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**Make a Search on the Safe Side
– A Case Study in the Pharma Field –**

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Introduction

- Value-added patent information has a long-standing tradition
 - more than 50 years ago Derwent established a patent service producing value-added patent data
 - Chemical Abstracts Service started in 1907 to index and abstract journal and patent literature
- Online access to first level patent databases has become much easier over the last 10 years
 - patent offices provide patent full-text collections and INPADOC data electronically
- Patent information professionals are challenged to prove that first level patent data are not sufficient for a thorough patent search, e.g. state of the art, validity, FTO

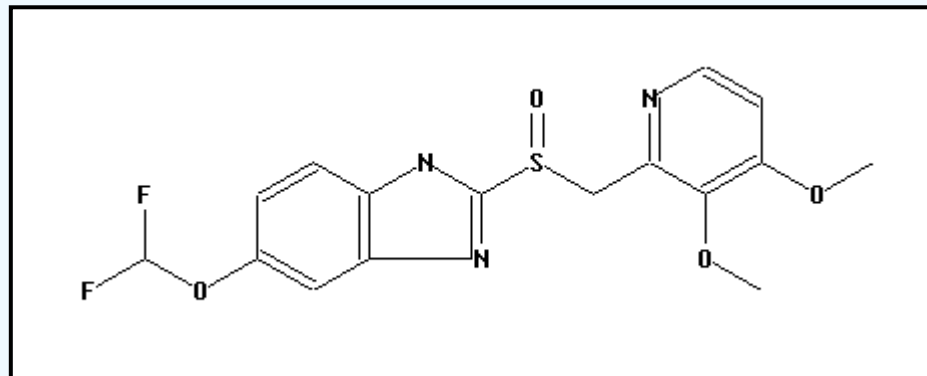
The Case Study

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- Comparing first level with value-added patent data -

Freedom-to-operate search for the anti-ulcer drug pantoprazole

patents of interest: product protection, manufacturing, uses (formulations, combinations, methods of disease treatment)



The Search Strategy

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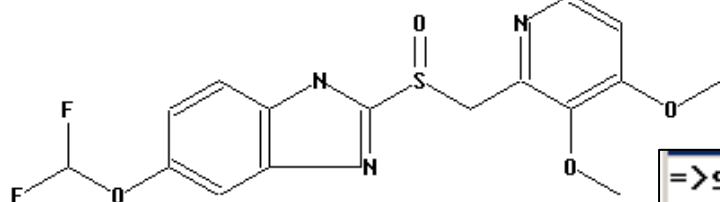
- Designed for a comprehensive search result -

