

Growth Strategies in the Pharmaceutical Industry: Strategic Acquisition

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Introduction and Statement of Purpose

Johnson and Johnson's (J&J) pharmaceutical division has recently acquired two biotech firms to increase product revenues and to provide additional research & development capabilities. In February of 2003, J&J acquired Scios for \$2.4 billion in cash. Scios was recently granted FDA approval for Natrecor, the first novel drug approved for congestive heart failure in over a decade. In March of 2001, J&J acquired Alza for a reported \$12 billion. Alza is best known for its innovative drug delivery products, such as the Nicoderm patch to combat nicotine addiction, and has also recently developed a drug to combat Attention Deficit Disorder (Concerta) that quickly nabbed 20% of the market. Interestingly, many analysts dramatically disagree as to the strategic value of J&J's acquisitions. Lehman Brother's analysts noted that the Alza acquisition did not add one "blockbuster" drug required to sustain double-digit growth in the industry. In contrast, a Dain Rauscher analyst argued that J&J acquired Alza "on the cheap," with a price "at the very bottom of an acceptable offer."¹ This paper will analyze the pharmaceutical and biotech industries to determine the value of J&J's acquisition strategy, and, more importantly, to recommend whether J&J should continue to grow through the acquisition of smaller biotech firms.

Pharmaceutical Industry v. Biotech Industry Overview

The pharmaceutical and biotech industries are both committed to bringing new prescription drugs to the market, but their methods and strengths generally differ. Pharmaceutical companies focus on turning chemical compounds into marketable prescription drugs. They are more vertically integrated than biotechs because their larger size allows them to operate large R&D departments as well as large marketing and sales staff. Biotechs focus more on small molecular science in their R&D efforts—focusing more on the "science" of the health problem to generate treatment breakthroughs. Frequently they are run by academics and researchers who lack professional management skills.

The pharmaceutical industry is dominated by the pursuit of "blockbuster" drugs that have fueled double-digit growth for the industry over the past five years. All five major pharmaceutical companies fund their own R&D departments, though the relationships between them and management can become strained. The product life cycle for pharmaceutical products is the dominant force that drives the industry. The FDA can present a cryptic labyrinth with regards to product approval, frequently taking years to approve a drug. Government forces are also critical, as the inventor of a drug maintains monopoly control over the drug for the length of a patent, after which, generic competition will greatly reduce profits. R&D costs are very high, and product spacing is critical, so that new drugs will clear the FDA approval process to replace those whose patents have expired. Much like venture capital endeavors in the technology field, one successful drug can subsidize many unsuccessful introductions. The size of these firms positions them to "ride out" the high-risk/high-reward nature of the pharmaceutical industry.

Biotech firms, however, face a more significant challenge in surviving the uncertainty of the initial R&D process. The long FDA approval process generally creates significant negative cash flows, especially right before product launch. This has the aggregate tendency to discourage equity investment because many of these investment decisions are based on trailing performance, which for a new, innovative biotech could be dramatically negative. The following six forces analysis of the pharmaceutical industry highlights the critical differences between the two industries:

¹ Forbes Magazine, Matthew Herper Author, "Top of the News, J&J buys Alza," 3.27.01

Exhibit 1: Six Force Analysis: Pharmaceuticals/Biotech

Rivalry

Pharmaceutical (Medium)	Biotech (High)
<ul style="list-style-type: none"> Firms generally specialize in specific therapeutic areas which has a limiting effect on firm rivalry Several companies can have therapies in development for the same “high-profile” conditions which increases rivalry Ability to diversify R&D spending across several product areas Patents offer monopoly pricing once approved by the FDA, but rival firms can re-engineer therapies to get around patents and enter market (e.g. Eli Lilly exploring other mechanisms to break into erectile dysfunction market currently owned by Viagra (Pfizer)) Several conditions have multiple players in the same market that are relatively substitutable (e.g. Claritin and Allegra) 	<ul style="list-style-type: none"> Firms generally specialize in specific therapeutic areas which has a limiting effect on firm rivalry Several companies can have therapies in development for the same “high-profile” conditions which increases rivalry Limited investor base with long investment horizons increase the rivalry between firms to secure these funds Threat of competition from pharmaceutical firms increases firm rivalry for the smaller biotech player

