



# **Shaping Business Strategy Through Competitive Intelligence – Strategic Use of Intellectual Property Information**

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Source: WIPO Guide to Using Patent Information, WIPO  
WIPO Patent Information Section

# Patent Information General

# How does the patent system work?

- **Protection:** A patent allows the patent holder to exclude others from commercially exploiting the invention covered by the patent in a certain country or region and for a specific period of time, generally not exceeding 20 years.
- **Disclosure:** A patent gives the public access to information regarding new technologies in order to stimulate innovation and contribute to economic growth.
- Since the protection offered by a patent is territorial, covering only the jurisdiction in which the patent has been granted, the information contained in a patent document is global, available as a disclosure to any individual or organization worldwide, thus allowing anyone to learn from and build on this knowledge.

# Why use patent information ?

- Patent information is an important resource for researchers and inventors, entrepreneurs and commercial enterprises, and patent professionals.
- Patent information can assist users to:
  - Avoid duplicating research and development effort
  - Determine the patentability of their inventions
  - Avoid infringing other inventors' patents
  - Estimate the value of their or other inventors' patents
  - Exploit technology from patent applications that have never been granted, are not valid, or from patents that are no longer in force
  - Gain Intelligence on the innovative activities and future direction of business competitors
  - Improve planning for business decisions such as licensing, technology partnerships, and mergers and acquisitions

# What information does a patent document contain 1

- Patent information comprises all information which either been published in a patent document or can be derived from analyzing patent filing statistics and includes:
- Technology information from the description and drawings of the invention
- Legal information from the patent claims defining the scope of the patent and from its legal status
- Business related information from reference date identifying the inventor, date of filing, country of origin, etc.
- Public policy-related information from an analysis of filing trends to be used by policymakers, e.g., in national industrial policy strategy

# What information does a patent document contain 2

- Patent information comprises all information which either been published in a patent document or can be derived from analyzing patent filing statistics and includes:
  - Applicant
  - Inventor
  - Description
  - Claims
  - Priority filing, Priority date
  - Filing date
  - Designated states
  - Legal status
  - Citations and references
  - Bibliographic data

# Where can patent information be found

- Many national and regional patent offices provide free online access to their own patent collections as well as to selected patent documents from other offices. An extensive list of national patent databases can be found at:  
[www.wipo.int/patentscope/dbsearch/national\\_databases.html](http://www.wipo.int/patentscope/dbsearch/national_databases.html)
- WIPO offers free online access to all international patent applications within the framework of the PCT and their related documents and patent collections from National and Regional Offices through its PATENTSCOPE search service:  
<http://patentscope.wipo.int/search>
- A number of commercial and non-profit providers also offer free patent information databases online. Certain commercial providers have established value-added services for access on a fee-paying basis including translations of patent information and additional systematic classification

# How can patent information be used

- Prior art searches
- Gathering business intelligence
- Avoiding patent infringement
- Patent valuation
- Identifying key trend in technology development

# Search Strategy

# Which strategies can be used to search patent information

- Among the search criteria that can be used to find relevant patents are:
- **Keywords**
- **Patent classification**
- **Dates** (e.g., priority date, application date, publication date, grant date)
- **Patent reference or identification numbers** (application number, publication number, patent number)
- **Names of applicants/assignees or inventors**
- Most search services permit users to search bibliographic/front page data, that is all data contained in a patent application except the description and claims.
- Some search services, including the WIPO PATENTSCOPE search service, allow full-text searches, including the description and claims.

# Search by Keyword 1

- To target searches effectively, the following tools can be used:
- Word operators: “AND”, “ANDNOT” (“NOT”), “OR”, “XOR”, “NEAR”
  - tennis AND ball : having both the word
  - tennis ANDNOT ball : having the word “tennis” but not “ball”
  - tennis OR ball : having either the word or both
  - tennis XOR ball : having either the word but not both
  - tennis NEAR ball : having both the words within a certain number of words of each other
- Truncation: words can be truncated, i.e., shortened to their primary root or stem, by reducing its length using an operator called a wildcat, usually an asterisk(\*), so as to increase the coverage of the search, for instance: elect\*, all words based on the word stem “elect”, e.g., electricity, electrical, electron

## Search by Keyword 2

- Nesting: Nesting refers to the use of parentheses to organize search queries in order to resolve potentially confusing search syntax, for example:
  - tennis AND ball OR racket : two potential search outcomes to be resolved (the default order in which different operators are applied in the absence of parentheses may vary between search services)
  - (tennis AND ball) OR racket : having either the words “tennis” and “ball” or the word “racket”
  - tennis AND (ball OR racket) : having the word “tennis” and either the word “ball” or “racket”
- Phrases: If you surround a group of words with quotation mark (“), everything surrounded by those quotation marks will be treated as a single search term. This allows you to search for a multi-word phrase rather than specifying each word as a separate term, for instance: “tennis ball”, having the phrases “tennis ball”

# Search by patent classification 1

- All patent documents are individually classified using a standardized system identifying the technology group or groups to which the innovation described in the document belong
- A widely used system is the International Patent Classification (IPC) System ([www.wipo.int/classifications/ipc](http://www.wipo.int/classifications/ipc))
- In its latest edition, it subdivides technology into almost 70,000 fields or groups. Each group describes a specific technology and is identified by a “classification symbol” consisting of a sequence of numbers and letters.
- The IPC system is organized according to hierarchical levels. From highest to lowest; these levels are: sections, classes, subclasses, and groups (main groups and subgroups)

# Search by patent classification 2

- Each section has a title and specific letter code, as follows:
  - A: Human Necessities
  - B: Performing Operations; Transporting
  - C: Chemistry; Metallurgy
  - D: Textiles; Paper
  - E: Fixed Constructions
  - F: Mechanical Engineering; Lighting; Heating; Weapons; Blasting
  - G: Physics
  - H: Electricity
- From section to subgroup, the code “C21B 7/10” can, for instance, be broken down as follows:
  - Section C: Chemistry; Metallurgy
  - Class C21: Metallurgy of iron
  - Subclass C21B: Manufacture of iron or steel
  - Main group C21B 7/00: Blast furnace
  - Subgroup C21B 7/10: Cooling; Devices therefor

# Search in specific data fields 1

- It is often desirable to search for words, numbers, or combinations thereof in a particular data field

The screenshot shows the WIPO - Search International and National Patent Collections interface. The title bar includes tabs for Korean, Microsoft IME 2003, Han/Eng, Hanja, IME Pad, Handwriting, Boxed Input, and Google Search. The main page header features the WIPO logo and the text "PATENTSCOPE". Below the header, there are links for Mobile, Deutsch, Español, Français, 日本語, 한국어, Português, Русский, and 中文. A navigation menu at the top includes Search, Browse, Translate, Options, News, Login, and Help. The current path is Home > IP Services > PATENTSCOPE. The main content area is titled "Field Combination" and contains a "Fields" section with a table for searching various patent data fields. The fields listed are: Front Page, WIPO Publication Number, Application Number, Publication Date, English Title, English Abstract, Applicant Name, International Class, Inventor Name, Office Code, English Description, English Claims, Licensing availability, and Inventor Name. Each field has a dropdown menu for operators (AND, OR, NOT) and a text input field. To the right of the fields are equality operators (=, =, =, =, =, =, =, =, =, =, =, =, =, =). Below the table, there is a checkbox for "IsEmpty" and radio buttons for "N/A", "Yes", and "No". At the bottom of the "Fields" section, there are dropdown menus for "Language" (set to English) and "Office", and a checked checkbox for "Stem". The bottom of the screen shows the Windows taskbar with icons for Start, WIPO Application, Absences Calen..., and others.

# Search in specific data fields 2

- In the advanced search of the WIPO PATENTSCOPE search service, the filed code “DE” is associated with the “Description” field

WIPO - Search International and National Patent Collections | KO Korean | Microsoft IME 2003 | Han/Eng | 漢 Hanja | IME Pad | Handwriting | Boxed Input | Google Search

File Edit View Favorites Tools Help

WIPO - Search International and National Patent Coll... | Page Tools >

Mobile | Deutsch | Español | Français | 日本語 | 한국어 | Português | Русский | 中文 |

WIPO PATENTSCOPE

Search International and National Patent Collections

WORLD INTELLECTUAL PROPERTY ORGANIZATION

Search | Browse | Translate | Options | News | Login | Help

Home > IP Services > PATENTSCOPE

Results 1-10 of 130,561 for Criteria:DE/semiconductor Office(s):wo Language:EN Stemming: true

prev 1 2 3 4 5 6 7 8 9 10 next Page:1 / 13057 Go >

Refine Search DE/semiconductor Search RSS Query Tree

**Analysis**

Options Table Graph Options bar pie

Countries		Main IPC		Main Applicant		Main Inventor		Pub Date	
Name	No	Name	No	Name	No	Name	No	Date	No
PCT	130561	H01L	26402	KONINKLIJKE PHILIPS ELECTRONICS N.V.	3166	YAMAZAKI, Shunpei	259	2003	6708
		G06F	10347	INTERNATIONAL BUSINESS MACHINES CORPORATION	2662	SILVERBROOK, Kia	124	2004	6869
		G01N	4461	APPLIED MATERIALS, INC.	2403	WALKER, Jay, S.	123	2005	8046
		G02B	3959	INTEL CORPORATION	2137	MIRKIN, Chad, A.	65	2006	9133
		H04L	3350	MICRON TECHNOLOGY, INC.	1225	FORREST, Stephen, R.	53	2007	10413
		H04N	3029	NOKIA CORPORATION	1209	ISHII, Fusao	53	2008	11608
		G11C	2936	ADVANCED MICRO DEVICES, INC.	1209	AISENBREY, Thomas	51	2009	10853
		A61B	2926			BONORA, Anthony, C.	51	2010	10092
		C23C	2539			HABA, Belgacem	51	2011	10944
		G03F	2466	HEWLETT-PACKARD	985	KATHIRGAMANATHAN	51	2012	12149

