



DANISH PATENT AND TRADEMARK OFFICE

How to Perform Comprehensive Patent Landscape Searches?

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Outline

The patent landscape process in general

- Definition of landscapes
- Purpose and definition of search
- Searching: Optimal coverage
- Sorting and reporting

Example

- Purpose and definition
- Optimal database coverage
- Recall and precision
- Overviews - reporting

Definition of landscapes

Overview of defined area

- Own patent portfolio
- Competitors
- Activity level within specific classification area
- Technical area



The landscape process

- Purpose of the IP Landscape
- Definition of the technical area
- Searching
- Sorting of documents
- Charting/Reporting

The Search

Keywords:

- Relevant synonyms
- Search abstracts, titles
- Search full text

Structural information:

- Small molecule pharmaceuticals: structure searches
- Polymers: monomer/structure search
- Biotech/molecular biology: sequence searches



The Search – cont.

Value added data:

- Manual codes
- BCE fragment codes
- Other indexing terms
- Thesaurus

Classification codes:

- IPC, ECLA, USCL, f-terms etc.

Competitors and inventors

Citations



The Search – cont.

- Parallel searches
- Max. recall: find as many of the relevant documents as possible
- Max. precision: evaluate as few documents as possible
- Iterative process



Data sorting and reporting

Sorting:

- Consider when searching
- How to evaluate: Abstracts, claims, full documents
- Technical features

Reporting:

- Consider when sorting
- Who is the reader?
- Charts vs. Text



Example - Adapalene

- Purpose: Technology overview of patent literature of the compound Adapalene
- Definition of search: Find all patents claiming various technical aspects of Adapalene
- Sort according to claimed feature

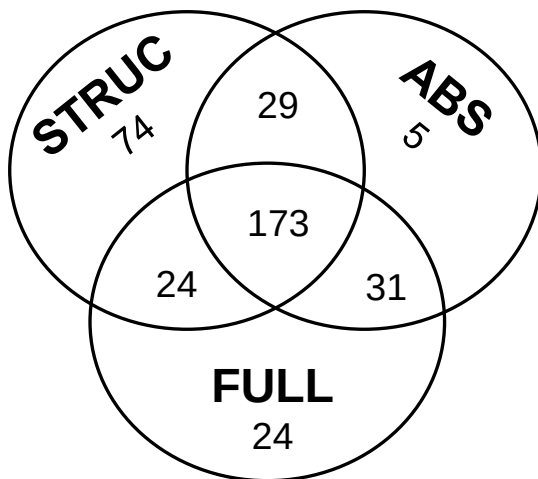
Example - Adapalene

Search:

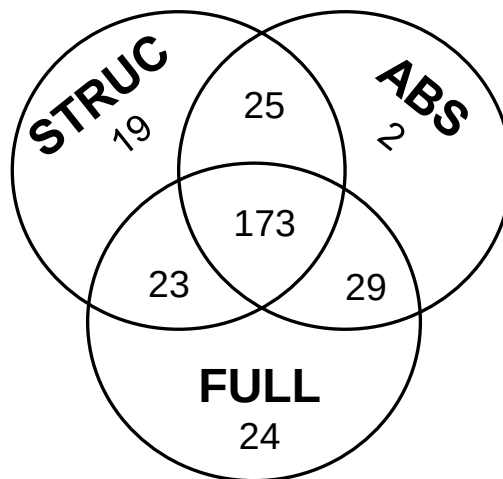
- Chemical structure (retrieved: 300)
- Keywords: Full text claims (retrieved: 252)
- Keywords: Patent abstracts (retrieved: 238)

Example - Adapalene

Total retrieved (360)



Relevant retrieved (295)