Buyer Power

Pharmaceutical (Medium)	Biotech (Medium)
<ul style="list-style-type: none"> Fundamental difference between power of institutional buyers (insurance companies, Medicaid) and end patients Patients have little choice over their prescription – primarily dictated by doctors and insurance carriers Insurance carriers set pricing and dictate which drugs their plan covers putting downward pressure on drug pricing and at least partly forcing pharmaceutical firms to conform to the level of reimbursement mandated by the institutional buyers 	<ul style="list-style-type: none"> Fundamental difference between power of institutional buyers (insurance companies, Medicaid) and end patients Patients have little choice over their prescription – primarily dictated by doctors and insurance carriers Insurance carriers set pricing and dictate which drugs their plan covers putting downward pressure on drug pricing and at least partly forcing pharmaceutical firms to conform to the level of reimbursement mandated by the institutional buyers

Supplier Power

Pharmaceutical (Low)	Biotech (Medium)
<ul style="list-style-type: none"> Commodity inputs Intellectual capital generally owned by firm 	<ul style="list-style-type: none"> Commodity inputs Capital requirements are limited by length of development and corresponding investment horizon Intellectual capital often owned by firm, but not always. There are situations where university researchers are coveted by several firms. When is this case, they exert supplier power over the firm.

Threat of Entry

Pharmaceutical (Low)	Biotech (Medium)
<ul style="list-style-type: none"> Scale economies protect existing players Concentration of required science assets are difficult to come-by Brand and company reputation protect current firms FDA approval process limits new entrants 	<ul style="list-style-type: none"> Uncertainty in approval process and drug development limit equity investment Long timeline is daunting Many small firms begin as a scientist and an idea – no barriers can consistently prevent this threat

Substitutes

Pharmaceutical (Medium-High)	Biotech (Low-Medium)
<ul style="list-style-type: none"> Few substitutes for patented drugs while patents are in effect 	<ul style="list-style-type: none"> Smaller substitute pressure results from small molecule drug development used by biotech

<ul style="list-style-type: none"> • Generic greatly reduce revenues after patents expire, which is a huge concern for all firms • Alternative drug development protocols (e.g. biotech) are substitutes for chemical based drugs • Genetic engineering and stem cell research are being conducted by these firms, but can also be considered substitutable products. • Herbal remedies can be substitutes based on an individual's financial or philosophical attitudes 	<ul style="list-style-type: none"> • Generic greatly reduce revenues after patents expire, which is a huge concern for all firms • Herbal remedies can be substitutes based on an individual's financial or philosophical attitudes
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Complements

Pharmaceutical (High)	Biotech (Medium)
<ul style="list-style-type: none"> • Existence of Biotech Industry as a product pipeline • Patent Law to protect profitability of successful products • FDA approval process to promote credibility • Insurance industry ensures payment for product 	<ul style="list-style-type: none"> • Existence of Pharmaceutical Industry as an exit strategy or source of capital • Patent Law to protect profitability of successful products • University research as a source of intellectual capital and new product ideas

Market Capitalization Analysis

The US pharmaceutical industry is very competitive with several large players. There are 164 companies listed on the DJ Pharmaceuticals Index (US) with a market capitalization of 767.8 Billion dollars as of April 2003. However, five major players dominate this market—Pfizer (193.2 Billion), J&J (163.4 Billion), Merck & Co. (125.4 Billion), GlaxoSmithKline (GSK) plc (116.6 Billion) and Novartis (110.3 Billion) make up 92% of the total market capitalization in the industry. The industry as a whole has experienced a sharp decline since the beginning of 2001 when the DJ Pharmaceuticals index peaked at 405. The index traded as low as 217 in mid 2002, and is trading at 270 as of April 2003. For perspective, this is the same level the index traded in the beginning of 1998.