Done WIPO - Search International and National Patent Collections - Microsoft Internet Explorer 100% WIPO Application Absences Calen... 받은편지함 | D... WIPO - Search... C:\Documents a... Microsoft Power... Inbox - Microsoft... 오후 2:30

# Using citations and reference information 1

- Patent applications often contain references to earlier patent documents, particularly in the description section of the application.
- Citations contained in search reports can be a useful way of identifying additional documents related to the technology being investigated or help uncover further search criteria.
  - Category X: Document that, taken alone, anticipates the claimed invention, as a result of which the claimed invention cannot be considered novel or cannot be considered to involve an inventive step
  - Category Y: Document that, in combination with one or more other such documents, anticipate the claimed invention, insofar as such combination can be considered obvious to a person skilled in the art
  - Category A: Document providing technical background information on the claimed invention

# Using citations and reference information 2

id000000019983358[1].pdf - Adobe Reader

KO Korean Microsoft IME 2003 A Han/Eng 漢 Hanja IME Pad ?

File Edit View Window Help Comment Share

INTERNATIONAL SEARCH REPORT

International application No.  
PCT/IB2012/053657

A. CLASSIFICATION OF SUBJECT MATTER  
INV. G08B21/04  
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED  
Minimum documentation searched (classification system followed by classification symbols)  
G08B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronics data base consulted during the international search (name of data base and, where practicable, search terms used)  
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FR 2 920 575 A1 [OMICRON SOC RESPONSABILITE LIN [FR] OMICRON [FR]] 6 March 2009 [2009-03-06] the whole document	1,2, 4-10, 15-18 3,11-14
Y	US 2010/321184 A1 (DREUILLET PHILIPPE [FR] ET AL) 23 December 2010 [2010-12-23] paragraphs [0001], [0002], [0051] - [0056], [0139] - [0146]; figure 9	3
Y	US 7 916 066 B1 (OSTERNEIL JOSEF [US]) 29 March 2011 [2011-03-29] column 1, lines 50-55 column 5, lines 33-35 column 6, lines 3-23 column 6, line 61 - column 7, line 19 column 17, lines 23-44 column 18, lines 13-42	11-14
	-/-/-	

Further documents are listed in the continuation of Box C.  See patent family annex.

\* Special categories of cited documents :  
 'A' document defining the general state of the art which is not considered to be of particular relevance  
 'B' earlier application or patent not published on or after the international filing date which may disclose details on priority, alone, or which is cited to establish the publication date of another citation or other relevant results of the search  
 'C' document referring to an oral disclosure, use, exhibition or other means  
 'D' document published prior to the international filing date but later than the priority date claimed

\*\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*\*\* document of particular relevance, the claimed invention cannot be considered to involve an inventive step if it can be deduced from the document

\*\*\*\* document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is concerned with the same subject-matter as the present invention, such combination being obvious to a person skilled in the art

\*\*' document member of the same patent family

Date of the actual completion of the international search  
12 December 2012

Date of mailing of the international search report  
07/01/2013

Name and mailing address of the ISA/  
European Patent Office, P.O. 3010 Patenttaak 2  
NL-1000 HV Amsterdam  
Tel: (+31-70) 33 00 2040,  
Fax: (+31-70) 33 00 3010

Authorized officer  
Fagundes-Peters, D

Form PCT/ISA/2010 (version A/06), (April 2006)

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# Good practices in searching patent documentation 1

- The most effective searches exploit all the search options, by using and combining keywords, IPC, and number/date ranges.
- Effective searching of patent documentation is a step-by-step process, moving from an initial broad search to increasingly more focused searches.
- Ultimately, however, the number of search results must be limited to a reasonable number to allow the individual records to examined in detail.

# Good practices in searching patent documentation 2

- Broad vs. specific search terms: the keywords and IPC used in the first rounds of searching should cover the broad field of technology to which the innovation in question belongs
  - searching information on light-emitting diodes
  - initially search using keywords: “semiconductor” or IPC such as the subclass: H01L (semiconductor devices)
  - rather than the group H01L33/00 (semiconductor devices specially adapted for light emission)
- Inclusive/exclusive search operators: certain search operators can be used to broaden your search (inclusive operators), while others serve to narrow your search (exclusive operators)
  - Inclusive operators: “OR”
  - Exclusive operators: “AND”

# Usage of Patent Information

# How can patent information be used

- Prior art searches
- Gathering business intelligence
- Avoiding patent infringement
- Patent valuation
- Identifying key trend in technology development

# Prior art searches

- Novelty: Is an invention new?
- Non-obviousness/Existence of an inventive step: Is the invention sufficiently different from existing technologies?
- Searching patent documents is an important step in determining whether an invention is ultimately patentable.
- Determine the characteristics of the invention: derive essential words and phrases that will be used in search
  - What problem does your invention solve?
  - What does your invention do?
  - What effect does your invention produce?
  - How is your invention construed?
  - What materials or methods are used in the construction of your invention?

# Practical case

- You have developed a method for printing solar cells onto aluminum foil at low temperatures using a nanoparticle “ink”
- Step 1: Identify central concepts related to your innovation
  - “solar cell”(product), “aluminum foil”, “nanoparticle ink”(materials used in the production process)
- Step 2: Determine keywords for your search
  - the next step is to find synonyms and related keywords and phrases for the concepts identified in the first step:
  - solar cell: photovoltaic cell (synonym)
  - aluminum foil: aluminium foil (alternative spelling),  
metal foil (related term)
  - nanoparticle: nanoparticle solution (related term),  
nanoparticle suspension (related term)

# Practical case

- Step 3: locate the pertinent IPC symbols through IPC publication, search terms (<http://web2.wipo.int/ipcpub>)
- Term “solar cell”, identifies H01L 31/00 as a relevant IPC symbol

**H01L 31/042 - IPC - Microsoft Internet Explorer**

Korean Microsoft IME 2003 Han/Eng Hanja IME Pad Handwriting Boxed Input Google Search

File Edit View Favorites Tools Help

H01L 31/042 - IPC

Go to

Language English French English/French

View mode path full hierachic

Standardized sequence Deleted entries

Subclass indexes Guidance Headings Notes

Search Terms Cross-references

Assistance Text categorization (IPCCAT)

Number of displayed entries 500

Last modified: 2013.02.08

Prepared with IPCPUBPREP v 2.12

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Intrinsic contact therewith is referred to as an **encapsulation**. [2]

- **“Integrated circuit”** is a **device** where all **components**, e.g. diodes, resistors, are built up on a common substrate and form the **device** including interconnections between the **components**; [2]
- **“assembly”** of a **device** is the building up of the **device** from its **component** constructional units and includes the provision of fillings in **containers**. [2]

3. In this subclass, both the process or **apparatus** for the manufacture or **treatment** of a **device** and the **device** itself are classified, whenever both of these are described sufficiently to be of interest. [6]

4. Attention is drawn to Note (3) after the title of section C, which Note indicates to which version of the periodic table of chemical elements the IPC refers. [2010.01]

**H01L 31/00**

Semiconductor devices sensitive to infra-red radiation, light, electromagnetic radiation of shorter wavelength, or corpuscular radiation and specially adapted either for the conversion of the energy of such radiation into electrical energy or for the control of electrical energy by such radiation; Processes or apparatus specially adapted for the manufacture or treatment thereof or of parts thereof; Details thereof **H01L 51/42** takes precedence; devices consisting of a plurality of solid state components formed in, or on, a common substrate, other than combinations of radiation-sensitive components with one or more electric light sources, **H01L 27/00** [8]

- adapted as **conversion devices** [2]
  - .. Including a panel or array of photoelectric **cells**, e.g. **solar cells** [5]
  - ... collapsible or foldable [5]
  - ... encapsulated or with housing [5]
  - ... characterised by special interconnection means [5]
  - ... with cooling, light-reflecting or light-concentrating means [5]
  - ... including means to utilise heat energy, e.g. hybrid systems, or a supplementary source of electric energy [5]

# Practical case

## ■ Step 4: Perform first search (WIPO PATENTSCOPE advance search)

- Should be relatively broad, using “OR” Boolean operator, using a wildcat operator to include plural forms, and “International Class”
  - “solar cell\*” OR “photovoltaic cell\*” OR IC/ H01L-31\*
  - This search produces over 103,000 results

The screenshot shows the WIPO PATENTSCOPE search interface. The search query is "solar cell\*" OR "photovoltaic cell\*" OR IC/ H01L-31". The results page displays 103,837 patents. The analysis section provides a detailed breakdown of patent statistics across various countries, IPC categories, applicants, inventors, and publication dates.

