Global Perspective on Consolidation in the Biopharmaceutical Industry

Ed Saltzman
President
Defined Health

New York Pharma Forum General Assembly
7 December, 2007
The information in this presentation has been obtained from what are believed to be reliable sources and has been verified whenever possible. Nevertheless, we cannot guarantee the information contained herein as to accuracy or completeness.

All expressions of opinion are the responsibility of Defined Health, and though current as of the date of this presentation, are subject to change.
Introduction of Panelists

Deborah Dunsire, MD
President & CEO
Millennium Pharmaceuticals, Inc.

Neal Fowler
President
Centocor, Inc.

Frederick Frank
Vice Chairman and Director
Lehman Brothers Inc.

Yasuchika Hasegawa
President
Takeda Pharmaceutical Company Limited
Agenda

• Data and Conclusions
  – Lessons From 25 Years of Big Pharma Consolidation
  – Lessons From 10 Years of Big Pharma/Big Biotech M&A

• Outlook and Predictions
  – Are We Done With Big Pharma Consolidation?
  – Will the Current Trend of Pharma Acquiring Pre-Commercial Stage Biotechs Continue?
## The Urge to Merge: Major Pharma M&A 1994 - 1995

<table>
<thead>
<tr>
<th>Date</th>
<th>Acquirer</th>
<th>Acquiree</th>
<th>Deal Value ($millions)</th>
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<tbody>
<tr>
<td>1995</td>
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<td>AHP</td>
<td>Cyanamid</td>
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<td>SmithKline</td>
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Windhover Information.
## The Urge to Merge: Major Pharma M&A 1996 - 2002

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<thead>
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<td>Knoll</td>
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<td>1999</td>
<td>Pfizer</td>
<td>Warner Lambert</td>
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<td>1999</td>
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<td>Pharmacia &amp; Upjohn</td>
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<td>1998</td>
<td>Zeneca</td>
<td>Astra</td>
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<td>Synthelabo</td>
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<td>Boehringer Mannheim</td>
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<td>1996</td>
<td>Ciba-Geigy</td>
<td>Sandoz</td>
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## The Urge to Merge: Major Pharma M&A 2004 - 2007

<table>
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<th>Acquirer</th>
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<th>Deal Value ($millions)</th>
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<td>2007</td>
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<td>2006</td>
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<td>2005</td>
<td>Dainippon</td>
<td>Sumitomo</td>
<td>$2,200</td>
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<tr>
<td>2004</td>
<td>Sanofi-Synthelabo</td>
<td>Aventis</td>
<td>$65,000</td>
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</table>

*Windhover Information.*
25 Years of Big Pharma Consolidation Have Proven One Thing

• The promised benefits greatly exceeded the reality!
Justification for Pharma Industry Consolidation

- Critical Mass for Survival
- National Pride
- Scale
- Short-term Growth/Margin Fix
- Economic Inevitability

Despite Justification, Most Pharma/Pharma M&A has Failed to Produce Benefits

• **Merger Justification # 1:** Consolidation is Economically Inevitable

• **Merger Justification # 2:** Short Term Growth / Margin Fix

• **Merger Justification # 3:** The Promise of Scale

• **Merger Justification # 4:** National Pride

• **Merger Justification # 5:** Critical Mass for Survival (Japan)
The “Fragmented Industry” Theory Once Made Consolidation Seem Inevitable

February 8, 2001

Health
Bristol-Myers Squibb Names Dolan
Currently President, to Post of CEO

Mr. Dolan noted that despite recent mergers in the drug industry, there remains no company with greater than a 7% share of the market. “I think we’re a potential combination partner for a deal that makes sense given how this industry plays out.”
Few Similarly Sized Industries Were this Fragmented in 2000

Global Market Share of Leading Pharmas in 2000

Global Pharma Market = $ US 362 bln

Pfizer’s Consistent M&A Activity Has Not Resulted in Sustained Market Share Gains

Pfizer’s WW Rx Market Share 2000 – 20012 (E)

EvaluatePharma.
• Merger Justification # 1: Consolidation is Economically Inevitable

• Merger Justification # 2: Short Term Growth / Margin Fix

• Merger Justification # 3: The Promise of Scale

• Merger Justification # 4: National Pride

• Merger Justification # 5: Critical Mass for Survival (Japan)
Consolidation: Overpromised Benefits and Underdelivered Performance

“With Pharmacia, we will have the products, pipeline, scale, and financial flexibility to extend our leadership. Over the next few years, Pfizer anticipates annual growth of 11% in revenues and 14% in net income, excluding merger costs.”