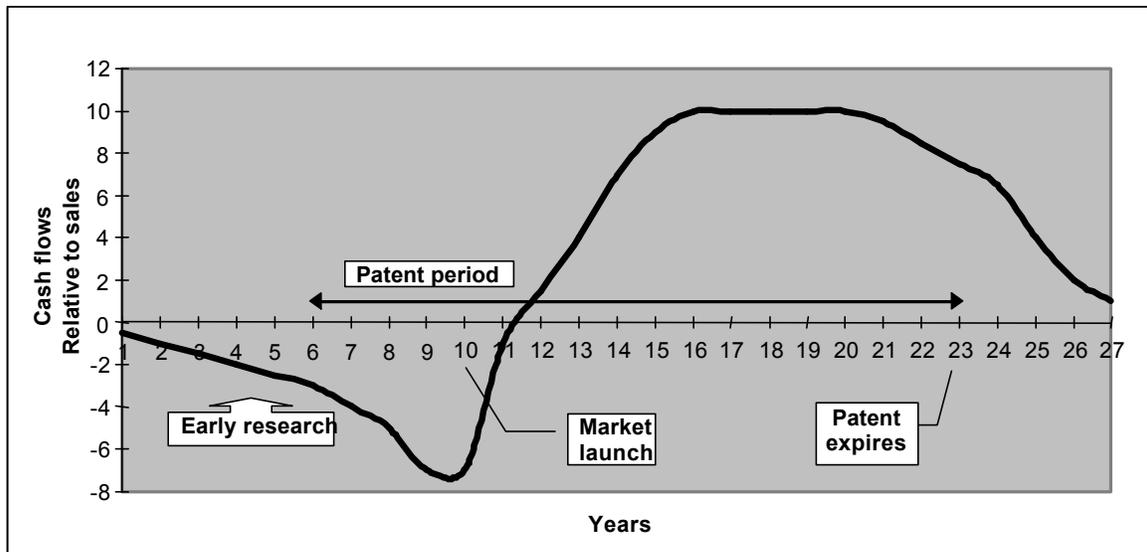
The Biotech Industry is much less dense. There are 323 companies listed on the DJ Biotech index with market capitalization of 171 billion. Amgen is the industry leader with market capitalization of 78.2 billion, accounting for 45% of the total biotech market cap. It has significantly outperformed other biotech firms in the past two years. However, the top 5 publicly traded firms account for only 70% of the total market cap—indicative of the myriad of smaller firms, both public and private that compete in the biotech industry. The biotech industry exploded in early 2000 to an index of more than 750. However, since this time, the index has dramatically eroded to 330.4 in April of 2000. These levels are commensurate with what the industry traded at (roughly) in late 1999.

The Variable Cash Flow of Biotechs and Drug Lifecycle

This market cap discrepancy is indicative of the new ideas and new technologies inherent in the industry. Biotech companies are more likely to be start-ups with products in the FDA approval process; very few companies have significant product revenues. Pharmaceutical companies are better positioned to produce and market new drugs than the more research-oriented biotechs. Second, their size allows them to diversify and synchronize their product development, greatly alleviating the cash pressures that arise from the long development time and high cost of researching and introducing a new drug.

As shown below in Exhibit 1, the product life cycle of a drug is characterized by highly variable cash flows. Rather than the four main phases of a typical product life cycle (introduction, growth, maturity and decline), prescription drugs have three distinct phases: discovery & approval, patent protection and post-patent expiration. The discovery & approval phase is both expensive and time consuming and there is significant risk that the FDA approval process could collapse and/or that the drug will not be as effective as initially projected. However, if the drug is approved, it moves into the patent-protection phase. Cash flows can turn dramatically positive until decelerated by generic competition upon expiration of the patent. The high-risk/high-reward nature of the product life-cycle leaves many biotechs in a precarious financial position—a position that the recent poor performance of the stock market has exacerbated. Based on this product life cycle, drug companies need to time the release of their products to protect their areas of competence and guard against periods of negative cash flow. As a result, smaller companies (e.g. biotechs) are at a strategic disadvantage over the long term.

