First case study “Amgen” done in 2000
Follow-on case studies in 2003: epilepsy, COX-2 inhibitors, TAP
Updated epilepsy and TAP case studies in 2006
HER-2 inhibitors – 2008 (in conjunction with Barbara Gilmore)
## Drug Pipeline Databases

### The leading players

- **Pharmaprojects** – Informa (PJB)
- **R&D Focus** -- IMS Health
- **R&D Insight** – Wolters Kluwer Health (Adis)
- **IDdb/Thomson Pharma** – Thomson Reuters (Current Drugs)
- **Integrity** – Thomson Reuters (Prous Science)

## Drug Pipeline Databases

### Compare the differences in...

- **Coverage** – number of compounds retrieved by each search.
- **Content** – information provided for each compound by each database.
- **Updating** – how compounds change in each database over time.
Case study: HER2 inhibitors

Search strategies

- Searches done in April and June 2008
- PP: pharmacological activity = ErbB-2 tyrosine kinase inhibitor (KI-TYE2-AN)
- RDF: text contains “HER2”
- RDI: mechanism of action = HER2 inhibitors
- TPharma/IDdb: Action = Erbb2 tyrosine kinase receptor inhibitor
- Integrity: Action = HER2(erbB2) inhibitors

Case study: HER2

Search results

- Records retrieved
  - Pharmaprojects: April 08 77, June 08 77
  - R&D Focus: April 08 76, June 08 80
  - R&D Insight: April 08 35, June 08 39
  - Thomson Pharma: April 08 60, June 08 62
  - Prous Integrity: April 08 130, June 08 136
Case study: HER2
Identifying unique compounds

<table>
<thead>
<tr>
<th>Drug</th>
<th>Synonyms</th>
<th>Common Drug Name</th>
<th>Database</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAI, HER2/neu, InNexus</td>
<td>DXL 702</td>
<td>DXL 702</td>
<td>IMS R&amp;D Focus</td>
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<tr>
<td>DXL 702</td>
<td>DXL 702</td>
<td>DDB Pharmaprojects</td>
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<td>DXL 702</td>
<td>DXL 702</td>
<td>Prous Integrity</td>
<td></td>
</tr>
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<td>Research programme: anti-HER2 monoclonal</td>
<td>DXL 702</td>
<td>DXL 702</td>
<td>Adis R&amp;D Insight</td>
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<tr>
<td>antibodies - InNexus Biotechnology</td>
<td>DXL 702</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

"Generate Common Drug Names" tool automatically matches product names and synonyms.

Case study: HER2 (June 08)
273 unique compounds in 394 records

% of unique compounds retrieved from each database

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Case study: HER2

Coverage by development phase

<table>
<thead>
<tr>
<th>Development Phase</th>
<th>Discontinued</th>
<th>No Development Reported</th>
<th>Preclinical/Discovery</th>
<th>Clinical</th>
<th>Launched</th>
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<tbody>
<tr>
<td>PP</td>
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<td>5%</td>
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<tr>
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<tr>
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<td>0%</td>
<td>5%</td>
<td>4%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Search strategies

- Also searched the HER2 target tree (primary target = HER2 or HER2/NEU) in PP
Case study: HER2 inhibitors

Search strategies - Pharmaprojects

- Used the compare user comments feature to evaluate compounds retrieved by target vs. pharmacological activity/mechanism

<table>
<thead>
<tr>
<th>Pharmacological Activity</th>
<th>Target Names</th>
<th>Search Strategy</th>
</tr>
</thead>
</table>
| Immune stimulating (M-A5)| \(\text{erb-b2 erythroblastic leukaemia viral oncogene homologue 2,}
|                          | \(\text{neuroblastoma derived oncogene homologue (v-erb-b)}\)                  | Target            |
|                         | \(\text{ErbB-2 tyrosine kinase inhibitor (4-TEC-A1)}\)                         |                   |
|                         | \(\text{ErbB-1 tyrosine kinase inhibitor (4-TyE-1-AN)}\)                       |                   |
|                         | \(\text{Endothelial growth factor receptor kinase inhibitor (03-GFEN-AN)}\)   |                   |
|                         | \(\text{Mechanism, 31}\)                                                    | Mechanism, 31     |

**Target, 32**

**Mechanism**

/Also/: Target, 46
Case study: HER2 inhibitors

Search strategies - Pharmaprojects

<table>
<thead>
<tr>
<th>Product</th>
<th>Pharmacological Activity</th>
<th>Target Names</th>
<th>Search Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>HER-2</td>
<td>Insulin-like growth factor 1 antagonist</td>
<td>Insulin-like growth factor 1 receptor, viral oncoprotein-derived oncoprotein homologue 2, neurotubulostoma-derived oncoprotein homologue 2 (avian)</td>
<td>Mechanism</td>
</tr>
<tr>
<td>T-3100</td>
<td>Oncogene inhibitor (ONCOX-AN)</td>
<td>membrane-spanning 4-domains, subfamily A, member 1, von Hippel-Lindau disease, viral oncoprotein homologue 2, neurotubulostoma-derived oncoprotein homologue 2 (avian)</td>
<td>Mechanism</td>
</tr>
</tbody>
</table>

Why were these compounds not retrieved by the target search?

Case study: HER-2

RDI – “missing records”

- Strategy: mechanism of action = HER2 inhibitors
- AE-37: mech = immunostimulants
- BMS 690514: mech = Epidermal growth factor receptor antagonists, Protein-tyrosine kinase receptor antagonists
- CAB 051: mech = Epidermal growth factor receptor antagonists
- E 75: mech = T cell stimulants
- HER-2 Protein AutoVac: mech = Epidermal growth factor inhibitors, Immunostimulants
- JNJ-26483327: mech = Epidermal growth factor receptor antagonists, Protein tyrosine kinase inhibitors
Case study: HER-2

Conclusions on coverage variation

- Different compounds are retrieved from each database because of differences in indexing.
- A search of any single database will retrieve only 20-40% of the unique compounds.
- Searches will need to be revised to identify “missing” records, especially for topics like HER-2.

Case study: HER2

Updated and Added Records

Number of Updated Records (Apr08 - Jun 08)

- Prous Integrity Compounds: 16
- Adis R&D Insight: 26
- Thomson Scientific IDdb: 5
- IMS R&D Focus: 24
- PJB Pharmaprojects: 18
### Case study: HER-2

#### Coverage Variation – “Reference Rows”

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<tr>
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<th>Raw Status</th>
<th>Source</th>
<th>Synonyms</th>
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<th>Action</th>
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### Case study: TAP

#### Coverage Variation – “Reference Rows”

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Surfing the Pipeline

Keep in mind...

- Drug pipeline records are not abstracted from a reference document (as with patents)
- Each record is an **editorial view** of the compound based on a range of sources.
- Each publisher has a unique background and focus.
- 10-20 editors at each publisher are maintaining several thousand active compounds.

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If you’d like to discuss these results in more detail, visit us in **Booth 1400** in the exhibit hall.

Slides available at:
www.bizcharts.com ("Smart Talk")
Or email “diane @ bizcharts.com"