

Pharmaceuticals

Since first quarter 2006, most pharma companies have increased their patent portfolios. The realignment is most closely tied to differences in research intensity.

Pharmaceutical companies are ranked based on Science Strength, while most other industries are ranked using Technology Strength. This reflects the unique nature of the Pharmaceutical Industry. Pharmaceutical products are made up of a few patents with the commercialization process gated by clinical trials. Moreover, the research process itself creates point

breakthroughs, while other industries tend to build cumulative insight over time. To reflect this behavior the Research Intensity indicator is used to highlight strengths in this industry.

All but two companies in the top 10 increased their patent portfolio. Johnson & Johnson led the pack with a 57% increase in patents granted year to year. Only Pfizer and Elan Corp. plc had fewer patents granted this year vs. last year. The increase in patents typically grew faster than the industry's growth in R&D spending, which is estimated to be 10%.

The shake up in the top 10 is based on changes in Research Intensity, which measures the extent that a company references non-

patent research literature. Wyeth's Research Intensity grew by 47% followed by Novartis AG with a 25% increase and Johnson & Johnson with a 17% increase. Others in the top 10 had reductions in Research Intensity – Schering-Plough Corp. – 35%, Merck KGaA – 26% and Merck & Co. Inc. – 22%. These differences led to the shake up of the top 10 companies.

Poniard Pharmaceuticals Inc., previously known as NeoRx Corp., a focused oncology pharmaceutical company, entered the top 10 replacing Glaxo Smith Kline. Poniard's entry is based on an increase in patenting but the company is more interesting due to its extremely high Research Intensity, 4.45, – No. 1 in the Pharmaceutical Industry.

Most Pharmaceutical companies are expanding into Biotechnology, which has slightly different patenting properties. While Pharmaceutical companies have more discrete innovations tied to a few patents, Biotech companies continue to build on previous knowledge to create cumulative innovations. This is why there is significant self citation in the Biotech Industry. Both industries have relatively simple patent relationships to products.

Figure 1. Industry Impact™

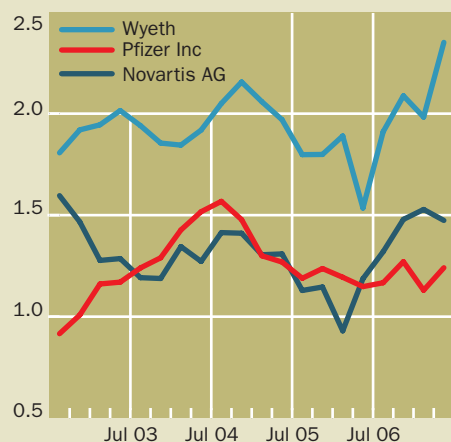


Figure 2. Patents Issued

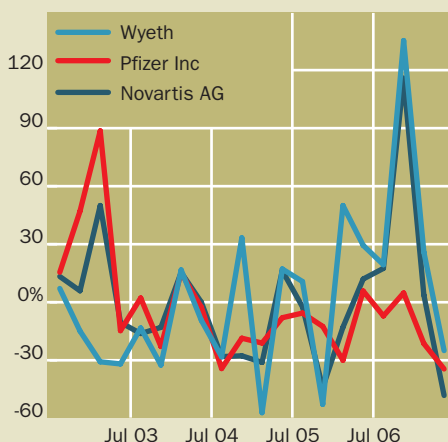


Figure 1. While highly variable quarter to quarter, both Wyeth and Novartis increased patents granted year to year by 21% and 3% respectively. Pfizer, on the other hand, had a 16% reduction in patents granted.

Figure 2. Wyeth maintained and recently grew Research Intensity putting it 9th overall in the industry. Pfizer and Novartis consistently maintain an above average Research Intensity.

Ranking & Movement	Science Strength™	Company / Concern	Patent Count	Technology Strength™	Industry Impact™	Research Intensity™
July 2007	July 2006	July 2007	July 2007			
1 ▲ 3	10487	Wyeth	144			
2 ▼ 1	7151	Pfizer Inc	305			
3 ▲ 8	6547	Johnson & Johnson	221			
4 ▲ 5	5093	Bristol-Myers Squibb	210			
5 ▲ 9	4646	Novartis AG	145			
6 ▬ 6	4410	Merck KGaA	80			
7 ▼ 2	4216	Elan Corp plc	26			
8 ▼ 4	3622	Merck & Co Inc	156			
9 ▼ 7	3290	Schering-Plough Corp	89			
10 ▲ 39	3104	Poniard Pharmaceuticals Inc	7			

0	50	100	150	200	250	1	2	3	1	2	3	4	5
<div>■ 1 Year</div> <div>■ 5 Year Average</div>					Industry Impact & Research Intensity industry average is 1								

Novartis

Novartis stands as a strong example of the trends within the Pharmaceutical Industry. Created as a merger of two global Pharmaceutical giants Ciba-Geigy and Sandoz, Novartis is refocusing into the Pharmaceutical and Biotechnology spaces.