Henry A. McKinnell, Pfizer. (Chemical & Engineering News, 7/22/2002)
The Bigger the Merger, The Greater the Value Destruction

Company values prior to merger announcement.

SEC filings, YahooFinance, DH Analysis.

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• Merger Justification # 1: Consolidation is Economically Inevitable

• Merger Justification # 2: Short Term Growth / Margin

• Merger Justification # 3: The Promise of Scale

• Merger Justification # 4: National Pride

• Merger Justification # 5: Critical Mass for Survival (Japan)
GlaxoSmithKline to be formed in £114bn "merger of equals"

Dr Jean-Pierre Garnier (chief operating officer, SmithKline Beecham, and chief executive designate, GSK) said: "This is a merger of strong with strong, in contrast to some other mergers in this industry." He said that the merger would produce five key competitive advantages for the new company:

- **Enhanced R&D productivity** "Money and scale are important, but you also need quality." The two companies have 13 compounds and 10 vaccines currently in phase III development. Both companies were leaders in genomics and bioinformatics.
- **Superior marketing power** Over 40,000 employees in sales and marketing, including 8,000 representatives in the US, making the company the marketing partner of choice.
- **Superior consumer marketing skills** "These will be much more important than ever before." The market was being changed by direct-to-consumer advertising and e-marketing via the internet. Many of the company's products would be switched to over-the-counter status in the future.
- **Operational excellence** Efficiency savings of over £750m would be achieved over three years, on top of savings of £570m already achieved. Savings of £250m would be made by streamlining research and development. This money would be reinvested.
- **A talented management team** Both sides had previous experience of integrating companies after mergers.

The Promise of Scale
The Reality of Scale?

Glaxo Wellcome + SmithKline Beecham

26 NMEs Filed and approved

6 year total Pre-merger

GSK

15 NMEs Filed and approved

6 year total Post-merger

Drugs@FDA, CDER, DH Analysis; Filing to approval time estimated to 24 months when specific dates not available.
• Merger Justification # 1: Consolidation is Economically Inevitable

• Merger Justification # 2: Short Term Growth / Margin

• Merger Justification # 3: The Promise of Scale

• Merger Justification # 4: National Pride

• Merger Justification # 5: Critical Mass for Survival (Japan)
France Rx

The French Get Their Drug Company. Will Foreign Investors Retaliate?

By FLOYD NORRIS

Published: April 30, 2004

Will foreign investors punish France?

That question arises in the wake of the French government's successful effort to create a French pharmaceutical giant, regardless of what shareholders might have preferred.

To engineer the takeover of one French drug company, Aventis, by another, Sanofi-Synthélabo, the government had to sidestep supposed European rules barring national preferences. It evoked snickers with the disingenuous argument that a non-French company might not provide vaccines after a terrorist attack.

But it succeeded, and on terms that let Aventis shareholders do reasonably well, although they could suffer if Sanofi loses a court case involving patent protection on an important drug. Aventis came up with a clever security to protect its shareholders if that happened, but the French government said such a tactic would not be allowed.

Nationalism in takeovers is hardly unprecedented, of course. The European Commission is irritated that some European governments retain "golden shares" to prevent foreign takeovers of formerly state-owned companies. The United States government reserves the right to bar foreign takeovers of companies that have technology deemed critical for defense. And American law bars foreigners from owning more than 25 percent of a United States airline.
Germany Rx

Bayer to Acquire Schering; German Merck to Sell Stake

Martin Gerten/European Pressphoto Agency
The three big German pharmaceuticals makers that announced agreement yesterday. Merck is hoping for a place in future joint ventures.