Countries	Main IPC	Main Applicant	Main Inventor	Pub Date
PCT	H01L	SHARP CORP	TANIGAWA, HIROYASU	2003
European Patent Office	F24J	KYOCERA CORP	BEVEC, Dorian	2004
Japan	A61K	SANYO ELECTRIC CO LTD	YAMAZAKI, Shunpei	2005
Republic of Korea	H02J	LG ELECTRONICS INC.	ROSEN, Craig, A.	2006
Israel	E04D	CANON INC	MORI, KEI	2007
Russian Federation	H01M	MITSUBISHI ELECTRIC CORP	YAMADA, YASUSHI	2008
South Africa	C03C	MITSUBISHI HEAVY IND LTD	FORSELL, Peter	2009
Russian Federation (USSR data)	C23C	APPLIED MATERIALS, INC.	OSHIMA	2010
Spain	B32B	MATSUSHITA ELECTRIC IND		2011
	G02R			2012

# Practical case

## ■ Step 5: Sharpen search

- the search should be limited using more specific terms and linked using the “AND” Boolean operator
- in order to capture results containing wording such as “nanoparticle solution” as well as “solution containing nanoparticles”, define the distance between 2 words
- (“nanoparticle suspension”~5 OR “nanoparticle solution”~5 OR “nanoparticle ink”~5) AND (IC/“H01L31” OR “solar cell”~5 OR “photovoltaic cell”~5) AND (“aluminum foil” OR “metal foil”)
- This search produces much smaller results
- Among the results are several international applications by Eastman Kodak Company, Hewlett-Packard Development Company L.P.
- “Method of forming a transistor having a dual layer dielectric” etc.

# Gathering business intelligence

- Knowing which companies or individuals are technology leaders in your area of business
  - can play important role in planning your commercial and research and development activities
  
- Patenting activity and patent ownership
  - can be important in identifying principal innovators in different area of technology

# Practical case

- Your company produces farm equipment and would like to keep track of new developments in plough technology on the international market.
- Step 1: Determine criteria for your search
  - use IPC symbols to find relevant applications
  - searching the IPC according to “plough” (<http://web2.wipo.int/ipcpublish>) reveals several technologies

The screenshot shows a Microsoft Internet Explorer window with the following details:

- Title Bar:** A01B - IPC - Microsoft Internet Explorer | Microsoft IME 2003 | Han/Eng | Hanja | IME Pad | Handwriting | Boxed Input | Google Search
- Address Bar:** http://web2.wipo.int/ipcpublish/#refresh=page&viewmode=a&notion=scheme&hlf=plough&lang=en&version=20130101&symb
- Page Content:**
  - WIPO IP SERVICES:** International Patent Classification (IPC) Official Publication
  - SECTION A — HUMAN NECESSITIES**
  - AGRICULTURE**
  - A01B 1/00:** AGRICULTURE; FORESTRY; ANIMAL HUSBANDRY; HUNTING; TRAPPING; FISHING
  - Sub-categories:** A01B 3/00, A01B 5/00, A01B 7/00, A01B 9/00, A01B 11/00, A01B 13/00, A01B 15/00
  - Descriptions:**
    - A01B 3/00:** SOIL WORKING IN AGRICULTURE OR FORESTRY; PARTS, DETAILS, OR ACCESSORIES OF AGRICULTURAL MACHINES OR IMPLEMENTS, IN GENERAL (making or covering furrows or holes for sowing, planting or manuring A01C 5/00; machines for harvesting root crops A01D; mowers convertible to soil working apparatus or capable of soil working A01D 42/04; mowers combined with soil working implements A01D 43/12; soil working for engineering purposes E01, E02, E21)
    - A01B 5/00:** Ploughs with fixed ploughshares
    - A01B 7/00:** Ploughs with rolling non-driven tools, e.g. discs (with rotary driven tools A01B 9/00)
    - A01B 9/00:** Disc-like soil-working implements usable either as ploughs or as harrows, or the like
    - A01B 11/00:** Ploughs with rotary driven tools (tilling implements with rotary driven tools A01B 33/00)
    - A01B 13/00:** Ploughs with oscillating, digging or piercing tools
    - A01B 15/00:** Ploughs or like machines for special purposes (for drainage E02B 11/02)
    - Elements, tools, or details of ploughs:** Elements, tools, or details of ploughs
- Left Sidebar:**
  - IPC Home Page | Help
  - Version: 2013.01
  - Current symbol: A01B
  - Go to
  - Language: English (radio button selected)
  - View mode: path (radio button selected)
  - Standardized sequence
  - Deleted entries
  - Subclass indexes
  - Guidance Headings (checkbox checked)
  - Notes
  - Search: Terms, Cross-references

# Practical case

- Step 2: Include all relevant groups by using “OR” Boolean operator
- WIPO PATENTSCOPE advance search: “International Class: field code (“IC”)
- IC/ A01B 3 OR IC/ A01B 5 OR IC/ A01B 7 OR IC/ A01B 9 OR IC/ A01B 11 OR IC/ A01B 13 OR IC/ A01B 15 OR IC/ A01B 17
- This search retrieves around 2140 results

The screenshot shows a Microsoft Internet Explorer browser window displaying the WIPO PATENTSCOPE search results. The URL in the address bar is <http://patentscope.wipo.int/search/en/result.jsp>. The search query is "Results 1-10 of 2,140 for Criteria:IC/ A01B 3 OR IC/ A01B 5 OR IC/ A01B 7 OR IC/ A01B 9 OR IC/ A01B 11 OR IC/ A01B 13 OR IC/ A01B 15 OR IC/ A01B 17 Office(s):all Language:EN Stemming:true". The results are paginated from 1 to 216. Below the search bar, there is a "Refine Search" input field containing the same search criteria and a "Search" button. The main content area displays an "Analysis" table with five columns: Countries, Main IPC, Main Applicant, Main Inventor, and Pub Date. The table lists various entities and their counts, such as European Patent Office (659), Mitsubishi Agriculture Mach Co Ltd (110), and VAN DER LELY, CORNELIS (39).

Countries		Main IPC		Main Applicant		Main Inventor		Pub Date	
Name	No.	Name	No.	Name	No.	Name	No.	Date	No.
European Patent Office	659	A01B	1742	MITSUBISHI AGRICULT MACH CO LTD	110	VAN DER LELY, CORNELIS	39	2003	101
PCT	741	A01C	79	C. VAN DER LELY N.V.	62	VAN DER LELY CORNELIS	30	2004	107
Japan	432	E02F	30	ISEKI & CO LTD	56	BOM CORNELIS JOHANNES GERARDUS	19	2005	112
South Africa	56	B62D	26	KUBOTA CORP	53	WAKUTA TAKESHI	19	2006	104
Israel	23	A01G	20	LELY NV C VAN DER	48	STARK, Crister	18	2007	92
Republic of Korea	19	B60K	15	DEERE & COMPANY	29	VAN DER LELY, ARY	16	2008	87
Russian Federation	6	B60D	13	KVERNELAND KLEPP AS	28	MINAGAWA ISAO	14	2009	86
		B26G	8	YANMAR AGRICULT EQUIP CO LTD	26	SATOJI HISAYUKI	14	2010	91
						CORNELIS ENRICO MARIS	13	2011	80

# Practical case

- Step 3: Analyze the data
- Navigate to in-depth analysis and visualize the patent activity in tabular or graphical format

Two screenshots of the WIPO PatentScope interface are shown side-by-side, illustrating the analysis of patent data.

**Left Screenshot:** A search results page for the query "A01B 3 OR IC A01B 5 OR IC A01B 7 OR IC A01B 9 OR IC A01B 11 OR IC A01B 13 OR IC A01B 15 OR IC A01B 17". The results show 2,140 items across 215 pages. The "Analysis" button is highlighted.

Countries	Main IPC	Main Applicant	Main Inventor	Pub Date
European Patent Office	A01B 659	MITSUBISHI AGRICULT MACH CO LTD	VAN DER LELY, CORNELIS	2003-101
	A01C 78		VAN DER LELY, CORNELIS	2004-107
PCT	741	C VAN DER LELY NV	BOM, CORNELIS	2005-112
Japan	432	ISEKI & CO LTD	JOHANNES GERARDUS	2006-104
South Africa	58	KUBOTA CORP	VINJUTA TAI-ESHI	2007-92
Israel	23	A01D 40	LELY NV C VAN DER	2008-87
Republic of Korea	19	B60K 15	DEERE & COMPANY	2009-88
Russian Federation	5	B60D 13	KVERNELAND KLEPP AS	2010-91
Spain	4	B60D 13	YANMAR AGRICULT EQUIP CO LTD	2011-80
Mexico	1	F16D 6	MAASLAND NV	2012-51
		HONDA MOTOR CO LTD	SIGREVELAND, Magne	2013-12

**Right Screenshot:** An analysis view showing the distribution of patent applications by Main Applicant. The chart displays the number of applications (0 to 110) for various applicants, with Mitsubishi Agricultural Machinery leading at approximately 110 applications.