Example - Adapalene

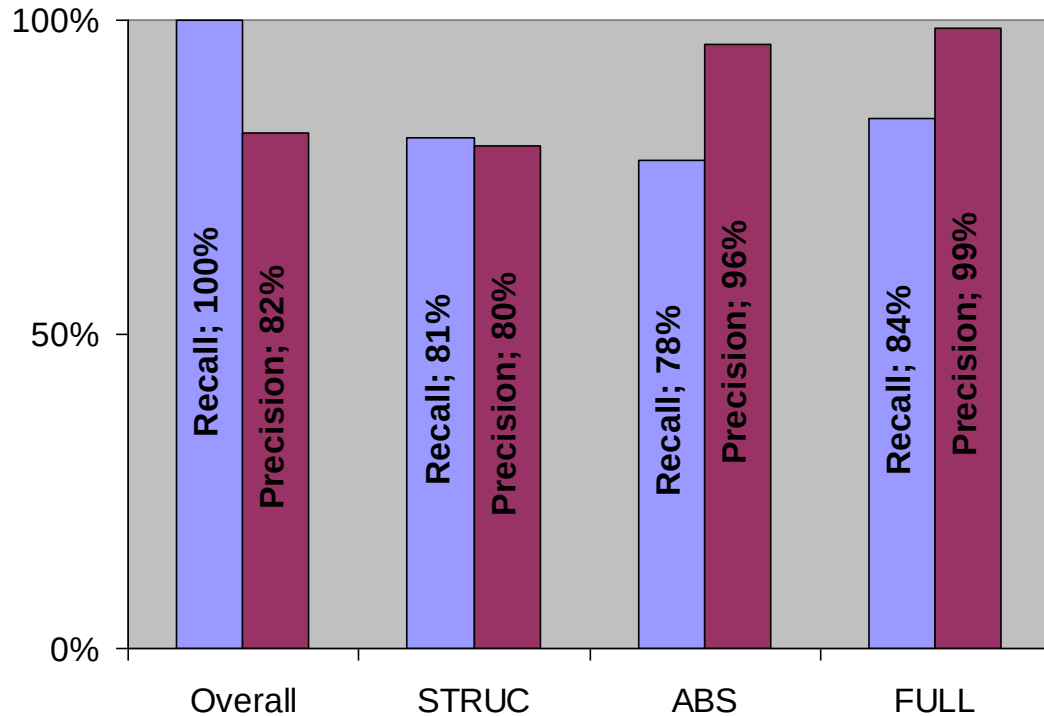
Total retrieved (360)

Relevant retrieved (295)

$$\text{Overall recall} = \frac{\text{Relevant retrieved documents}}{\text{Total \# **relevant** documents}} \sim \frac{295}{295} \sim 100\%$$

$$\text{Overall precision} = \frac{\text{Relevant retrieved documents}}{\text{Total \# **retrieved** documents}} \sim \frac{295}{360} \sim 82\%$$