By CARTER DOUGHERTY
Published: June 15, 2006
FRANKFURT, June 14 — The health care giant Bayer clinched its bid for Schering on Wednesday as the rival suitor, Merck of Germany, backed off, agreeing to sell its stake to Bayer in return for a possible joint venture with the combined company. The new company is expected to become a German powerhouse in pharmaceutical research and production.

Merck, by acquiring 21.8 percent of Schering over the last week, had raised the prospect of a nasty corporate takeover battle — a rarity in Germany. Bayer had outbid Merck in March for Schering, one of the world's leading contraceptive makers.

By early Wednesday, Bayer and Merck appeared to be circling for a protracted fight that would include an initial round of legal action.

Instead, Bayer and Merck appeared to be circling for a protracted fight that would include an initial round of legal action. Merck announced plans to sell its stake, a move that would allow the German company to participate in any future joint ventures.

Bayer’s chief executive, Werner Wenning, said in a statement, "Today we have taken a major step toward creating a world-class German pharmaceutical company."
• Merger Justification # 1: Consolidation is Economically Inevitable

• Merger Justification # 2: Short Term Growth / Margin

• Merger Justification # 3: The Promise of Scale

• Merger Justification # 4: National Pride

• Merger Justification # 5: Critical Mass for Survival (Mr. Hasegawa)
Agenda

• Data and Conclusions
  – Lessons From 25 Years of Big Pharma Consolidation
  – Lessons From 10 Years of Big Pharma/Big Biotech M&A
Pharma/Biotech M&A: Historic and Recent Strategies

- Pharma buys biotechs with early stage assets
- Pharma buys biotechs with marketed or late stage assets

1996 → 2004 → 2007
Sanofi-Aventis would acquire biotech company if deal good

PARIS, Nov. 30, 2007 (Thomson Financial delivered by Newstex) -- Sanofi-Aventis (NYSE:SNY) is prepared to make acquisitions or partnerships with biotech companies as it aims to double or triple by 2012 the proportion of drugs it produces using biotechnology, research chief Marc Cluzel said.

If there is a good deal to be done, we will do it,' he told journalists in Shanghai a day after the company announced it will raise its stake in biotech drug producer Regeneron to 19 pct from 4 pct. 'We are very pragmatic.‘

He said Sanofi-Aventis wants to raise the proportion of biotech-derived drugs it makes to 20-30 pct from the current 10 pct.

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**Big Pharma/Big Biotech M&A: Good Deals Harder to Judge**

- Historically, few revenue stage biotechs with attractive pipelines limits realistic opportunities.
- Though a small $n$, benefit of hindsight suggests most of these deals were financially unsuccessful over the near term but may, nonetheless be financially and strategically valuable over the longer term.
- AZ / MedImmune: First Pharma acquisition of “Big Biotech” since 2004 – price was “shocking” to some, but by historical standards, it does not seem unreasonable.
10+ Years of Big Pharma/Biotech M&A

• So, Was it a Good Deal?
  – JNJ / Centocor (1999)
  – JNJ / Alza (2001)

• So, Will it be a Good Deal?
  – AZ/MedImmune (2007)
10+ Years of Big Pharma/Biotech M&A

- So, Was it a Good Deal?
  - Warner Lambert / Agouron (1999)
  - JNJ / Centocor (1999)
  - JNJ / Alza (2001)
  - JNJ / Scios (2003)
### Acquired Products - What Happened to Them?

