically exclude major territories such as the US and Europe, prompted us to take a deeper look over the last several years to see if this is indeed a trend.

In July, for example, **J&J's Janssen-Cilag** obtained ex-US rights to **MGI Pharma's** Dacogen for \$10M upfront, \$25M in R&D funding, \$47M in milestones and 20% to 30% royalties. In October,

**Regeneron** announced a deal with **Bayer** around the former's VEGF Trap-Eye product, which **Regeneron** will maintain sole US rights and receive \$75M upfront, up to \$245M in milestones and share development costs and profits.

LICENSING DEALS AND THE GEOGRAPHIC RIGHTS THEY INCLUDE: 2003 – Q3 2006



Source: Data from Windhover's Strategic Intelligence Systems; Analysis by Burrill & Company

A further look at licensing deals by the geographic rights they include, illustrates that there is indeed a trend away from total worldwide rights, to deals that exclude at least one or more major regions (e.g. North America/US, Europe, Asia/Japan). Of the licensing deals in 2003 that reported territory information, approximately 63% included worldwide rights. That percentage has steadily decreased to approximately 58% in the first three quarters of 2006.

A deeper examination illustrates an increase in the number of Asian territory only deals, driven by the rapidly expanding biopharma industry in China, India, Japan, Korea, Taiwan,...

What is Causing This Shift Away from Worldwide Deals?

But what is the driver behind this shift? Our analysis suggests that it is driven by a unique combination of factors that include:

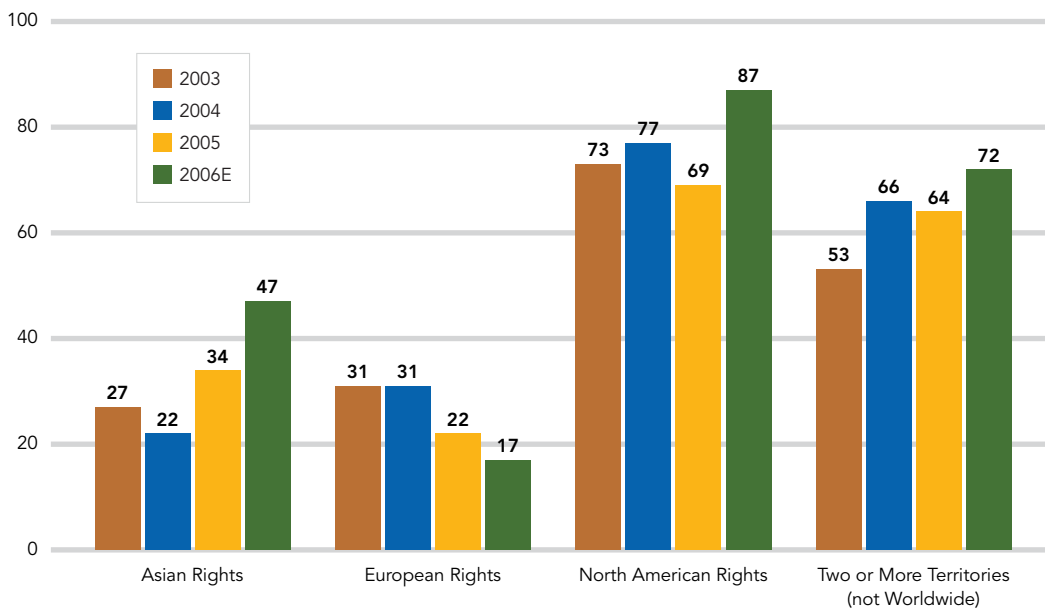
An increasing number of maturing biotech companies

As the industry matures and companies move more and more of their products closer to commercialization, there is an increasing number who wish to maintain rights in their local territory on which to build an initial commercial organization.

Investors that want revenues

As we have seen investors generally shift away from early stage companies that are many years and millions of dollars away from commercialization and towards the lower risk, closer to market specialty pharma model. Along these lines, companies that have successfully advanced novel candidates into late stage trials, thereby reducing more of the risk, can be particularly attractive to investors if they can maintain regional rights and then successfully commercialize in those territories.

LICENSING DEALS AND THE TERRITORIES THEY INCLUDE: 2003 – Q3 2006



Source: Data from Windhover's Strategic Intelligence Systems; Analysis by Burrill & Company

**For the relatively smaller biotechs, an increasing number of capable partners**

Where in the past, Big Pharma was a primary partner for biotechs wishing to outlicense candidates in multiple regions around the world, that is no longer the case. A maturing industry with evolving business models have produced a number qualified partnering candidates:

**Japanese Pharma** (Astellas, Takeda, Eisai,...) are further expanding into Europe and the US and can increasingly provide the geographic reach of the Big Pharmas

**Specialty Pharma** (Pharmion, Norgine, Salix,...) who are focused primarily on sales and marketing and often specialize in one or two therapeutic areas can provide the commercial expertise, focus and priority treatment that some of the larger partners may not provide.