Value-added patent files

- REGISTRY/CAPLUS
- MARPAT
- Derwent WPI

First level patent files

- patent full-text files of EP,US,WO,DE,GB,FR
- INPADOCDB

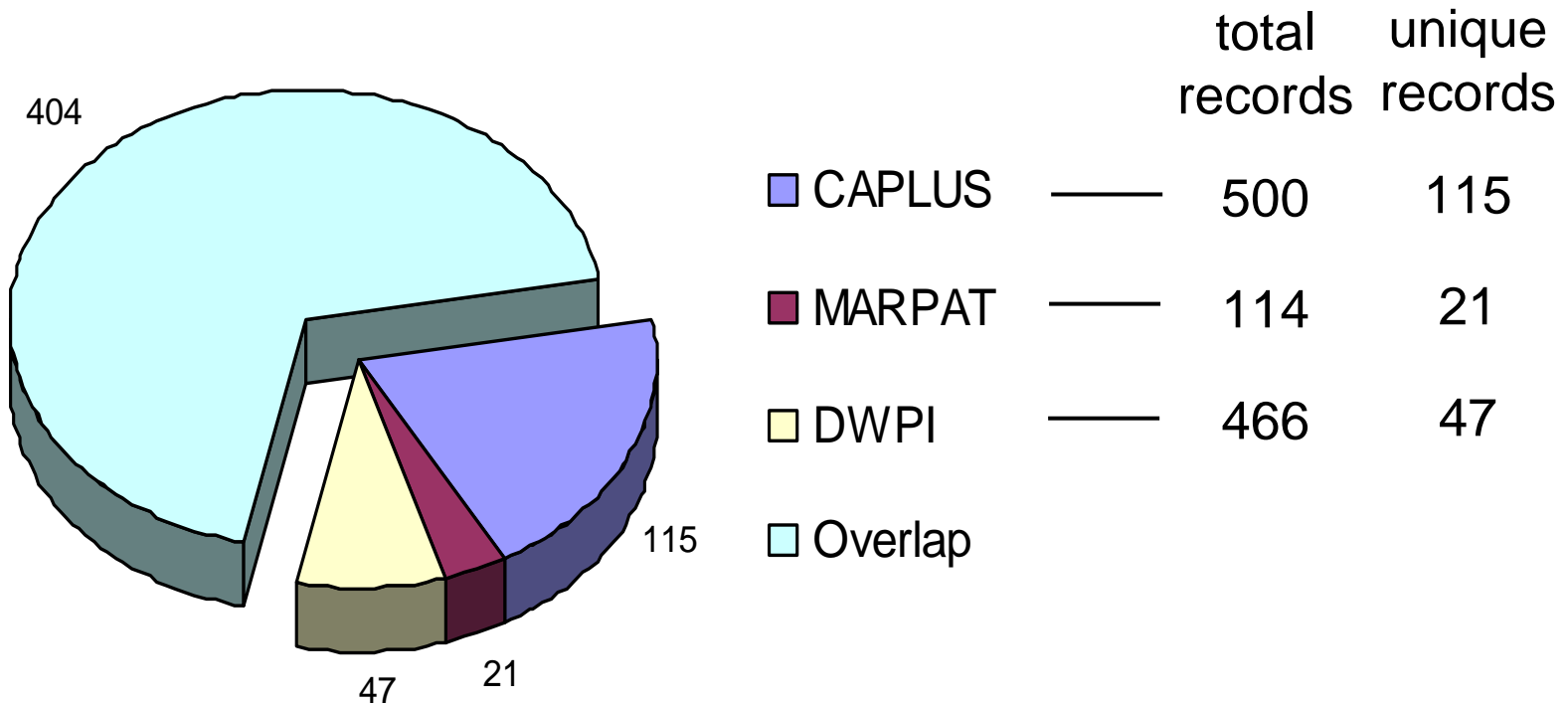


```
=>s pantoprazol? or controloc or pantoloc or pantozol  
=>s zurcal or zurcazol or somac  
=>s inipomp or inipom or peptazol or rifun  
=>s anagastra or eupantol or pantecta or protonix  
=>s pantopan or pantoric or pantorc  
=>s anagastra or apton or ulcotenal or zacpac  
=>s skf(w)96022 or skf96022 or by(w)1023 or by1023  
=>s dz(w)2352a or dz2352a or b(w)8510(w)29  
=>s b8510(w)29 or b(w)8610(w)23 or b8610(w)23
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Search Result in value-added Patent Databases: **587** Inventions*

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More than 30% of the inventions are **unique** to one of the value-added files

* referring to 587 CAPLUS records = 563 INPADOC families; 12th Dec. 2007

What do you find in the value-added Patent Databases for pantoprazole?

- Searching the CAS and Derwent *chemical indexing* and *enhanced abstract* leads to a highly relevant answer set with less than 1% false drops
 - preparations* **20%**
 - formulations*: significant **49%** less significant **16%**
 - disease treatment* **11%**
- Each file provides unique answers for each patent category, e.g. unique patents for the synthesis of pantoprazole
- Enhanced titles and abstracts allow for efficient relevance checking and analysis

Why do we have unique Results in each value-added Patent Database?

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- CAS and Thomson apply ***different indexing guidelines*** to chemical patent publications
 - different compounds are selected from the claims and the description for substance specific indexing
 - enhanced titles and abstracts significantly differ from both producers
- ***Patent authority, document type*** and ***historical coverage*** varies between CAPLUS and DWPI
- For a particular invention CAS and Thomson index the ***basic patent publication***
 - the basic patent often varies for CAPLUS and DWPI
 - the patent content is dependent on the family member

Search Result in first-level Patent Databases: 1097 Inventions

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- Searching the patent full-text files and INPADOCDB on STN retrieves 2770 database records
 - 2770 application-based records are grouped into 1097 INPADOC families:
US(985) > **PCT**(903) > **INPADOC**(375) > **EP**(289) > **DE**(181)
> **FR**(23) > **GB**(14)
- The pantoprazole request requires the complete patent full-text for searching
 - high percentage of non-relevant and low-relevant answers
 - identification of relevant answers is very time-consuming

What is unique to value-added Files? 9

- **117** inventions can only be retrieved using the CAS and Derwent value-added patent data