Recall and precision

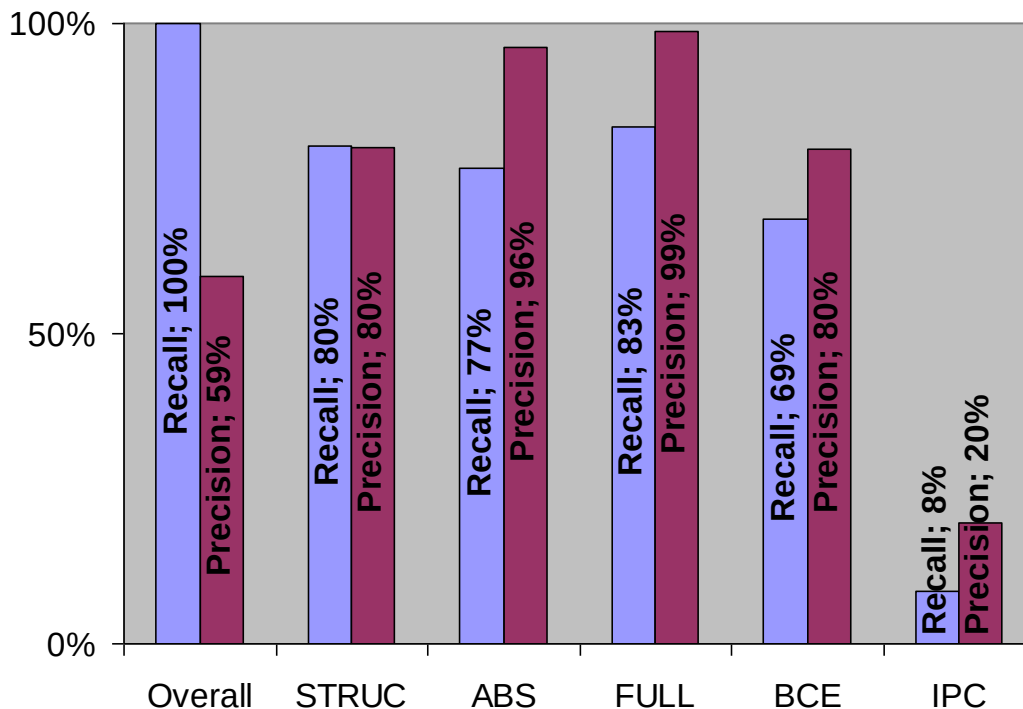


Example - Adapalene

Further search:

- BCE fragment codes in WPI (257 hits, 36 unique, 205 rel, 4 new)
- Classification search in IPC: e.g. C07C 65/26 (128 hits, 108 unique, 20 rel, 0 new)

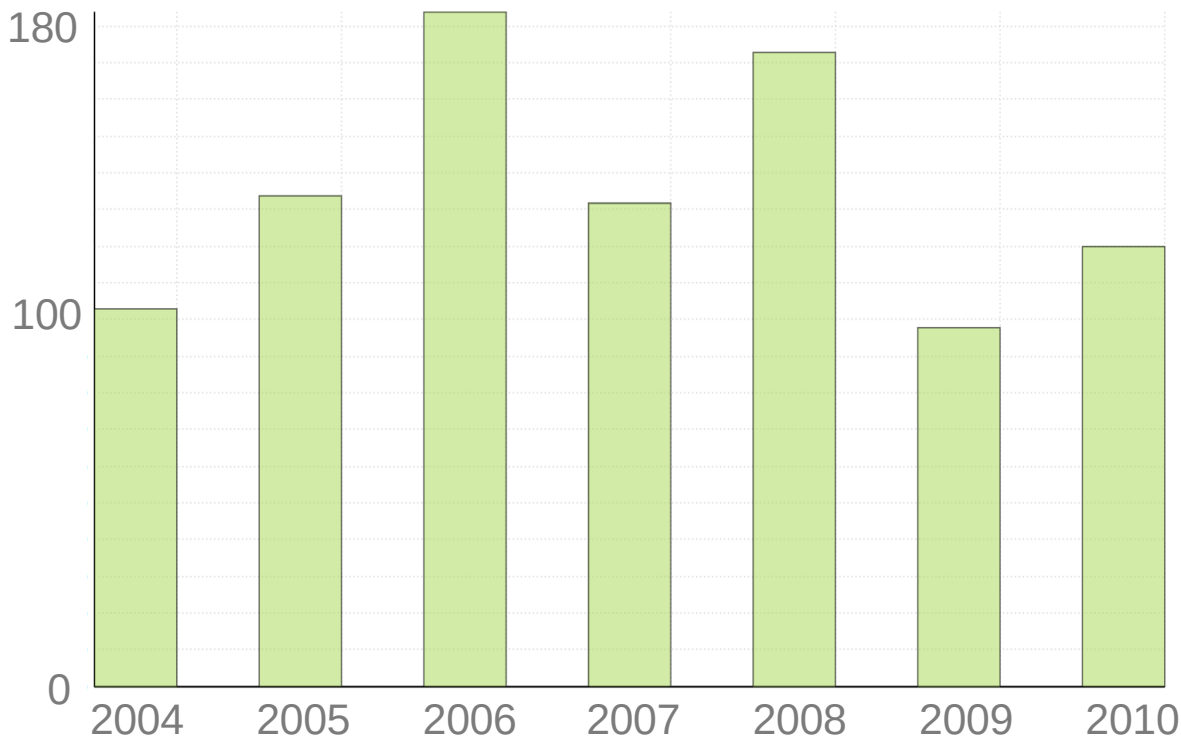
Recall and precision – cont.