Main Applicant	No #
MITSUBISHI AGRICULT MACH CO LTD	110
C VAN DER LELY NV	62
ISEKI & CO LTD	58
KUBOTA CORP	53
LELY NV C VAN DER	48
DEERE & COMPANY	29
KVERNELAND KLEPP AS	28
YANMAR AGRICULT EQUIP CO LTD	26
MAASLAND NV	25
HONDA MOTOR CO LTD	25
SIGREVELAND, Magne	25

# Practical case

- Step 4: Keep track of current information
- By subscribing to the RSS feed, you can remain up-to-date on the latest international applications relevant to your business

**PATENTSCOPE: IC/ A01B 3 OR IC/ A01B 5 OR IC/ A01B 7 OR IC/ A01B 9 OR IC/ A01B 11 OR IC/ A01B 13 OR IC/ A01B 15 OR IC/ A01B 17**

You are viewing a feed that contains frequently updated content. When you subscribe to a feed, it is added to the Common Feed List. Updated information from the feed is automatically downloaded to your computer and can be viewed in Internet Explorer and other programs. [Learn more about feeds.](#)

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**TILLER HOUSING**

2013년 3월 1일 금요일, 오전 1:00:00 →

A tiller (10) includes a tiller frame (12) and an upright assembly (24) extending from the frame. The frame is supported by at least one wheel (14) and defines a cavity (26). A transmission assembly (390) is supported by the frame and has an output member that is configured to be drivingly coupled to a first power source in a first battery-powered configuration and to a second power source in a second electric-powered configuration. A tilling implement (22) includes a drive shaft (48) that is driven by the output member. The tilling implement comprises at least one tine plate (50). The cavity (26) is configured to removably receive a battery (30) in the first battery-powered configuration and removably receive a ballast (356) in the second electric-powered configuration.

**TURF TREATMENT**

2013년 3월 1일 금요일, 오전 1:00:00 →

A method for the treatment of turf (11) comprising grass (12) growing in a matrix (15, 16) comprising removing matrix (15, 16) including any thatch and other infestation by blading (18) moving through the matrix (15, 16) to a predetermined depth (d). The method may be used to treat turf (11) reinforced with artificial grass (13). Equipment for carrying out the treatment comprises a bladed rotor (17) rotating about a horizontal axis.

**AGRICULTURAL TRACTOR LINKAGE CONTROL SYSTEM**

Done WIPO Applications F... 5 Internet Explor... Inbox - Microsoft Ou... N:\Orgsme\SHARED\... C:\Documents and S... Microsoft PowerPoin... 100% 3:47

# Avoiding patent infringement

- Having identified relevant patent documents, the first step is to examine the legal status of the patent application:
  - Has the patent been granted, rejected, withdrawn, or is it still pending?
  - In which countries?
  - Is the patent still valid, or has it expired?
- If a patent is in force in a particular jurisdiction in which you wish to market your product, the second step is to appraise the claims made under this patent
- Potential infringements can be avoided by modifying your product to take into account these claims

# Patent valuation

- Patent documentation can provide an indication as to the value of patents that you or your competitors have been granted.
- The citation information contained in patent documents subsequent to a particular patent can be useful for estimating the value of the patent in question.
- The number of times a patent is cited in later patent documents is indicative of its technical relevance and thus of its value.

# Identify key trends in technology development

- Statistical data obtained from patent documents can be used to map key trends across different fields of technology and different countries
  
- Depending on the criteria according to which patent data can be broken down
  - it can be used to track the growth and changes in patent activity over time
  - examine the distribution of patent application in a country by residents compared to non-residents
  - identify the technology areas in which a country is predominantly active in terms of patenting activity

# Practical case

- Your government has identified the absence of adequate food preservation technology as a key obstacle to further development of agricultural export sector and is considering negotiating technology transfer agreement with other countries
- Step 1: Determine Criteria for your search
  - Field of technology: A23L 3/00 (“food preservation”)

Screenshot of the WIPO International Patent Classification (IPC) Official Publication website showing the search results for A23L 3/00.

**Search Results for A23L 3/00:**

**Classification Scheme:** A23L

**Notes:** Attention is drawn to the following places:  
**C08B** Polysaccharides, derivatives thereof  
**C11** Animal or vegetable oils, fats, fatty substances or waxes  
**C12** Biochemistry, beer, spirits, wine, vinegar  
**C13** Sugar industry.

**FOODS, FOODSTUFFS, OR NON-ALCOHOLIC BEVERAGES, NOT COVERED BY SUBCLASSES A21D OR A23B-A23J; THEIR PREPARATION OR TREATMENT, e.g. COOKING, MODIFICATION OF NUTRITIVE QUALITIES, PHYSICAL TREATMENT (shaping or working, not fully covered by this subclass, A23P); PRESERVATION OF FOODS OR FOODSTUFFS, IN GENERAL (preservation of flour or dough for baking A21D) [8]**

**Subclasses:**

- A23L 3/00 (Preservation of foods or foodstuffs, in general, e.g. pasteurising, sterilising, specially adapted for foods or foodstuffs (preserving foods or foodstuffs in association with packaging B65B 55/00))
  - by heating using irradiation or electric treatment (drying or kilning A23L 3/40) [5]
  - by treatment with pressure variation, shock, acceleration or shear stress [5]
  - by heating materials in packages which are progressively transported, continuously or stepwise, through the apparatus (A23L 3/005 takes precedence) [5]
  - by heating materials in packages which are not progressively transported through the apparatus (A23L 3/005 takes precedence) [5]
  - by heating loose unpacked materials (A23L 3/005 takes precedence) [5]
  - by irradiation without heating
  - by treatment with electric currents without heating effect
  - by treatment with chemicals
  - Freezing; Subsequent thawing; Cooling [5]
  - by drying or kilning; Subsequent reconstitution [5]
- A23L 3/05
- A23L 3/06
- A23L 3/07
- A23L 3/08
- A23L 3/09
- A23L 3/10
- A23L 3/11
- A23L 3/12
- A23L 3/13
- A23L 3/14
- A23L 3/15
- A23L 3/16
- A23L 3/17
- A23L 3/18
- A23L 3/19
- A23L 3/20
- A23L 3/21
- A23L 3/22
- A23L 3/23
- A23L 3/24
- A23L 3/25
- A23L 3/26
- A23L 3/27
- A23L 3/28
- A23L 3/29
- A23L 3/30
- A23L 3/31
- A23L 3/32
- A23L 3/33
- A23L 3/34
- A23L 3/35
- A23L 3/36
- A23L 3/37
- A23L 3/38
- A23L 3/39
- A23L 3/40

# Practical case

- Step 2: perform search and Step 3: Analyze the data
- WIPO PATENTSCOPE advanced search (IC/ A23L 3)

Two side-by-side screenshots of the WIPO PatentScope search interface showing results for 'IC/ A23L 3'.

**Left Screenshot:**

- Search bar: IC/ A23L 3
- Results: 1-10 of 36,505 for Criteria IC/ A23L 3 (Office(s) all Language EN Stemming: true)
- Table: Analysis of Main IPC, Main Applicant, Main Inventor, and Pub Date.

Countries	Main IPC	Main Applicant	Main Inventor	Pub Date
PCT	A23L	NESTEC S.A.	Красенок Олег Иванович (RU)	2003 1963
European Patent Office	A61K 23/43	UNILEVER N.V.	SUZUKI KIZAKU	2004 2335
Japan	A23B 13/87	UNILEVER NV	SUZUKI MAKOTO	2005 2389
Republic of Korea	A23C 13/52	THE PROCTER & GAMBLE COMPANY	PRAVASH, Indra	2006 2395
Russian Federation	A23G 11/19	СОЦИЕТЕ ДЕС ПРОДУКТС	SON, YOUNG SUK	2007 2116
Russia	A21D 10/92	NESTLE S.A.	WAKASA AKIRA	2008 2278
South Africa	A23F 8/62	NESTLE SA	АОКИ МИНОРУ	2009 2430
Israel	A23D 8/22	UNILEVER PLC	Мартынова Валерий Иванович (RU)	2010 2708
Mexico	A23K 8/08	NESTEC SA	Корнина Елена Павловна (RU)	2011 1800
Spain	A23J 7/62	DSM IP ASSETS B.V.	YAMAZAKI AKIRA	2012 1284
AR/PO				2013 188