- The **key patents** of pantoprazole (product protection, basic manufacturing processes) can **not** be found in first level patent databases
 - pantoprazole is represented as a chemical structure or generically as part of a Markush structure
 - chemical names are not standardized in the patent full-text
 - misspellings of generic name and brand names in the patent full-text

What is unique to value-added Files? ¹⁰

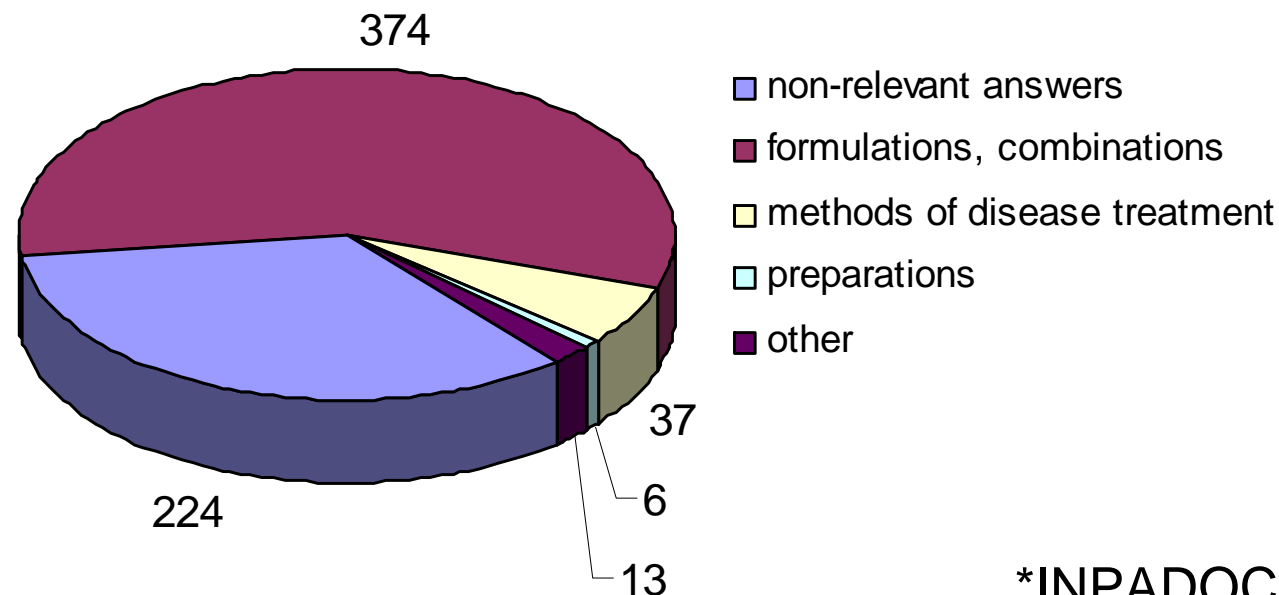
- 81 inventions are based on ***Asian patent publications*** for which no English full-text and often no English abstract exists:
JP (30)-, CN (27)-, IN (22)-, KR (1)-, TW (1)-prios
- Some inventions are based on publications of smaller patent authorities (eg. **ES**, AT, BR, CH, TR)

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AN 2006-758600 [78] WPIX
DNC C2006-235089 [78]
TI Stable oral pharmaceutical composition for high bioavailability
   of pantoprazole
IN DOSHI M M; JOSHI M D; MEHTA B P
PA (JBCH-N) JB CHEM & PHARM LTD
PI IN 2004MU01322 I3 20060721 (2004)
ADT IN 2004MU01322 I3 IN 2004-MU1322 20041213
PRAI IN 2004-MU1322 20041213
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Indian patent publications from 2004 onwards are only available in CAPLUS and DWPI

What is unique to Patent Full-text Files? ¹¹

- **651** inventions* are uniquely retrieved searching the patent full-text of major patent countries
 - high percentage of non-relevant answers (>30 %)
 - many additional formulation patents



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*INPADOC families

What is unique to Patent Full-text Files?

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AN 2007113454 PCTFULL ED 20071016 EW 200741
TIEN PARTICULATE COMPOSITIONS COMPRISING ALGINATE AND/OR ALGINIC
ACID
PA RECKITT BENCKISER HEALTHCARE (U
PI WO 2007113454 A1 20071016
PRAI GB 2005-0515492 20050728
AI WO 2006-GB2807 A 20060727

composition which could be
used to deliver pantoprazole
and many other drugs

DETD ... ~~Examples of suitable drugs are analgesics (e.g. acetaminophen, ...); decongestants (e.g. pseudoephedrine, phenylephrine, oxymetazoline, menthol, xylometazoline) antiulcer agents and/or proton pump inhibitors (PPIs) (e.g. carbenoxolone, sucralfate, cimetidine, ranitidine, nizatidine, famotidine, omeprazole, lansoprazole, esomeprazole, rabeprazole, pantoprazole); antihistamines (e.g.~~

CLMEN 1 An ingestible particulate composition comprising:
a. an alginate and/or alginic acid;
b. a bicarbonate and/or carbonate;
c. an organic acid; and
d. an agglomerant, being a compound which allows
the particulate composition to flow yet' which substantially
does not release fine particulates into the air.....

What is unique to Patent Full-text Files? ¹³

- Patent full-text retrieves **6** inventions describing new *preparations* of pantoprazole
 - timeliness reasons
 - pantoprazole is part of a very generic Markush structure
 - indexing errors