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Number of distinct IPC by publication/year



Example - Adapalene

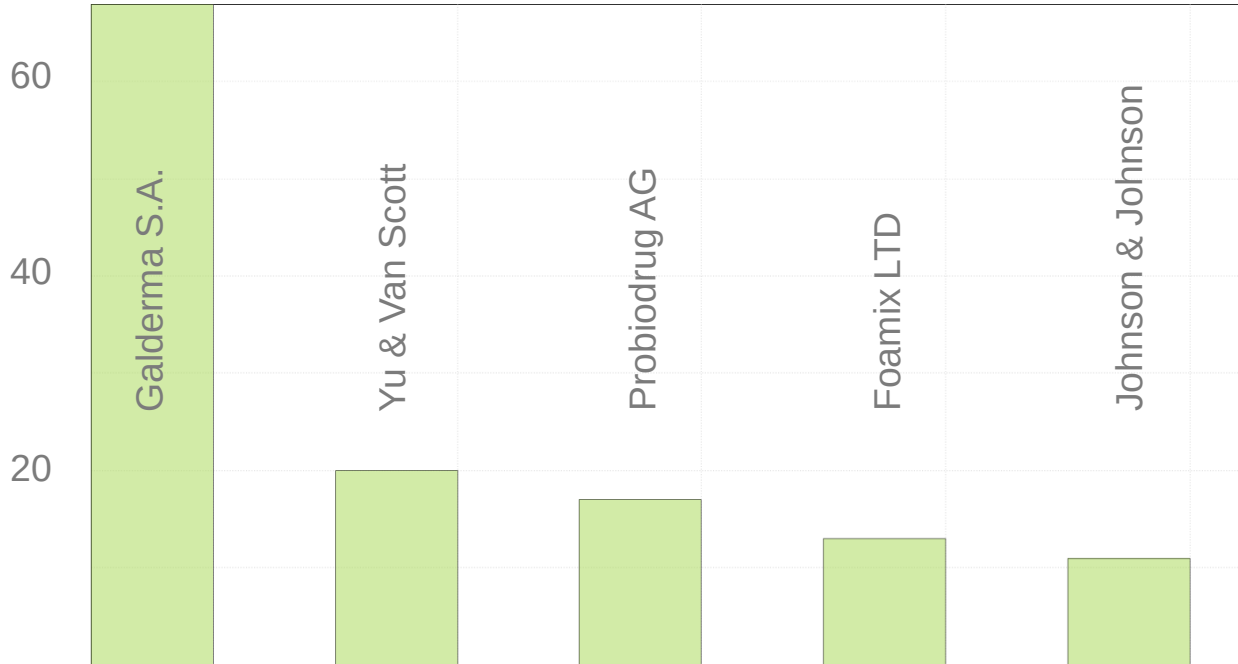
Further search:

- BCE fragment codes in WPI (257 hits, 36 unique, 205 rel, 4 new)
- Classification search in IPC: C07C 65/26 (128 hits, 108 unique, 20 rel, 0 new)
- Citation searches
- Patent assignee, inventor