<table>
<thead>
<tr>
<th>Pipeline</th>
<th>Viracept</th>
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<tbody>
<tr>
<td><strong>At Time of Acquisition</strong></td>
<td><strong>5+ Years Later</strong></td>
</tr>
<tr>
<td><strong>Pipeline @ Time of Acq</strong></td>
<td><strong>$Millions</strong></td>
</tr>
<tr>
<td>Axitinib (AG-13,736)</td>
<td>Phase III</td>
</tr>
<tr>
<td>AG3340 (Phase III @ Acq)</td>
<td>Pfizer discontinued program</td>
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<tr>
<td>Remune (Phase II/III @ Acq)</td>
<td>Phase IV/IV</td>
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<tr>
<td>AG2037</td>
<td>Pre-registration</td>
</tr>
<tr>
<td>AG-24322</td>
<td>No Development Reported</td>
</tr>
<tr>
<td>CMV protease inhibitor</td>
<td>No Development Reported</td>
</tr>
<tr>
<td>GnRh antagonist</td>
<td>No Development Reported</td>
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<tr>
<td>Hepatitis C protease inhibitor</td>
<td>No Development Reported</td>
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<tr>
<td>HIV Integrase</td>
<td>No Development Reported</td>
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<tr>
<td>AG-14,699</td>
<td>No Development Reported</td>
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</table>

**DH Valuation $411m**

**Valuation $411m**

**Windover Recap; ** Assuming 30% net profit margin and 15% discount rate.

- **Warner Lambert / Agouron - 1999**

- **Pipeline**
- **Viracept**

- **Pipeline @ Time of Acq**
- **5+ Years Later**
- **$Millions**

- **Axitinib (AG-13,736)**
  - Phase III
  - Pfizer discontinued program for lung and prostate cancer
  - N/A

- **AG3340 (Phase III @ Acq)**
  - Pfizer discontinued program
  - N/A

- **Remune (Phase II/III @ Acq)**
  - Phase IV/IV
  - Pfizer discontinued program
  - N/A

- **AG2037**
  - Pre-registration
  - Pfizer discontinued program
  - N/A

- **AG-24322**
  - No Development Reported
  - Pfizer discontinued program by July 2007
  - N/A

- **CMV protease inhibitor**
  - No Development Reported
  - N/A

- **GnRh antagonist**
  - No Development Reported
  - N/A

- **Hepatitis C protease inhibitor**
  - No Development Reported
  - N/A

- **HIV Integrase**
  - No Development Reported
  - N/A

- **AG-14,699**
  - No Development Reported
  - N/A

- **Pipeline**
- **Viracept**
Products Acquired - What Happened to Them?

<table>
<thead>
<tr>
<th>Pipeline @ Time of Acq</th>
<th>5+ years Later</th>
<th>2012</th>
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<tbody>
<tr>
<td>Panorex</td>
<td>Discontinued</td>
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</table>

DH Valuation $2.7B**

J&J paid: $5.0B

Windover; Recap; ** Assuming 30% net profit margin and 15% discount rate.
"J&J believes that it can push sales of Concerta, Ditropan XL and Doxil not merely beyond what Alza could do but what anybody really expects from these drugs. Putting Concerta into a WW launch and Ditropan XL into J&J's primary care sales force will, they figure, add hundreds of millions of extra growth." (IN VIVO, April 2001, Windhover)

"J&J can probably afford to pay more for Alza than other drug companies since it will now no longer have to pay transfer fees and royalties on the Alza-developed fentanyl patch (Duragesic) or the Duragesic line-extension Alza is working on...." (IN VIVO, April 2001, Windhover)
Products Acquired - What Happened to Them?

<table>
<thead>
<tr>
<th>Products</th>
<th>At Time of Acq</th>
<th>5+ Years Later</th>
<th>2012</th>
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<tr>
<td>Ionsys</td>
<td>$8M Sales</td>
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<td>$430M</td>
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<tr>
<td>OrthoEvra</td>
<td>$450M Sales</td>
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<tr>
<td>Duragesic Line Extension</td>
<td>Discontinued</td>
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<td>N/A</td>
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</table>

*: Value of retired royalty paid by J&J to ALZA. **: Windhover; Recap; Assuming 30% net profit margin and 15% discount rate.
So, Was it a Good Deal?