- **34** significant **proton pump inhibitor** formulations are available from the patent full-text search only
 - neither CAS nor Thomson index all PPI examples from the description, often only the *preferred drug* mentioned in the claims
 - Markush structures from the description may not be indexed in MARPAT or DWPI

What is unique to INPADOCDB?

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- **2** inventions from publications of minor patent countries (TR, PT) are unique to INPADOCDB

AN 40755968 INPADOCDB UP 20061217
TI Method of oxidation of thioethers using the hydrogen peroxide/rhenium alkyltrioxide/base system.
PA HERBEX, PRODUTOS QUIMICOS S.A.
PAS DE AREZ ROMAO E BRITO CORREIA, PT

PI PT 102116 A 19990831
AI PT 1998-102116 A 19980218

PRAI PT 1998-102116 A 19980218 (PTA)

ICM C07D235-04

AB Process for production of benzimidazolic sulfoxides by oxidation of the corresponding thioethers using hydrogen peroxide in the presence of a catalytic quantity of rhenium alkyltrioxide in basic medium. This process is employed to obtain pharmaceutical compounds of antiulcer activity, such as omeprazole, lansoprazole and pantoprazole. Good yields are achieved and the process avoids acid conditions which result in the decomposition of these products.

process for the **preparation of pantoprazole** is claimed

Conclusions (1)

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- Patent information users highly benefit from intellectually analyzed patent database content
 - searching value-added patent files is indispensable for a *comprehensive* search result
 - enables *efficient retrieval* with *highly relevant* results
- CAPLUS and DWPI cover worldwide patent publications from 50+ patent authorities
 - *excellent coverage* of Asian patent information
 - reliable access to national applications of minor patent countries
- On STN information professionals take advantage of the *joined value-add* of the CAS files and DWPI

Conclusions (2)

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- Patent full-text databases provide fast access to all details of the patent full-text
 - details of the patent claims and the description are useful to retrieve relevant records not available from searching the CAS-files and DWPI
- First level patent information on its own is ***not sufficient*** to support business critical decisions
 - especially in the chemical field it is a high risk to evaluate the novelty of an invention with first level data only
- INPADOCDB could enhance chemical search results due to its ***unrivalled patent authority coverage***

Conclusions (3)

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- For all patent searches with high commercial relevance it is essential to search ***all value-added patent databases*** and ***complement*** the results with first level patent data
- STN has the complete offering on a single, professional search platform



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