Exhibit 2: Typical Biotech Cash Flow



Johnson & Johnson Company Information

J&J is a diversified international health care products conglomerate consisting of over 200 individually managed companies with three major divisions (Consumer, Medical Devices & Diagnostics (MD&D) and Pharmaceuticals). The Consumer division (18% of sales) focuses on recognizable over the counter health care products such as Tylenol & BandAid, while the MD&D division (27% of sales) holds a leading position in cardiovascular & other medical device technologies. The pharmaceutical division develops drugs for 13 different therapeutic areas (including cardiovascular, anti-infective and oncology) and was responsible for 47% of J&J's \$36.6 billion in sales for 2002. Furthermore, pharmaceuticals experienced 15% sales growth in 2002, and J&J expects the division to provide most of the corporation's overall growth. In 2002, J&J had 33 drugs with sales of at least \$50M, although the top 6 products accounted for 27% of sales – this statistic highlights the importance of “blockbuster” drugs to provide yearly sales growth for large pharmaceutical firms.

J&J's corporate structure exists to provide centralized investment decisions, sales & marketing and production capabilities to its highly independent conglomerate companies—largely removing itself from the day-to-day operations. Each company has its own management team that controls its individual business course within the framework of J&J's corporate-wide financial expectations. J&J is a related, constrained conglomerate that develops synergies between products based on its sales and marketing expertise within the healthcare industry.

J&J differentiates itself from its competitors by both pursuing a growth strategy based on strategic acquisition and by its choice of therapeutic areas. We will discuss both below.

Growth Strategy

J&J's CEO has placed high growth expectations on the pharmaceutical division. J&J's growth strategy in the pharmaceutical industry is driven by their strong operating cash flows. In 2002, J&J's had an operating cash flow of \$8.2 billion, of which they used \$500 million to acquire new companies, \$5 billion to repurchase outstanding shares and \$1.7 billion for dividend payments. This strong cash position gives them the flexibility to pursue a variety of growth opportunities – through licensing a promising drug, internal growth by funding R&D or making acquisitions. Since 1999, J&J's pharmaceutical companies have grown their R&D staff by more than 50% to 6,700 employees. Furthermore, in 2002, approximately \$4.0 billion, or 10.9% of sales, was invested in research and development efforts.

Growth Options: Make, Buy or License

J&J has employed three vehicles, make, buy, and license to grow its product line. As shown in Exhibit 2, of the company's top six revenue-producing drugs two were developed by J&J scientists, two were obtained by acquisition, and 2 were licensed in from other firms.

Exhibit 3: J&J's Top 6 Prescription Drugs

Drug Name	Sales (2002) in \$B	Source
Procrit/Eporex	\$4.2	License from Amgen
Risperdal	\$1.8	J&J Research
Remicade	\$1.3	Acquisition of Centocor
Duragesic	\$1.2	Acquisition of Alza*
Aciphex	\$0.7	License from Eisai
Topamax	\$0.7	J&J Research

*Initially a license agreement

Examples of Synergy from Acquisition

J&J buys for revenue growth. As shown in Exhibit 2, the acquisitions of Centocor and Alza account for about 7% of 2002 sales. Furthermore, the J&J corporate structure usually allows the acquired company to function largely independently with original management. Acquisitions are generally executed to take advantage of four particular types of synergy.

- Sales and Marketing Expertise – J&J provides the acquired company (such as Centocor in 1999) important assets, such as its large, skilled sales force to push drug sales farther and faster than the acquired company could otherwise manage. J&J increased sales of Centocor's Remicade product by 80% in two years.

- Collaboration and Integration – Within 12 months of the Alza acquisition, J&J had incorporated Alza’s revolutionary drug delivery system (Oros) into 13 individual products which increased the effectiveness – and thereby value – of each product.
- Scale and Efficiency – J&J’s Cashel, Ireland plant served as a new home for Alza’s drug delivery technology, providing ample room for expansion and manufacture for the European marketplace. Concurrently, the reduced pressure on the production and supply chain in the US. This demonstrates the ability for improved efficiency in engineering and production capabilities.
- Information Sharing and Best Practices – J&J can aggregate sophisticated drug development technologies through information sharing with the acquisition which speeds the development cycle and marketplace introduction of the acquired firm’s products.

Most recently, J&J acquired Scios for \$2.4 billion in cash in an acquisition that underlines the importance of the above strategies. J&J gains both an established cardiovascular drug that will benefit from their S&M and a promising new treatment of rheumatoid arthritis that could benefit from J&J’s best practices and scale.