**Right Screenshot:**

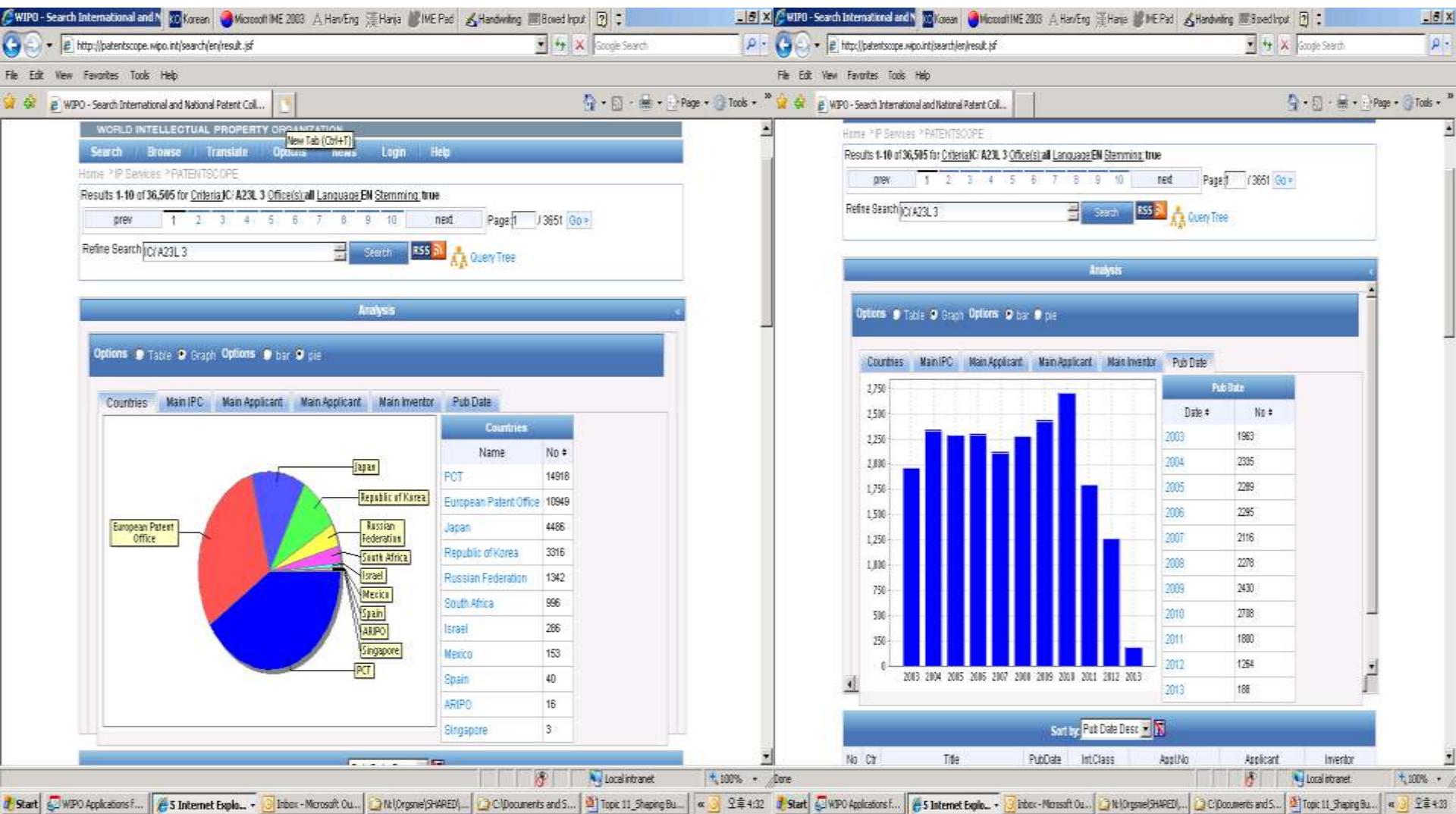
- Search bar: IC/ A23L 3
- Results: 1-10 of 36,505 for Criteria IC/ A23L 3 (Office(s) all Language EN Stemming: true)
- Figure: Bar chart showing the number of publications by Main Applicant.

Main Applicant	No. #
NESTEC S.A.	454
UNILEVER N.V.	404
UNILEVER NV	392
THE PROCTER & GAMBLE COMPANY	380
СОЦИЕТЕ ДЕС ПРОДУКТС	359
NESTLE S.A.	360
UNILEVER PLC	327
NESTEC SA	237
AJINOMOTO KK	235
DSM IP ASSETS B.V.	206

# Practical case

## Step 3: Analyze the data

### - Visualization of search results by countries, by publication date



# Patent Landscape Reports

# Patent Landscape Reports

- Patterns of patenting activity
  - Who is doing what (e.g. top applicants, inventors) ?
  - What is filed where ?
  - Market trends
- Patterns of innovation
  - Innovation trends/activities
  - Diversity of technologies
  - Innovation tracks
  - Collaborations
- What is in public domain ? e.g. FTO analysis
  - Requires evaluation of legal information

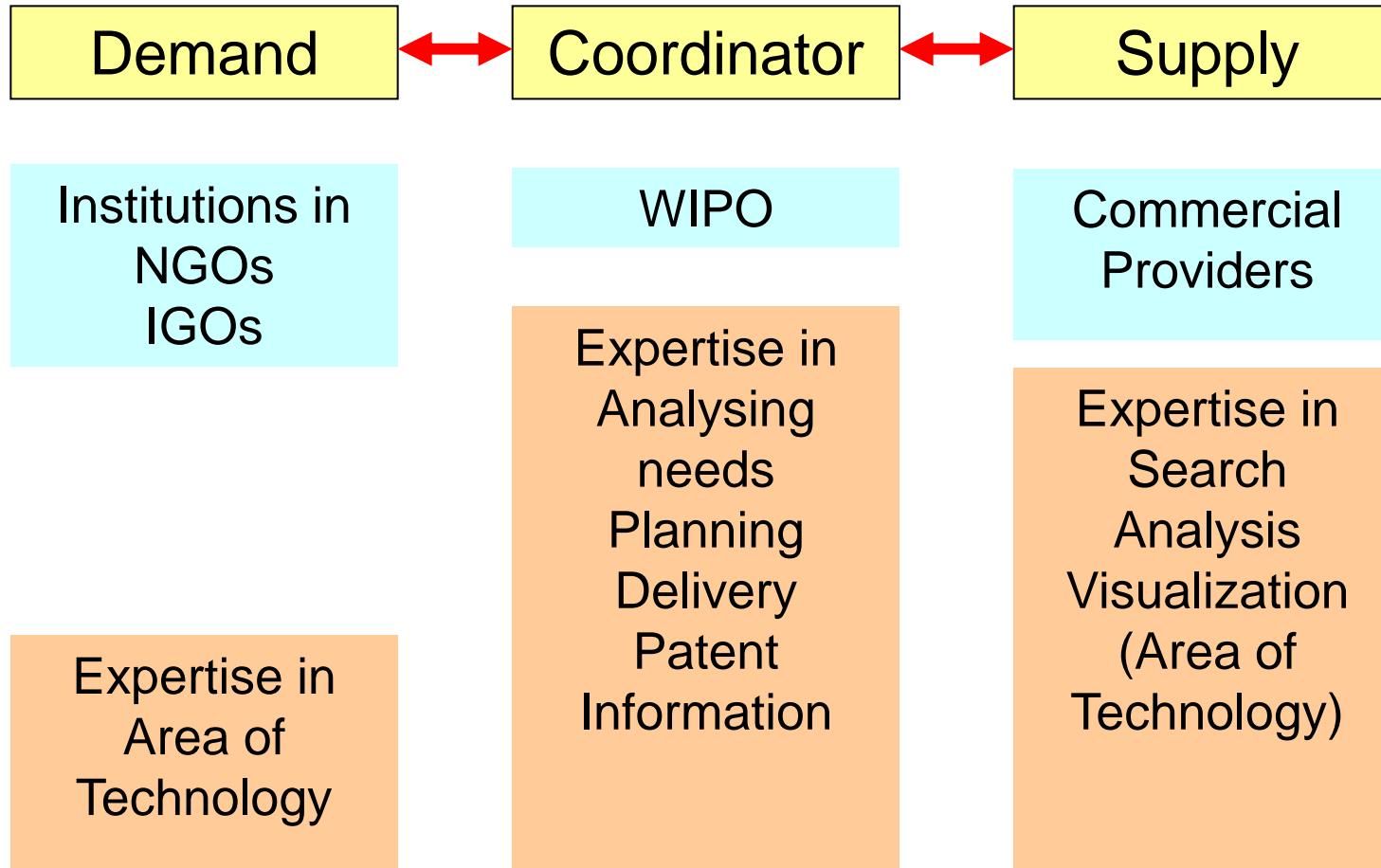
# WIPO Patent Landscape project

- PLRs perceived as important tool for access to and exploitation of patent information
  - Business use (**includes public institutions!**)
  - Empirical evidence for policy discussions and strategic planning
  - Technology transfer (FTO, public domain; e.g. extensions)
- WIPO Committee on Development and Intellectual Property (CDIP) created project DA\_19\_30\_31 as part of WIPO's Development Agenda
  - Bridging the knowledge gap
  - Promoting the use of patent information as a freely accessible (no copyright protection!) and globally available resource for technology information **and the use of patent analytics as an advanced tool for exploiting patent information**

# Collaboration with users

- WIPO has usually limited technical expertise in areas of technology
- Partners having needs and expertise are valuable for assuring
  - relevance of each report
  - efficiency of preparation
  - sufficient utilization of completed report (impact)
- Each collaboration serves for partners as vehicle/means to familiarize themselves with patent information, analytics, patent system (> capacity building)

# Matching needs



# Sample of individual report website

## Patent Landscape Report on Ritonavir

Ritonavir is an antiretroviral drug from the protease inhibitor class used to treat HIV infection and AIDS. Ritonavir is included in the [WHO Model List of Essential Medicines](#).