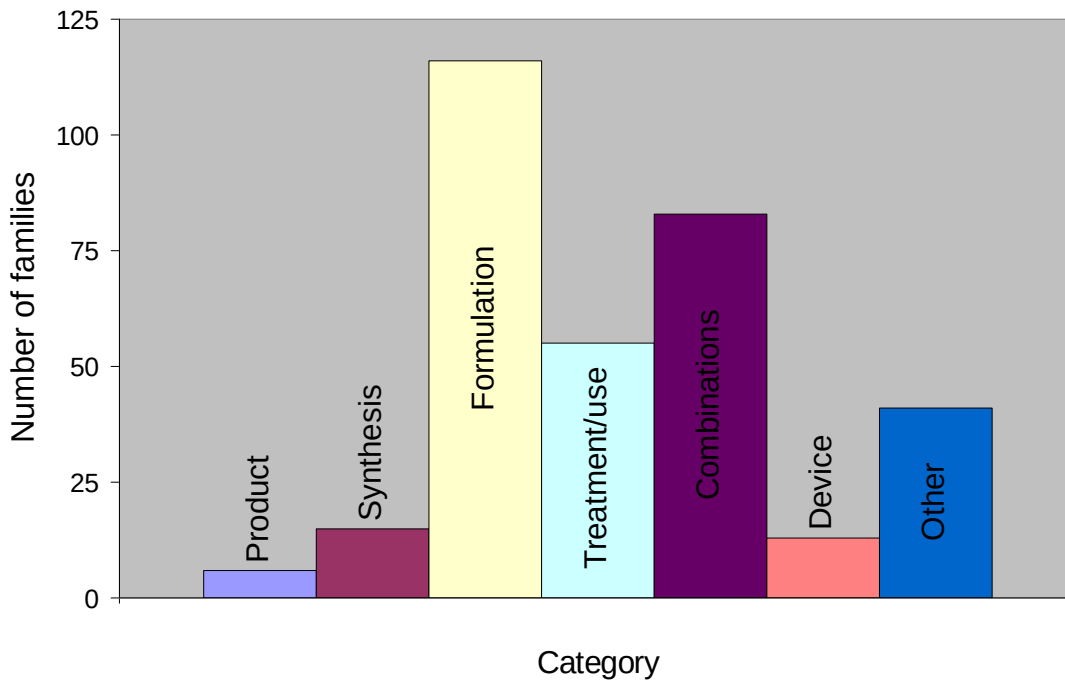


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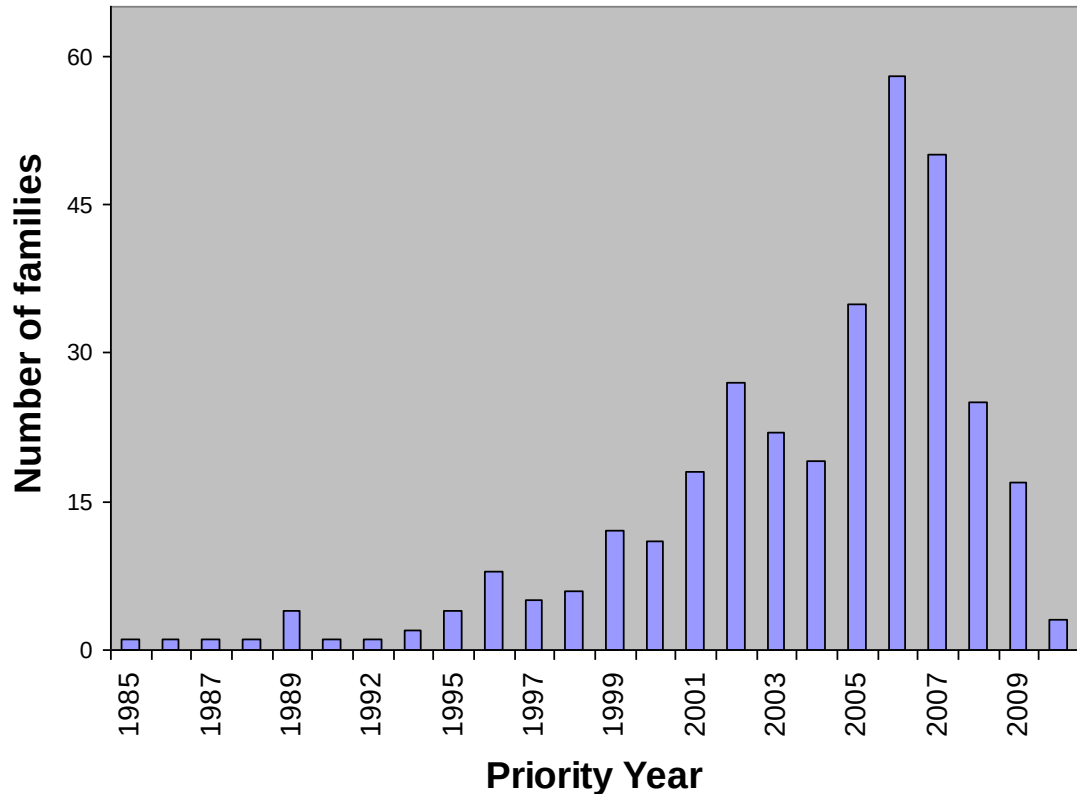
Top 5 assignees