- Historical analysis suggests acquirer either overspent on marketed products that failed to achieve growth expectations and/or on pipeline products that failed to reach the market
  - But!
    - In some cases, it is not possible to judge pipeline payoff for as long as 10 years post-deal
    - JNJ/Centocor as case in point
      » Deal brought JNJ significant pipeline presence in large molecules years before competitors
      » CNTOs large molecule projects now the “innovation leader” in JNJ’s pipeline
10+ Years of Big Pharma/Biotech M&A

• So, Was it a Good Deal?
  – JNJ / Centocor (1999)
  – JNJ / Alza (2001)

• So, Will it be a Good Deal?
  – AZ/Medimmune (2007)
So, Will it be a Good Deal? By Historical Standards, AZ / MedImmune is Clearly Expensive, but Not Outrageous

<table>
<thead>
<tr>
<th>Date</th>
<th>Acquirer</th>
<th>Acquiree</th>
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<th>Sales</th>
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<td>J&amp;J</td>
<td>ALZA</td>
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<td>1999</td>
<td>J&amp;J</td>
<td>Centocor</td>
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<td>WL</td>
<td>Agouron</td>
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<tr>
<td>1996</td>
<td>AHP</td>
<td>Genetics Institute</td>
<td>$1,250</td>
<td>$172</td>
<td>7.3</td>
</tr>
</tbody>
</table>

Windhover Information.
AZ / MedImmune: Why Does Everyone Seem to Have Sticker Shock?

• J&J / Alza -- 2001, $10 bln
  – Mature products and mature drug delivery platform
• Schering-Plough / Organon 2007, $14 bln
  – Ph III shots-on-goal but no sure bets
  – What else to leverage?
• Centocor cost $5 bln in 1999
AZ Also Paid a Premium for Scarcity

Few New Biotechs Reaching Commercial Scale

- Genentech 2000
- Gilead 2003
- MedImmune 2006
- Amgen 1994
- Biogen Idec 2003
- Celgene 2007
- Genzyme 2001
- Actelion 2007
- Vertex 2011


EvaluatePharma.
AZ / MedImmune: Buying Promise

• Though early, a significant number of pipeline compounds, including several vaccines

• A critical mass in biotech projects
  – Increased total AZ large molecule projects from 7% to 27% of portfolio

• A critical infrastructure in protein therapeutics
Ultimately, Value Will be Determined by the Pipeline

### Infectious Diseases

<table>
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<tr>
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<th>Phase 1</th>
<th>Phase 2</th>
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<td>FluMist®</td>
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<td>CAIV-T</td>
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<td>Motavizumab</td>
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<td>Epstein Barr Virus vaccine</td>
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<td>RSV/PIV-3 vaccine</td>
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<td>Pneumococcal vaccine</td>
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<td>H5N1 vaccine</td>
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<td>hMPV/PIV-3 vaccine</td>
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<td>hMPV MAb &amp; vaccine</td>
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<tr>
<td>Anti-RSV drug</td>
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<tr>
<td>Anti-staph HP MAb</td>
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<tr>
<td>3rd-generation anti-RSV MAb</td>
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### Cancer

| Ethylol®       |             |         |         |         |        |
| HPV cervical cancer vaccine |         |         |         |         |        |
| Hsp90 inhibitor |         |         |         |         |        |
| Anti-CD19 BiTE® (MT103) |         |         |         |         |        |
| Anti-EphA2 BiTE & conjugate |         |         |         |         |        |
| Hedgehog pathway inhibitor |         |         |         |         |        |
| Listeria.EphA2 vaccine |         |         |         |         |        |
| Anti-EphA4 MAb |             |         |         |         |        |
| Anti-EphB4 & EphrinB2 MAbs |         |         |         |         |        |
| Anti-CD19/20/22 MAbs |         |         |         |         |        |
| Anti-ALK MAb  |             |         |         |         |        |
| Anti-cMet Avimer™ |         |         |         |         |        |