**Mid-Tier Regional Pharma** (Cephalon, UCB,...) These companies provide some of the expertise and experience of the Big Pharmas with the flexibility of a much smaller company.

**And Even Big Pharma Is Getting Into the Regional Game**

The significant demand for products by the above companies, combined with the relatively smaller supply of products from innovative biotechs who are increasingly wanting to maintain regional commercialization rights, have created a situation in which even Big Pharma is conceding key regions, such as the US or Europe, for the ability to at least get access to the rest of the world.

**The Trend Will Continue...**

As the industry become more global and competitive, we expect this trend toward more regional deals to continue. As long as the demand and competition for novel, innovative products is so great, and the supply relatively limited, those companies holding such products will be in very strong position to command the deal terms and structures that meet their strategic growth plans.

A REVIEW OF M&A IN Q3 2006

SELECTED M&A IN Q3 2006

ACQUIRER	AQUIREE	DESCRIPTION	EST VAL (\$M)
Merck KGaA	Serono	An all cash deal with Merck KGaA as the surviving entity. The combined company will have a R&D budget of EUR 1 billion and a market-leading Multiple Sclerosis franchise.	\$12,908
Nycomed	Altana	The deal fulfills Altana's announced intention to shed its pharmaceuticals business. Nycomed was a distributor of Altana's top-selling drug, ulcer treatment Pantoprazol, in Nordic countries and Belgium and believes that its product portfolio and pipeline will benefit from Altana Pharma's marketing strength in key markets.	\$5,726
UCB	Schwarz Pharma	Schwarz Pharma will bring 3 approved and late-stage products complementary to UCB's CNS pipeline. The combined company will have revenues in excess of 3.3 billion euros.	\$5,543
Gilead	Myogen	Gilead's second acquisition of the year, outside of their infectious disease expertise area. Myogen's late-stage anti-hypertension drug, a potential block-buster, will diversify Gilead's pipeline further.	\$2,500
Hospira	Mayne	The cash acquisition more than doubles Hospira's international presence and significantly accelerates the expansion of their generic injectables business.	\$1,970
AstraZeneca	Cambridge Antibody Technology	AstraZeneca acquired the remaining 80.8% of Cambridge Antibody that it did not own and will use its phage and ribosome display platforms as well as the protein therapeutics pipeline as the cornerstone of its push into biological therapeutics	\$1,100
Mylan	Matrix Laboratories	Mylan will gain access to the emerging Indian, Chinese and African markets as well as the ability to expand its finished dosage form business.	\$736
Genzyme	AnorMed	Cash offer based on AnorMed's late stage Mozobile product, expected to launch in 2008. AnorMed had rejected an earlier offer at a lesser premium in a hostile takeover attempt by Genzyme which resulted in a bidding war with Millenium Pharmaceuticals.	\$580
Amgen	Avidia	Amgen acquires a Phase I product for autoimmune disease as well as the Avimer platform for designing antibody therapies in an all cash transaction. Amgen was one of the investors in Avidia.	\$450
Gilead	Corus	Acquisition following a \$25M investment by Gilead. The transaction expands Gilead's therapeutic market to broader infectious diseases areas.	\$365
NeuroSearch	Carlsson	Expanding NeuroSearch's CNS franchise with three new CNS drug candidates: lead ACR16, a dopaminergic stabilizer with orphan drug status in Phase II for Huntington's disease and in Phase I for schizophrenia.	\$121

Source: Burrill & Company

PERSONALIZED MEDICINE – THE DIAGNOSTIC-THERAPEUTIC TANDEM

Blockbusterology has been a key driver of Big Pharma drug development. However, advances in genomics and perpetual progress in understanding mechanisms and pathways of disease on a molecular level are inciting a revolution in healthcare and giving rise to a new model for drug development, “personalized medicine.”

Personalized medicine represents a significant advance and a paradigm change from most current diagnostic methods and therapies; current medicines are developed to detect and treat disease across a broad range of patients. Conventional drug development approaches do not take into account that, due to genetic differences, disease manifestations as well as response to therapy may vary in different patient types.

Personalized medicine aims to use genetic tools to define disease endpoints at the molecular level rather than phenotypic level in order to identify patients who will fail or respond to a treatment in development. The groundwork of personalized medicine is forging ironclad connections between genetic variants and their corresponding diseases or drug responses. It is an enormous undertaking. Researchers are still working on deciphering the total number of human genes, but this has not stopped scientists from trying to elucidate which of the millions of variations in our genome reveal the answers to questions such as “Who gets cancer?” or “Whom will benefit from this pill?”

Recent years have witnessed a migration by both biotech and pharma towards identifying disease biomarkers for use as diagnostics and genetically targeted therapies. Millennium Pharmaceuticals Inc. of Cambridge, Mass., drew up the first blueprint for personalized medicine, “We are focused on integrating genomics-based diagnostics and therapeutics with the ultimate vision of linking the right drug to the right patient,” says John Maraganore, senior vice president of strategic product development at Millennium in a recent interview with BioITWorld.com. Millennium routinely uses genomic screening to select out clinical trial participants whose responses may lead to unclear results. Other Big Pharma, including GlaxoSmithKline, Pfizer Inc., and Roche, do this as well.