A major goal of this report is to highlight the technology timeline for Ritonavir from the [first filing](#) of this compound in July 1994 by Abbott Laboratories (WO1994014426) to the present filings in which additional patent families attempt to protect subsequent innovations to the compound, variants and derivatives, combinations with other chemicals, methods of production, methods of use, etc. The analysis of the researched patent documents showed that filings related to Ritonavir have increased dramatically since the initial disclosure and now include over 800 patent families.

This report identifies a number of innovation tracks that spun-off of the first Ritonavir patent document, WO1994014426. They are related to liquid dosage formulations, solid dosage formulations, synthesis of Ritonavir and its key intermediates, polymorphs and crystalline Ritonavir, as well as prodrugs of Ritonavir. These innovation tracks illustrate the continuation of important protection related to Ritonavir as subsequent generations of patents continue to narrow the scope of protection while still maintaining protection from the first Ritonavir patent, a phenomenon that is also sometimes termed "evergreening".

The reports also includes an analysis of statistical trends, e.g. 45% of the patent families have a patent grant as family member, and 90% of the families include a PCT application.

A comprehensive explanation of the search methodology and history (including all search queries), and of the evaluation of the search results is included and illustrates how patent information can be retrieved and exploited in the area of pharmaceuticals.

The searchable and sortable patent database includes all 805 patent families, relevant bibliographic data and some added information, e.g. whether the family relates to prodrugs. Each family is linked to the Espacenet database of the European Patent Office which enables verification of the INPADOC family information and related legal status of family members. The database is complemented by a visualization of various statistical analyses of the collection of 805 patent families.

For further information please [contact us](#).

### Download

- Full Report 
- Executive Summary 
- Database of Patent Families 
- Interactive Analysis Tool 
- Appendices - Innovation Tracks:
  - Liquid oral dosage forms 
  - Synthesis of Ritonavir 
  - Structural Considerations and Polymorphs 
  - Solid Dosage Forms 

Three standard components:

**Report body (.PDF)**

**Database (.xls)**

**Interactive visualization (Intellixir)**



Patent Landscape Report on Ritonavir

# Database of Ritonavir related patents

Publication number linked to Espacenet; sortable

Technology categories; sortable

A	B	C	D	E	F	G	H	I	J	
	Title	Priority Document	Earliest Priority Date	Assignee / Applicant	Inventor(s)	Family Members	Family Size	Combinations	Prodrug	
1	HyperLinked Publicat	♦ Title	♦ Priority Document	♦ Earliest Priority Date	♦ Assignee / Applicant	♦ Inventor(s)	♦ Family Members	♦ Family Size	♦ Combinations	♦ Prodrug
2	WO2010151495	MATERIALS AND METHODS FOR TREATING AND PREVENTING VIF	US20090220920P	2009-06-26	UNIVERSITY OF FLORIDA RESEA JOHNSON HOWARD M	US   / None		1	Yes	
3	WO2010150100	THE USE OF SPINOSYNS AND SPINOSYN COMPOSITIONS AGAINST	US20090220059P	2009-06-24	ENTARCO SA	KRITIKOU CHRISTINE GR   SA None		1	Yes	Yes
4	WO2010148323	DIAGNOSIS AND TREATMENT OF DISEASES OR DISORDERS ASSOC	US20090268933P	2009-06-18	WHITTEMORE PETERSON INSTI	MIVOKITS JUDY A US   LOMB WO2010148323A3   US2010167268A1	4			
5	WO2010148006	HEPATITIS C VIRUS INHIBITORS	US20090187374P	2009-06-16	ENANTA PHARM INC	OR YAT SUN US   PENG XIAO! US2011086288A1   US2010316607A1	3	Yes	Yes	
6	WO2010144869	PROTEASE INHIBITORS	US20090186768P	2009-06-12	NEKTAR THERAPEUTICS	RIGGS-SAUTHIER JENNIFER U WO2010144869A3	1			Yes
7	WO2010143207	TASTE-MASKED ORAL FORMULATIONS OF INFLUENZA ANTI VIRAL	IN2009MU01405	2009-06-11	RUBICON RESEARCH PRIVATE LI	PILGAONKAR PRATIBHA SUDHIL None		1	Yes	
8	WO2010132664	COMPOSITIONS AND METHODS FOR DRUG DELIVERY	US20090467230	2009-05-15	BAXTER INTERNATIONAL INC	RABINOW BARRETT US   BAI US2010290983A1	2			Yes
9	WO2010132663	PEGYLATED AZAPEPTIDE DERIVATIVES AS HIV PROTEASE INHIBIT	US20090216086P	2009-05-13	CONCERT PHARMACEUTICALS I	HARBESON SCOTT L US   TUF None		1		
10	WO2010132511	METHODS OF REDUCING THE RISK OF DRONEDARONE USE IN CE	US20090177409P	2009-05-12	SANOFI	SCARAZZINI LINDA US	US2010320099A1	2	Yes	
11	WO2010132494	COMPOUNDS AND METHODS FOR TREATING AIDS AND HIV INFE	US20090177086P	2009-05-11	GHOSH ARUN K	GHOSH ARUN K US	None	1	Yes	
12	WO2010132163	MACROCYCLIC COMPOUNDS AS HEPATITIS C VIRUS INHIBITORS	US20090177853P	2009-05-13	ENANTA PHARM INC	GAI YONGHUA US   OR YAT S US2011033420A1		2	Yes	
13	WO2010127272	HYDROXYETHYLAMINO SULFONAMIDE DERIVATIVES	US20090214977P	2009-04-30	CONCERT PHARMACEUTICALS I	HARBESON SCOTT L US   TUF US2010305173A1	2			Yes
14	WO2010127099	PHARMACEUTICAL COMPOSITIONS COMPRISING EPA AND A CAF	US20090173759P	2009-04-29	AMARIN CORP PLC	MANKU MEHAR GB   ROWE None		1	Yes	
15	WO2010122087	METHODS FOR IMPROVING PHARMACOKINETICS	US20090172722P	2009-04-25	F. HOFFMANN-LA ROCHE AG	TRAN JONATHAN Q US	US2010272682A1	2	Yes	
16	WO2010121351	USE OF [HEXENOYL TRANS-3]HGRF(1-44)NH2 AND RITONAVIR IN	US20090170862P	2009-04-20	THERATECHNOLOGIES INC	MARSOLAS CHRISTIAN CA	US2010267635A1   WO2010121351A8			