Competing Growth Strategies

Now that we have taken a look at J&J’s strategy of growing through acquisition, it is important to understand other growth strategies that are being used by their pharmaceutical industry rivals. In order to meet double-digit earnings growth expectations, firms must either grow their product line or cut costs (or both). Three strategies have emerged within the industry:

1. Mergers with other large pharmaceutical companies
2. Organic growth
3. Strategic acquisitions of smaller pharmaceuticals and biotech

Each of the major players in the pharmaceutical market has adopted some variation of one or more of these three strategies. J&J has adopted the third strategy, as evidenced by the Scios and Alza acquisition. The next section explores the first 2 strategies in greater detail.

Mergers

Since the late 1980s, the pharmaceutical industry has witnessed significant industry consolidation, most of which has occurred as a result of a spree of mergers between large commensurately sized industry players. These mergers can offer:

- Broadening and/or specializing therapeutic focus
- Curtailing competition by building a dominant position in specific therapeutic areas
- Combining therapy area synergies to save costs and drive sales

The table in Appendix 1 lists the industry mergers since 1989.

For companies having similar therapeutic area focus, current revenues for products under patent are combined, while concurrently containing costs through the elimination of redundant support organizations (sales and marketing). There are similar effects on the pipeline of drugs still in development. The merged firm often doubles the number of compounds in the pipeline while cutting costs in the R&D function. The 1998 Hoechst and Rhone-Poulanc Rorer merger resulted in a company (Aventis) with two complementary product portfolios marketed in four key therapy

areas. Aventis now has a particularly strong cardiovascular portfolio allowing it to exert significant power within the therapeutic area.

Alternatively, large firms can merge to augment the therapeutic areas they wish to strengthen or enter. The primary motivation here is to round out a product portfolio while seeking to contain and eliminate redundant costs. The recent Pfizer/Pharmacia merger followed precisely this prescription. Pfizer was interested in Pharmacia as a means to enlarge Pfizer's portfolio of consumer health products as well as creating the world's #1 animal health business. Pfizer's intent was to acquire Pharmacia's products, roll them into its existing S&M infrastructure, and eliminate the post-merger redundancies.

Organic Growth

A second alternative is organic growth. Pharmaceutical companies traditionally invested in R&D to grow their product pipelines. Historical performance has demonstrated that allocating more resources to internal R&D projects does not sustain long-term growth. As a result of the power of institutional buyers, the industry has trended toward a focus on volume growth as opposed to price-driven growth. Firms choosing not to merge cannot keep pace with the R&D potential of merging firms. Moreover, increased R&D activity tends to raise unit costs and reduce the return on capital demands. A single firm is too resource constrained to make R&D growth a viable strategy.

Therefore, large firms resisting major mergers have increasingly pursued alternative means to cooperate and compete with merging firms. Companies can build a "virtual mass" by forming a network of alliances with various industry players to achieve growth. Co-development and co-promotion agreements permit firms to boost their late-stage pipelines, while allowing the participants to maintain long-term strategic and operational flexibility. A recent example of this virtual mass agreement is the Merck/Schering Plough JV for respiratory diseases. Merck's Zocor and SP's Claritin – both of which are reaching patent expiration (Claritin in 2002 and Zocor in 2005) – are the focus of the deal. Personnel and R&D functions will be shared in this agreement that aims to combine the pair's expertise and develop new products that treat respiratory ailments, in an effort to protect their eroding market share in key therapeutic areas.

Further methods to grow are through cost containment (in S&M, R&D and manufacturing), seeking revenue expansion internationally (areas with strong growth potential in overseas and emerging markets), improving manufacturing functions and outsourcing S&M functions to contract sales organizations.

Rival Responses

In this section we explore the responses of J&J's rivals to their growth strategy of biotech acquisition. Companies tend to adopt growth policies in line with one of the three strategies described above. Eli Lilly and Merck have publicly declared an aversion to mergers and historically favor organic growth strategies. Pfizer is at the other end of the spectrum – driving growth primarily through mergers. Roche and J&J generally grow through strategic acquisition.