### Inflammatory Diseases

| Anti-IL-9 MAb |             |         |         |         |        |
| Anti-IFNa MAb |             |         |         |         |        |
| Anti-IL-5R MAb |           |         |         |         |        |
| Anti-IFNaR MAb |           |         |         |         |        |
| Anti-HMGB-1 MAb |           |         |         |         |        |
| Anti-ICOS MAb |             |         |         |         |        |
| Anti-CD19, CD20 & CD22 MAbs |         |         |         |         |        |
| Anti-Chitinase MAb |         |         |         |         |        |
Agenda

• Data and Conclusions
  – Lessons From 25 Years of Big Pharma Consolidation
  – Lessons From 10 Years of Big Pharma/Big Biotech M&A

• Outlook and Predictions
  – Are We Done With Big Pharma Consolidation?
After 25 Years of Consolidation, The Industry’s Productivity Problem Continues to Worsen


New York Pharma Forum General Assembly
December, 2007 - Pg. 42
Big Pharma’s Current “Situation Analysis” After 25+ Years of Consolidation

American Medical Association; 2007/2008 Parexel R&D Statistical Factbook; Verispan; EvaluatePharma.
*: Cash, Cash equivalent and liquid assets.
So Why Do We Keep Talking About More Mergers?

Rumours of Pfizer, Sanofi mega-merger emerge

Bayer stock jumps on Novartis buyout speculation

Report of possible merger lifts Bristol-Myers
Big Pharma Consolidation: Here We Go Again?

• Current indicators suggest not soon, and maybe never
  – Size increasingly recognized as disadvantageous
  – All major Pharmas have publicly recognized the need to sharpen focus on a limited number of disease areas
  – GSK and Roche have led the move to decentralize; other Pharmas are watching closely and may follow
Scale is not an asset. In today's environment, extreme scale, scale that companies haven't learned to deal with, is something of a handicap. It's a skill-based industry, and our focus is on trying to develop our skills. Being No. 1 in the industry in size just doesn't really matter.

Robert Essner, CEO of Wyeth, January, 2007
Big Pharma Consolidation: Here We Go Again?

- Current indicators suggest not soon and maybe never
  - Size increasingly recognized as disadvantageous
  - All major Pharmas have publicly recognized the need to sharpen focus on a limited number of disease areas
Disease area strategy

**Build**
- Diabetes/Obesity
- Analgesia
- Infection
- Inhalation
- Translational Science Oncology

**Maintain**
- Alzheimer's
- Arrhythmias
- Asthma
- Atherosclerosis
- Bipolar Disorder
- Chronic Obstructive Pulmonary Disease
- Depression/Anxiety
- Oncology
- Osteoarthritis
- Schizophrenia
- Thrombosis
- GERD
- Rheumatoid Arthritis

**Exit**
- Hypertension
- Inflammatory Bowel Diseases
- Functional GI Disorders
- Parkinson's
- Multiple Sclerosis
- Addiction
- Insomnia
- Neuroprotection in Stroke
Big Pharma Consolidation: Here We Go Again?

- Current indicators suggest not soon and maybe never
  - Size increasingly recognized as disadvantageous
  - All major Pharmas have publicly recognized the need to sharpen focus on a limited number of disease areas
  - GSK and Roche have led the move to decentralize; other Pharmas are watching closely and may follow
New pharma model: Disease Biology Areas (DBAs)

Alignment and focus

Disease Biology Areas (DBAs)

- Initial focus on five DBAs
- Decisions made by Disease Biology Leadership Teams (DBLTs) against measurable metrics
- Up to Proof of Concept: DBLTs manage compound progression within respective DBA
- After Proof of Concept: DBLTs responsible for conducting scientific/medical reviews and providing options to Pharma Leadership Team

- Clear focus
- More independent and flexible disease areas
- Faster and simpler decision processes
GSK CEDD Set-up in 2000; CEEDD added later
Agenda

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• Outlook and Predictions
  – Are We Done With Big Pharma Consolidation?
  – Will the Current Trend of Pharma Acquiring Pre-Commercial Stage Biotechs Continue?
Pharma Needs to Deal Earlier by Necessity, Not Choice!