17	WO2010116248	ORGANIC COMPOUNDS AND THEIR USES	US20090168408P	2009-04-10	NOVARTIS AG	BRANDL TRIXI CH   RAMAN F UY32551A   US2010260709A1	3	Yes		Yes
18	WO2010115981	7-AZADISPIRO [3.0.4.1] DECANE-8-CARBOXAMIDES AS HEPATITIS	US20090168415P	2009-04-10	NOVARTIS AG	BRANDL TRIXI CH   RAMAN F UY32554A		3	Yes	
19	WO2010111238	IMPROVED BIODEGRADABLE POLYMERS	US20090162653P	2009-03-23	MICELL TECHNOLOGIES INC	TAYLOR DOUGLAS US   MCCL WO2010111238A3   US2010256746A1	2			Yes
20	WO2010107831	NANOCARRIER COMPOSITIONS AND METHODS	US20090160575P	2009-03-16	RUTGERS, THE STATE UNIVERSIT	SINKO PATRICK J US   STEIN S None		1		
21	WO2010105381	NOVEL ANTIVIRAL AGENT	FR2009015347	2009-03-04	CENTRE NATIONAL DE LA RECH	CHABRIERE ERIC FR   ELIAS N FR2942717A1   FR2942717B1	2			Yes
22	WO2010099552	HEPATITIS C VIRUS INHIBITORS	US20090156131P	2009-02-27	ENANTA PHARM INC	QIU YAO-LING US   CE WANIC US2010260715A1   US2010233122A1	3	Yes		Yes
23	WO2010099458	COMBINATION OF A NUCLEOSIDE POLYMERASE INHIBITOR WITH	US20090156414P	2009-02-27	INTERMUNE INC   F. HOFFMAN PORTER STEVEN B	US   BRAE US2010221217A1	3	Yes		Yes
24	WO2010099462	LINKED DIIMIDAZOLE DERIVATIVES	US20090153234P	2009-02-17	ENANTA PHARM INC	OR YAT SUN US   TUM US2010226883A1   US2010221216A1   US201024	4	Yes		Yes
25	WO2010091413	LINKED DIBENZIMIDAZOLE DERIVATIVES	US20090151079P	2009-02-09	ENANTA PHARM INC	QIU YAO-LING US   WANIC US2010221215A1   US2010266543A1   US201024	4	Yes		Yes
26	WO2010089767	DUAL RELEASE PHARMACEUTICAL SUSPENSION	IN2009DE00030	2009-01-09	PANACEA BIOTEC LTD	JAIN RAJESH IN   SINGH SUKI None		1		
27	WO2010089763	POLY(VINYL CAPROLACTAM-CO-ACRYLAMIDE) MICROPARTICLE	IN2008MU01366	2008-06-30	RELIANCE LIFE SCIENCES PVT LT	VADDÉ RAIMESH BABU IN   R WO2010089763A	1			
28	WO2010086844	POLYMORPHS OF DARUNAVIR	US20090148055P	2009-01-29	MAPI PHARMA HK LTD	MAROM EHUD IL	None	1	Yes	
29	WO2010077740	NOVEL ANTIVIRAL COMPOUNDS, COMPOSITIONS, AND METHODS	US20080102948P	2008-12-09	CYTOKINE PHARMASCIENCES IF SIELECKI-DZURDZ THAIS M	US   WO2010077740A3	1	Yes		Yes
30	WO2010077734	NOVEL ANTIVIRAL COMPOUNDS, COMPOSITIONS, AND METHODS	US20080102939P	2008-12-09	CYTOKINE PHARMASCIENCES IF SIELECKI-DZURDZ THAIS M	US   WO2010077734A3	1	Yes		Yes
31	WO2010077317	PROTEASE INHIBITORS	US20080138428P	2008-12-17	AMPLYX PHARMACEUTICALS IN MUTZ MITCHELL US   BARR F WO2010077317A3	1	Yes		Yes	
32	WO2010077061	PHARMACEUTICAL FORMULATIONS CONTAINING ANTIVIRAL DRL	US20080141983P	2008-12-31	HANALL BIOPHARMA CO., LTD	KIM SUNG WUK KR   JUN SU WO2010077061A3	1			
33	WO2010075065	METHODS FOR ENHANCING THE RELEASE AND ABSORPTION OF	US20080122497P	2008-12-15	BANNER PHARMACAPS INC	FATMI AQEEL US   KIM TAE K US2011052682A1	3			
34	WO2010068899	NANOPARTICLES COMPRISING COMBINATIONS OF ANTIRETROV	US20080122139P	2008-12-12	CREIGHTON UNIVERSITY	DESTACHE CHRISTOPHER J US None		1		
35	WO2010065118	ANTI-INF LMMATORY COMPOSITIONS AND METHODS	US20080131550P	2008-12-02	SEARETE LLC	HYDE RODERICK A US   MAL US2010136094A1   US2010137246A1   US201013	Yes			
36	WO2010065079	ANTIBODIES TO IL-6 AND USE THEREOF	US20060801412P	2006-05-19	ALDER BIOPHARMACEUTICALS GARCIA-MARTINEZ LEON	US   AR074227A1   US2009291089A1   JP201052761	57	Yes		
37	WO2010059883	DEGRADABLE HYDROGEL COMPOSITIONS AND METHODS	US20080115962P	2008-11-19	RUTGERS, THE STATE UNIVERSIT	SINKO PATRICK JOHN US   DE None		1		
38	WO2010057048	TERAPIES FOR HEMATOLOGIC MALIGNANCIES	US20080114434P	2008-11-13	CALISTOGA PHARMACEUTICALS GALLATIN MICHAEL W US   L US2010202963A1	4	Yes			
39	WO2010047819	HYDROXYETHYLAMINO SULFONAMIDE DERIVATIVES	US20080197190P	2008-10-24	CONCERT PHARMACEUTICALS I HARBESON SCOTT L US   MA WO2010047819A8	1	Yes			
40	WO2010045266	TERAPEUTIC ANTIVIRAL PEPTIDES	US20080105746P	2008-10-15	INTERMUNE INC SEIWERT SCOTT US   BEIGELI AR073880A1   US2010119479A1	5	Yes		Yes	
41	WO2010041241	HIV-1 INTEGRASE DERIVED PEPTIDES AND COMPOSITIONS	US20080103036P	2008-10-06	YISSUM RESEARCH DEVELOPMEN	LEVIN AVIAD IL   HAYOUKA Z WO2010041241A3	2	Yes		
42	WO2010038237	COMPOSITIONS EXHIBITING DELAYED TRANSIT THROUGH THE G	IN2008MU02020	2008-09-22	RUBICON RESEARCH PRIVATE LI	PILGAONKAR PR				Yes
43	WO2010037566	IMPROVED NANOPARTICULATE COMPOSITIONS OF POORLY SOL	EP20080165747P	2008-10-02	CAPSULATION PHARMA AG	GONZALES FERRE				
44	WO2010037402	MOLECULAR VACCINES FOR INFECTIOUS DISEASE	DK20080001384	US2008-10-02	DAKO DENMARK A/S	SCHOELLER JOE				
45	WO2010033637	DISSOLUTION OF ARTERIAL PLAQUE	US20050739143P	2005-11-22	Z & Z MEDICAL HOLDINGS, INC	ZADINI FILBERT				
46	WO2010033614	STABLE SOLID ORAL DOSAGE CO-FORMULATIONS	US20080097479P	2008-09-16	SEQUOIA PHARMACEUTICALS	LUDTKE DOUGL				
47	WO2010017432	PHARMACEUTICAL FORMULATIONS OF AN HCV PROTEASE INHIB	US20080086997P	2008-08-07	SCHERING CORP	SHETH ASHLEY US   TAYLOR SCOTT US   TAYLOR SCOTT US				
48	WO2010014130	COMPOSITION AND METHOD TO PREVENT OR REDUCE DIARRHE	US20080152520	2008-07-28	DIGESTIVE CARE INC	SIPOS TIBOR US   DAS SIMAR US2010021505A1	2			
49	WO2010012466	ANTITUMOR PROPERTIES OF NO MODIFIED PROTEASE INHIBITO	US20080085555P	2008-08-01	GANIAL IMMUNOTHERAPEUTICS NICOLETTI FERNANDINO IT	IT   WO201005770A8   WO201005637A3   US2004				
50	WO2010009335	DRUG DELIVERY MEDICAL DEVICE	US20080081691P	2008-07-17	MICELL TECHNOLOGIES INC	MCLAIN JAMES B US   TAYL WO2010121187A2   WO2011009096A1   US201	14	Yes		Yes
51	WO2010000459	CYCLOPROPYL POLYMERASE INHIBITORS	EP20080159396	2008-07-01	CENTOCOR ORTHO BIOTECH IN JONCKERS TIM HUGO MARIA	AP2010055050D   UY31950A   EP2141172A1   10				Yes