Sorting/Reporting



Reporting/charting





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Reporting

	Pub number	Pub date	Title	Patent Assignee	Oldest prio date	Reference
Product	WO2007072217	2007-06-28	Adapalene preparation for making pharmaceutical compositions, by preparing adapalene methyl ester, hydrolyzing adapalene methyl ester, neutralizing adapalene potassium salt to yield adapalene, and isolating the adapalene	MEDICHEM SA [ES]; PUIG SERRANO J	2005-06-17	See claims 21-23 for product
	EP1707555	2006-10-04	Preparing adapalene compounds, useful to treat e.g. psoriasis, comprises reacting 1-(2-methoxy-phenyl)-adamantane with substituted naphthalene in presence of nickel salt, organic ligand and basic agent	DIPHARMA SPA; LUNDBECK PHARMA	2005-04-01	See claims 1, 14
	EP1661878	2006-05-31	New amorphous form and crystalline form alpha of 6-(3-(1-adamantyl)-4-methoxyphenyl)-2-naphthoic acid useful for treatment of e.g. acne vulgaris and psoriasis	CIRD	2004-11-26	See all claims
	US4717720	1988-01-05	New 6-substd. phenyl-2-naphthoic acid derivs. - inhibitors of ornithine decarboxylase, useful in cosmetic and pharmaceutical compsns. e.g. for treating dermatological conditions	OREAL	1985-04-11	See claims 1, 14
	US5004729	1991-04-02	New aromatic macrolide or lincosamide ester(s) - useful for treating skin disorders	CIRD GALDERMA	1987-11-04	See claims 1-2
	EP0409740	1991-01-23	Adamantyl methoxy:phenyl naphthoic acid labeled with tritium - used to determine retinoid nuclear receptors, esp. in the presence of crab	DIPHARMA SPA; LUNDBECK PHARMA	1989-07-20	See all claim
Synthesis	WO2008126104	2008-10-23	Preparation of adapalene useful for treating acne vulgaris and psoriasis, involves coupling 3-adamantyl-4-methoxyphenyl potassium trifluoroborate with 6-bromo-2-methyl naphthoate, cooling and treating it with an acid and purifying	INDOCO REMEDIES LTD	2007-04-11	See all claims
	WO2008080993	2008-07-10	Preparing substituted adamantylarylmagnesium halide used as intermediate to form biologically active compounds, involves reacting substituted adamantylarylhalide with magnesium in aprotic inert solvent in presence of anhydrous lithium salt	KALVINSH IVARS	2006-12-28	See all claims
	US2010113816	2010-05-06	Preparing substituted adamantylarylmagnesium halide used as intermediate to form biologically active compounds, involves reacting substituted adamantylarylhalide with magnesium in aprotic inert solvent in presence of anhydrous lithium salt	CHERNOBROVLUS A	2006-12-29	See claims
	WO2007125542	2007-11-08	Forming adapalene used to treat acne involves reacting adamantanol with 4-bromophenol; treating adamantyl-4-bromophenol with dimethyl sulfate; coupling formed bromoisole with methyl-6-bromo-naphthoate; isolating metal salt; and purifying	USV LTD	2006-05-03	See claims
	WO2006108717	2006-10-19	Preparation of 6-(3-(1-adamantyl)-4-methoxyphenyl)-2-naphthoic acid useful as retinoid local anti-acne agent involves Suzuki reaction between 3-adamantyl-4-methoxyphenylboronic acid and 6-bromo-2-naphthoic acid	GALDERMA RES & DEV	2005-04-08	See claim 1



Conclusion

- Clear definition of the assignment
- Several parallel search strategies to get best coverage
 - Keywords
 - Structural information
 - Value added data (e.g. indexing terms, thesaurus)
 - Assignee or inventor
 - Citation searches
- Recall vs. Precision
- Iterative process



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Thank you!

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