Based on these strategic tendencies, we would expect relatively little reaction from J&J's rivals as a result of an acquisition such as Scios. Merck and Lilly will continue to license and seek out extended alliances, while we expect Pfizer to continue to look for merger opportunities that will help broaden their product line and fill in holes in their therapeutic area focus. The only companies likely to respond would be ones that like to grow through strategic acquisition (e.g. Roche) and have overlapping therapeutic area focuses. Scios, with its revolutionary drug for

congestive heart failure, currently operates in cardiology and potentially in inflammatory diseases. While Roche does have some presence in cardiology and inflammatory diseases, Scios would not be deemed as an acquisition target that would bring significant synergies.

Although we don't expect J&J to see overwhelming competition from all industry players for a biotech like Scios, it would be unrealistic to expect J&J to be alone in their bid. At the time of the acquisition, GSK and Merck were thought to be in the bidding process as well. If industry history is any example, rivals might consider several tactics in response to news of J&J's interest in Scios including:

- Bid up price to make the acquisition target more expensive
- Serve as a White Knight to "save" Scios if acquisition was unwanted
- Investigate other acquisition targets to "keep up" with J&J

Neither of the first two happened with Scios, which is surprising. Natreacor, the heart drug, was already being marketed and was selling well in 2002. Yet, neither GSK nor Merck made much of an effort to outbid J&J. This can be partly explained by J&J's higher valuation (based on their ability to create synergies and grow revenues) and the strategy to leave acquisitions relatively autonomous, a practice not employed by many of their rivals. From the Scios management team's perspective, maintaining control and a relatively high level of autonomy had to be a priority in any acquisition. A 500 person entrepreneurial company would certainly clash cultures with an overly bureaucratic, conservative company. J&J's conglomerate strategy avoids much of this culture clash – simply the distinct difference between a pie expanding strategy and a cost cutting, efficiency move.

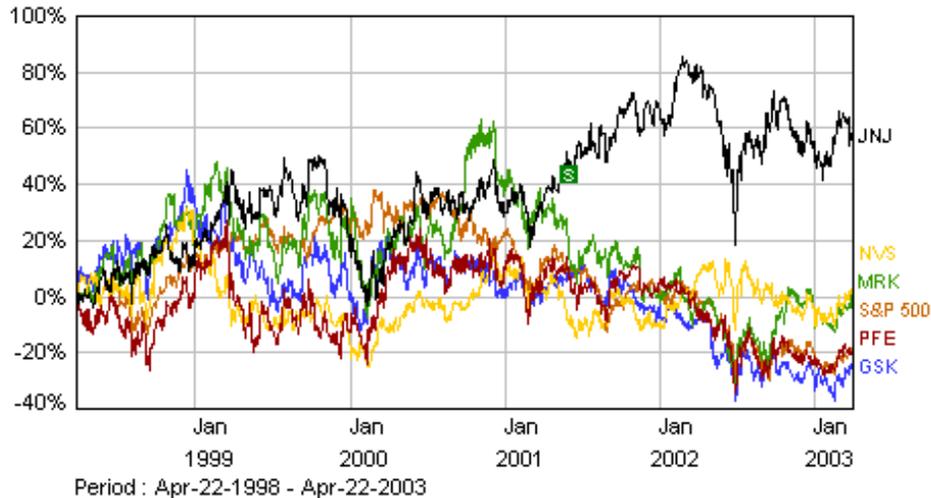
It might have been that GSK and Merck's cash positions prevented them from competing with J&J's \$2.4B offer. GSK's and Merck's cash positions at the end of 2001 were £716M and \$2.1B, respectively while J&J's was \$29.2B. J&J was in a position to "throw a lot of gold coins in the ocean," so to speak.

Currently, rival firms don't have many potential firms to target for acquisition. Forbes magazine, as of February 2003 predicts that pharmaceutical companies will indeed look to biotechs for their growth, but J&J's Scios acquisition will not start a new round of biotech merger activity. "Expect a lot of mergers, but they won't look like combination of Scios and J&J"¹. To Forbes' point, Scios was a gem. Most available biotechs are not as far along with their marketable products as was Scios, and the current industry tactic seems to be one of delay – the longer biotechs operate on their own, the higher chance they run out of money and the cheaper the asking price.