- Late-stage in-licensed products fed the 1990s Pharma growth
- Since then no blockbuster has been in-licensed at Ph II or higher since 1998!
- Pharma has been *forced* to set its sights earlier!

*EvaluatePharma, DH Analysis.*
## In-Licensed Late-Stage Blockbusters: Gone with the Century!

<table>
<thead>
<tr>
<th>Year</th>
<th>Company</th>
<th>Product</th>
<th>2006</th>
<th>Status on Deal Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987</td>
<td>GlaxoSmithKline</td>
<td>Coreg IR/Kredex</td>
<td>$1,436</td>
<td>Phase II</td>
</tr>
<tr>
<td>1989</td>
<td>Merck &amp; Co</td>
<td>Cozaar</td>
<td>3,163</td>
<td>Phase II</td>
</tr>
<tr>
<td>1993</td>
<td>BMS</td>
<td>Avapro</td>
<td>1,097</td>
<td>Phase II</td>
</tr>
<tr>
<td>1993</td>
<td>BMS</td>
<td>Plavix</td>
<td>3,257</td>
<td>Phase III</td>
</tr>
<tr>
<td>1994</td>
<td>AstraZeneca</td>
<td>Atacand</td>
<td>1,110</td>
<td>Phase III</td>
</tr>
<tr>
<td>1994</td>
<td>BI</td>
<td>Flomax/Alna</td>
<td>1,158</td>
<td>Phase III</td>
</tr>
<tr>
<td>1994</td>
<td>Sanofi-Aventis</td>
<td>Eloxatin</td>
<td>2,127</td>
<td>Phase III</td>
</tr>
<tr>
<td>1995</td>
<td>Sanofi-Aventis</td>
<td>Copaxone</td>
<td>1,343</td>
<td>Phase III</td>
</tr>
<tr>
<td>1995</td>
<td>Genentech</td>
<td>Rituxan</td>
<td>2,071</td>
<td>Phase II</td>
</tr>
<tr>
<td>1996</td>
<td>Wyeth</td>
<td>Protonix</td>
<td>1,795</td>
<td>Phase II</td>
</tr>
<tr>
<td>1997</td>
<td>Abbott</td>
<td>TriCor</td>
<td>1,048</td>
<td>Filed</td>
</tr>
<tr>
<td>1997</td>
<td>J&amp;J</td>
<td>Aciphex/Pariet</td>
<td>1,239</td>
<td>Filed</td>
</tr>
<tr>
<td>1997</td>
<td>Pfizer</td>
<td>Lipitor</td>
<td>11,239</td>
<td>Approved</td>
</tr>
<tr>
<td>1998</td>
<td>Schering-Plough</td>
<td>Remicade-ex US</td>
<td>1,240</td>
<td>Phase III</td>
</tr>
<tr>
<td>1998</td>
<td>AstraZeneca</td>
<td>Crestor</td>
<td>2,028</td>
<td>Phase II</td>
</tr>
</tbody>
</table>

EvaluatePharma, DH Analysis.
Prices for Phase II Licensing Deals Are Rising Faster Than Those for Phase III Deals

Average Upfront Payments From Major Pharmaceutical Companies

IN VIVO.
Pharma is Now Buying Early-Stage Programs at Yesterday’s Late-Stage Prices

2001-2007 Biotech & Pharma Early Stage Deals…

Upfront Payments

...Milestones

...Total Deal Value

MedTRACK; Defined Health analysis.
Licensing Begets M&A

- Pharma prefers licensing early-stage assets to M&A
- VCs prefer a rapid exit via a sale
- In the current sellers’ market, VCs win
Pharma/Biotech M&A: Now a Preferred (and Often Rapid) Exit for Investors

Selected Pharma/Biotech M&A – Early-Stage Pipelines (2006-Sept 2007)