Novartis recently reported slowing sales growth due to the delays in FDA approval for Tasigna and the withdrawal of Zelnorm. This surprised investors who are used to historic double digit sales growth. While not directly related to slowing sales, 2006 included divestitures of the Medical Nutrition business which includes the Gerber baby food brand, and the acquisition of Chiron (April 2006), and NeuTec Pharm (July 2006), both biotech companies. The net result is a stronger focus on Pharmaceuticals and the related Biotech Industry. Novartis' patent portfolio reflects this focus with about three-fourths of the patents in the two technologies. The remaining patents are in related chemicals and medical device technologies.

The company maintains a global network of research facilities in the United States (Genomics, Biomedical), Singapore (Tropical

Diseases), Switzerland, the United Kingdom, Austria, Japan, and now China. These facilities developed an average of 171 patents per year over the last five years. Last year's 3% growth ended an eight-year decline in patent applications. When combined with a 25% growth in Research Intensity, Novartis jumped four spots in the Pharmaceutical Industry Ranking. The growth in Research Intensity has been consistent since the first quarter 2006, and before that the index was twice the industry average.

Novartis is one of the leaders in the Pharmaceutical Industry trend to include Biotech. Novartis opened a Genomics research institute in California and a BioMedical Research group headquartered in Cambridge, Mass. The acquisition of Biotech firm Chiron presented a growth platform into human vaccines. This trend will continue to blur the two industries.

A second trend in which Novartis leads is the entry into generic drugs. As the patent protection ends, traditional Pharmaceutical companies exited the product. In 2005, Novartis acquired two generic drug companies, Hexal and Eon Labs. This trend will allow Novartis to capitalize on a drug's revenue stream even after it loses patent protection.

On the horizon

Despite the current decline in sales growth, Novartis has a strong patent portfolio that will deliver growth far into the future. With its consistently strong R&D and growing patent counts, Novartis is likely to see a return to double-digit revenue growth.

Scorecard rankings

Pharmaceutical Scorecard	5
Patent Board 500 position	95

Figure 1. Novartis AG Portfolio Distribution

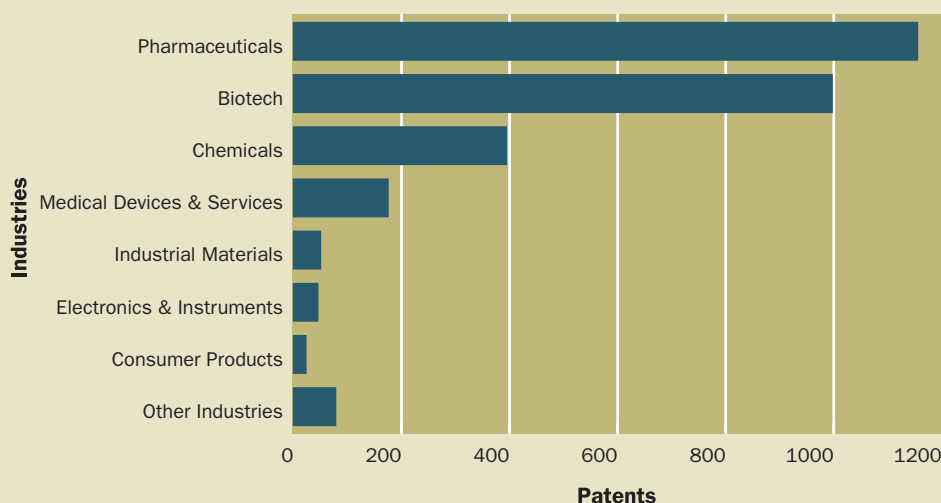


Figure 1. Patents focused in Pharmaceuticals (40%) and Biotech (34%). Cumulatively, these industries account for 74% of the total patent portfolio.

Figure 2. While patenting activity is trending down, it has grown 3% over the last year.

Figure 2. Historical US Patenting Activity