COURSE OF ACTION

J&J's acquisition strategy has served it well, as demonstrated by its market cap and relative industry performance over the past five years. Exhibit 3 shows the relative value of the largest 5 pharma stocks over the past 5 years.

Exhibit 4: Relative Stock Performance



Key: JNJ (Johnson & Johnson), NVS (Novartis), MRK (Merck), PFE (Pfizer), GSK (GlaxoSmithKline)

Based on this performance, we recommend that J&J continue its growth strategy through acquisition, R&D and operational competencies (S&M and therapeutic area). J&J's disciplined approach to selecting acquisition targets allows them to resist merging for growth's sake permitting growth through strategic acquisition.

Although Scios was a rare find and most biotechs do not have marketable drugs with sales in the hundreds of millions, we recommend J&J continue to grow using acquisition of biotechs as one of the company's distinct growth strategies. It will be important to determine which biotechs J&J should target for future acquisitions. As a rule, J&J should consider several attributes:

- Fits within the company's therapeutic competencies to leverage S&M advantage
- Seek companies with a strong management team and operational controls that allow the company to function autonomously underneath the larger J&J umbrella
- Products that are either on the market, or in late stage development as the competencies J&J brings are more sales/marketing and production/manufacturing as opposed to scientific discovery expertise
- Mature biotechs that embrace the business side as well as the science side. Early stage companies would not be a good fit. They are too science focused, and tend to lose sight of the importance of product marketability and business structural best practices.

Based on our analysis, we have identified the following three companies that fit this mold, contingent upon meeting the above criteria.

- Gilead Sciences – its new HIV drug has the potential to generate nearly \$1B in sales within the next 5 years
- Cephalon – the company's fast growing narcolepsy drug, Provigil, may eventually be used for a range of other sleep disorders and garner \$700 million in sales

- CV Therapeutics – this firm’s drug for angina could be worth \$500 million within the next year.

APPENDIX 1 Major Pharmaceutical Mergers since 1989

Year	Merger or Acquisition	New Company Name
2003	Pfizer and Pharmacia	Pfizer Inc.
2001	American Home Products and Wyeth	Wyeth
2000	Glaxo Wellcome and SmithKline Beecham	GlaxoSmithKline
2000	Pharmacia & Upjohn and Monsanto	Pharmacia Corp.
2000	Pfizer and Warner-Lambert	Pfizer Inc.
1999	Zeneca and Astra	AstraZeneca
1998	Synthelabo and Sanofi	Sanofi-Synthelabo
1998	Hoechst and Rhone-Poulenc	Aventis
1997	Roche and Boehringer Mannheim	Roche
1996	Ciba Geigy and Sandoz	Novartis
1995	Glaxo and Burroughs Wellcome	Glaxo Wellcome
1995	Hoechst-Roussel and Marion Merrell Dow	Hoechst Marion Roussel
1995	Upjohn and Pharmacia	Pharmacia & Upjohn
1995	Rhone-Poulenc Rorer and Fisons	Rhone-Poulenc Rorer
1994	American Home Products and American Cyanamid	American Home Products
1994	Hoffmann-La Roche and Syntex	Hoffmann-La Roche
1994	Pharmacia and Erbaront	Pharmacia
1994	Sanofi and Sterling (prescription drugs)	Pharmacia
1994	SmithKline Beecham and Sterling (OTC)	SmithKline Beecham
1991	SmithKline and Beecham	SmithKline Beecham
1990	Pharmacia and Kabi	Pharmacia
1990	Rhone-Poulenc and Rorer	Rhone-Poulenc Rorer
1989	American Home Products and A.H. Robins	American Home Products

1989	Bristol-Myers and Squibb	Bristol-Myers Squibb
1989	Merrell Dow and Marion	Marion Merrell Dow

Source: Datamonitor

Footnote:

1. Herper, Matthew. "For Drug Deals, Think Small." Forbes. 2/10/2003.
http://www.forbes.com/2003/02/10/cx_mh_0210mergers.html.