The opportunity is huge. With many drugs on the verge of patent expiry in the next few years, we are also experiencing a ‘land-grab’ for biomarkers and the potential doors they will open.

Many biotechs including XDX, Proventys, Genomic Health, DeCode, and Sequenom are already leading the charge in identifying genetic markers specific to disease that can someday be used to design and develop patient-specific therapies coupled with proprietary diagnostics. The molecular diagnostic market is on the rise and in several years it is expected to grow from hundreds of millions to several billion dollars. However, as we move further towards this new model of drug development, companies must also rethink their current development and commercialization strategies in order to prove and justify the value of “evidence-based medicine.” On the provider front, physicians must be persuaded to adapt the new technology and be convinced of the clinical utility as well as the validity of the diagnostic/therapeutic pairing. On the payer side, companies must demonstrate to insurers economic value and justify value-based pricing strategies.

As we move closer and closer to the realization of this new model we will inevitably reach a crossroads in which the benefits of this model must be weighed against its impact on the future of our healthcare. Will personalized medicine reshape the drug prioritization process, revolutionize medicine, or simply give rise to a wave of incrementally improved therapies, which are still effective in most people? Whether this revolution is here to stay and the time it takes for us to feel its true impact remain unknown, but challenges abound.

For further discussion of issues join Burrill & Company at our 2nd Annual Burrill Personalized Medicine Meeting held November 13-14, 2006 in San Francisco, CA. (See future events below for details)

**BURRILL'S BITS**

Burrill Merchant Banking is proud to announce these recent 2006 transactions in which our team played an advisory role.



Signs multi-year, multi-asset development & co-marketing deal with



2006



Development and Commercialization Agreement



**\$105,000,000**  
2006



Forms R&D collaboration with



**\$214,000,000**  
2006



Forms R&D Collaboration with



2006



signed a research collaboration and license agreement



**\$475,000,000**  
2006



has been acquired by



2006

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*Burrill & Company is a San Francisco-based global leader in life sciences with principal activities in Venture Capital, Merchant Banking and Media. The company's over 50 person scientific and business team, supported by its Advisory Boards, the strategic and financial network of its limited partners, and the close relationships developed with numerous life science companies and managements, provide Burrill with unparalleled access and insight.*

## Our Business Activities

### Venture Capital

The Burrill family of venture capital funds, with over \$732 million under management, includes:

- Burrill Life Sciences Capital Fund III (First close completed)
- Burrill Life Sciences Capital Fund II
- Burrill Life Sciences Capital Fund
  - Burrill Agbio Capital Fund and its successor the Burrill Agbio Capital Fund II
  - Burrill Biotechnology Capital Fund
  - Burrill Nutraceuticals Capital Fund

### Merchant Banking

Burrill & Company assists life science companies to identify, negotiate and close strategic partnerships and merger and acquisition transactions providing access to resources, technologies or collaborations essential for executing company business plans. Service lines include:

- Strategic Partnering—From early-stage research, to product development and commercialization
- Merger & Acquisitions—Transactions across life sciences
- Spin-Outs and Divestitures—To create a new company or build value in an established entity
- Financing—Advisory and private placement
- Advisory Services—Defining the role of transactions in achieving strategic objectives

### Media

#### Our Publications

##### Annual Report on the Biotech Industry

Burrill's annual book on the "State of the Industry" has been an important part of the biotech industry's view of itself over the last 20 years. Biotech 2006—Life Sciences: A Changing Prescription is the latest and special 20th Edition. The 500-page book offers a perspective on where the industry has been over the last 20 years and where it is headed.



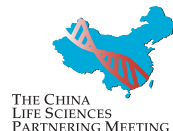
The firm's monthly and quarterly reports and publications provide a totally up-to-date resource for the latest insight, intelligence and information regarding the biotech industry.

They include:

- The Burrill Canadian Biotech News Monthly
- The Burrill Greater China Life Sciences Quarterly
- The Burrill Japan Life Sciences Quarterly
- The Burrill India Life Sciences Quarterly
- The Burrill European Life Sciences Quarterly
- The Burrill M&A/Partnering Quarterly
- The Burrill Biotechnology Quarterly Report
- The Burrill Personalized Medicine Report
- The Burrill Stem Cell Report
- The Journal of Life Sciences

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#### Our Industry Events



- The Stem Cell Meeting
- The Life Science Ventures Conference
- The India Life Sciences Partnering Meeting
- The China Life Sciences Partnering Meeting
- The Midwest Life Sciences Meeting
- The Japan Biotech Meeting
- The Biotech Meeting at Laguna Niguel
- The Indiana Life Sciences Forum
- The Personalized Medicine Meeting