<table>
<thead>
<tr>
<th>Company Acquired</th>
<th>Founded</th>
<th>Acquirer</th>
<th>Value</th>
<th>Date Signed</th>
<th>Terms</th>
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<tbody>
<tr>
<td>Cambridge Antibody</td>
<td>1990</td>
<td>AstraZeneca</td>
<td>$1,100 M</td>
<td>08/06</td>
<td>Cash</td>
</tr>
<tr>
<td>Sirna</td>
<td>1993</td>
<td>Merck</td>
<td>$1,100 M</td>
<td>12/06</td>
<td>Cash</td>
</tr>
<tr>
<td>AnorMED</td>
<td>1996</td>
<td>Genzyme</td>
<td>$580 M</td>
<td>11/06</td>
<td>Cash</td>
</tr>
<tr>
<td>Domantis</td>
<td>2000</td>
<td>GSK</td>
<td>$450 M</td>
<td>01/07E</td>
<td>Cash</td>
</tr>
<tr>
<td>GlycoFi</td>
<td>2000</td>
<td>Merck</td>
<td>$400 M</td>
<td>06/06</td>
<td>Cash</td>
</tr>
<tr>
<td>Avidia</td>
<td>2003</td>
<td>Amgen</td>
<td>$380 M</td>
<td>10/06</td>
<td>$290+ $90*</td>
</tr>
<tr>
<td>KuDOS</td>
<td>1997</td>
<td>AstraZeneca</td>
<td>$210 M</td>
<td>1Q06</td>
<td>Cash</td>
</tr>
<tr>
<td>Praecis</td>
<td>1993</td>
<td>GSK</td>
<td>$55 M</td>
<td>1Q07E</td>
<td>Cash</td>
</tr>
<tr>
<td>Arrow Therapeutics</td>
<td>1998</td>
<td>AstraZeneca</td>
<td>$150 M</td>
<td>02/07</td>
<td>Cash</td>
</tr>
<tr>
<td>Hypnion</td>
<td>2000</td>
<td>Lilly</td>
<td>$315 M</td>
<td>03/07</td>
<td>Cash</td>
</tr>
<tr>
<td>Morphotek</td>
<td>2000</td>
<td>Eisai</td>
<td>$325 M</td>
<td>03/07</td>
<td>Cash</td>
</tr>
<tr>
<td>THP</td>
<td>2002</td>
<td>Roche</td>
<td>$54 M</td>
<td>04/07</td>
<td>Cash</td>
</tr>
<tr>
<td>Adnexus</td>
<td>2002</td>
<td>BMS</td>
<td>$490 M</td>
<td>09/07</td>
<td>Cash</td>
</tr>
</tbody>
</table>

Cowen & Company, MedTRACK, Recombinant Capital, Signals Magazine; Defined Health analysis.
Outlook for Continued Pharma/Early Biotech M&A Will Hinge on Ultimate Results from Current Buying Spree

- Few drugs licensed or acquired pre-Ph II have yet made it to market
- Ph II attrition rate is now reportedly 80%! (Though contribution from internal vs. externally sourced compounds remains unknown)
- Increasing Ph II attrition rate argues against continued price escalation for pre-Ph II programs.
- Prices are rising as fast as attrition.
What’s Next for the Pharma Buyer?

• Will Pharma Continue to “Buy” Early?
• Early stage licensing should have its own “proof of concept” moment within 2-3 years. Advance indicators suggest attrition from products in-licensed early is greater than for those discovered internally. The staggering increase in the cost of early-stage deals thus increases overall risk.
• For now, Pharma’s fascination with early-stage pipelines in Biotech is driven by an increasing perception that these companies are more innovative than Pharma.
Pharma *Must* Solve its Innovation Problem Externally

*I’ll be happy to give you innovative thinking.*

*What are the guidelines?*

http://www.businessinnovationinsider.com/archives/Innovation%20cartoon.jpg
What’s Next for the Pharma Buyer?

• Let’s Discuss!
We appreciate your interest. For information and to contact Defined Health, visit www.definedhealth.com, or call us at +1 973-292-5001 x 235.

For information about Defined Health’s annual business development strategy conference, visit www.therapeuticinsight.com