WO1994014436



# Annual Statistics <> Landscape <> Prior art

- Size of patent collection for landscape report
  - Macro level >10 000
  - Meso level 1000 – 10 000
  - Micro level <1000
- Search methodology and scope of search; data cleaning
  - Tailored searches for specific technology
    - Recall: Need to find all relevant patents ?
    - Precision: Can we tolerate noise, ie irrelevant patents ?
  - Generic searches
    - Predefined technology concepts/spaces (e.g. IPC codes)
    - Predefined time periods/geographies

# Patent Landscaping/Mapping stages

- **Defining scope of search/analysis**
  - **Patent search and preparation** of a **Collection of patents**, e.g.
    - patents claiming inventions related to biofuel
    - patents filed by company X
    - patents filed in Brazil in 2012
- +
- **Cleaning, Ordering and Analysis** of collection
- +
- **Visualiziation** ("patent mapping") + narrative/explanation
- (+)
- Deriving conclusions, recommendations<sup>\*</sup>)

**\*delicate task !**

# Patent information analyses

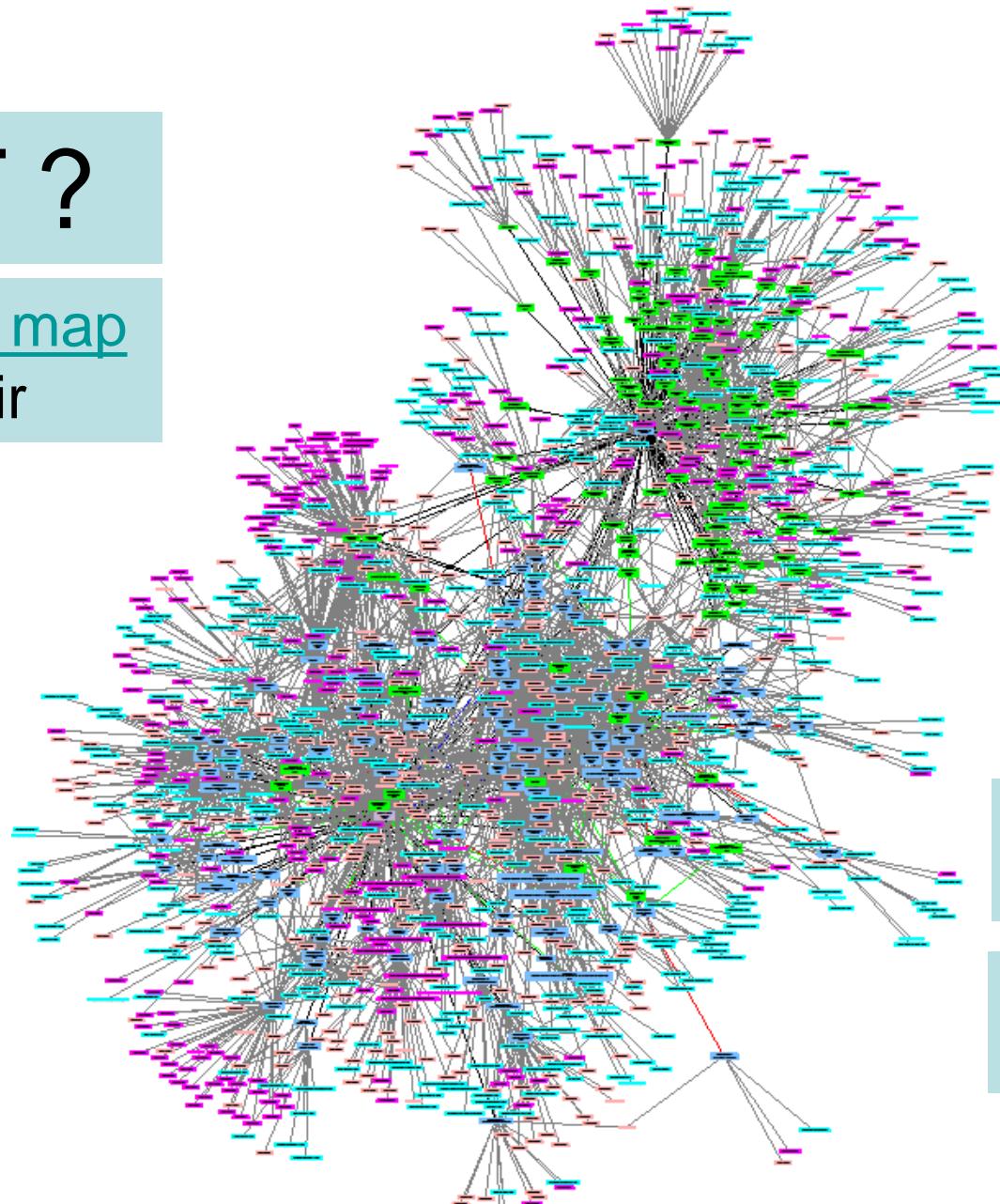
- Patent information is available as
  - **structured data:** bibliographic data (metadata; INID codes)
  - **unstructured data:** description, claims, sequence listings
  - **(image data:** drawings, chemical formula)
- **Data mining:** structured data enable an easy
  - statistical analysis (e.g. applications per year, per IPC, per office)
  - network analysis
- **Text mining** of unstructured descriptions/claims/abstracts
  - Determining linguistic (semantic) content/meaning/concepts
  - Similarity between documents (clustering)
- **(Intellectual analysis,** e.g. claim analysis for FTO)

# Structured/fielded data ("PDF view")

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(19) World			
<h2>Classifications</h2>			
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<p>(51) International Patent Classification:  <i>A01H 5/00</i> (2006.01)    <i>C12N 15/82</i> (2006.01)  <i>C12N 9/10</i> (2006.01)    <i>C12N 5/04</i> (2006.01)</p> <p>(21) International Application Number: PCT/US2006/049241</p> <p>(22) International Filing Date: 21 December 2006 (21.12.2006)</p> <p>(25) Filing Language: English</p> <p>(26) Publication Language: English</p> <p>(30) Priority Data: 60/753,818    23 December 2005 (23.12.2005) US</p> <p>(71) Applicant (<i>for all designated States except US</i>): ARCADIA BIOSCIENCES, INC. [US/US]; 202 Cousteau Place, Suite 200, Davis, CA 95616 (US).</p> <p>(72) Inventors; and</p> <p>(75) Inventors/Applicants (<i>for US only</i>): KRIDL, Jean [US/US]; 538 Reed Drive, Davis, CA 95616 (US). DEPAUW, Mary [CA/CA]; 9508 145th Street, Edmonton, Alberta, T5N 2W7 (CA). SHRAWAT, Ashok, K. [IN/CA]; Apt. 2011, 27 Saddleback Road, Edmonton, Alberta, T67 4M4 (CA). GOOD, Allen, G. [CA/CA];</p>			
<p>5727-107th Street, Edmonton, Alberta, T6G 2E9 (CA).  <b>THEODORIS, George</b> [US/US]  Vallejo, CA 94591 (US).</p> <p>(74) Agents: AMII, Lisa, A. et al.; Mc 425 Market Street, San Francisco, CA 94105-2482 (US).</p> <p>(81) Designations: <i>km</i> for every AL, AM, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, JP, LI, MZ, IN, IN, IN, IN, IN, IN, IN, IN, RU, SC, SD, SE, SG, SK, SI, SM, SV, SY, TI, TM, TN</p> <p>(84) Designations: <i>kin</i> GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).</p>			
<p><i>(Continued on next page)</i></p> <p><b>Publication number</b></p> <p><b>Filing date</b></p> <p><b>Priority data</b></p> <p><b>Applicant(s)</b></p> <p><b>Title</b></p>			
<p>(54) Title: NITROGEN-EFFICIENT MONOCOT PLANTS</p>			

# ART ?

Citation map  
Ritonavir



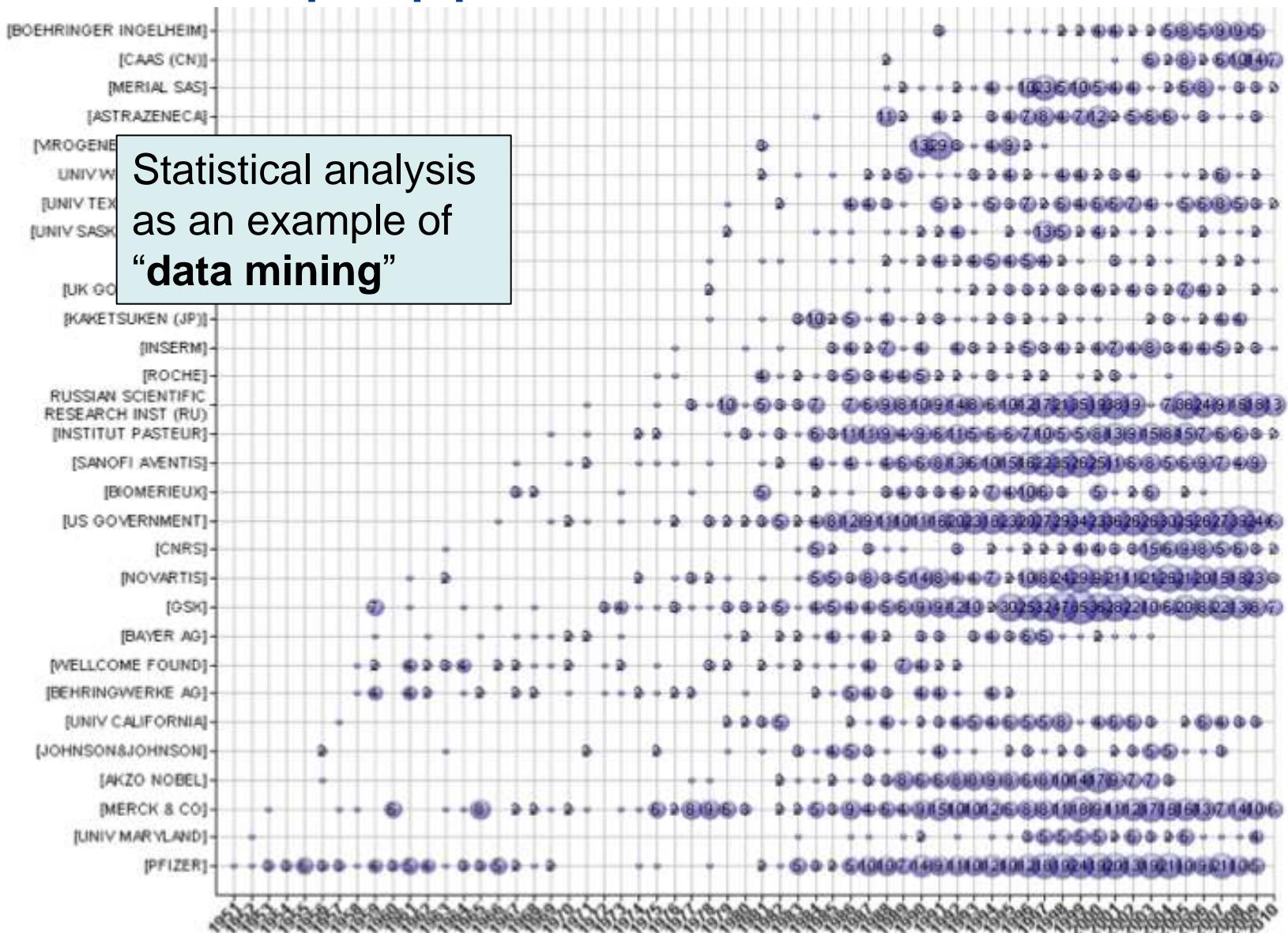
Each box:  
Patent family

Each line:  
Citation relation

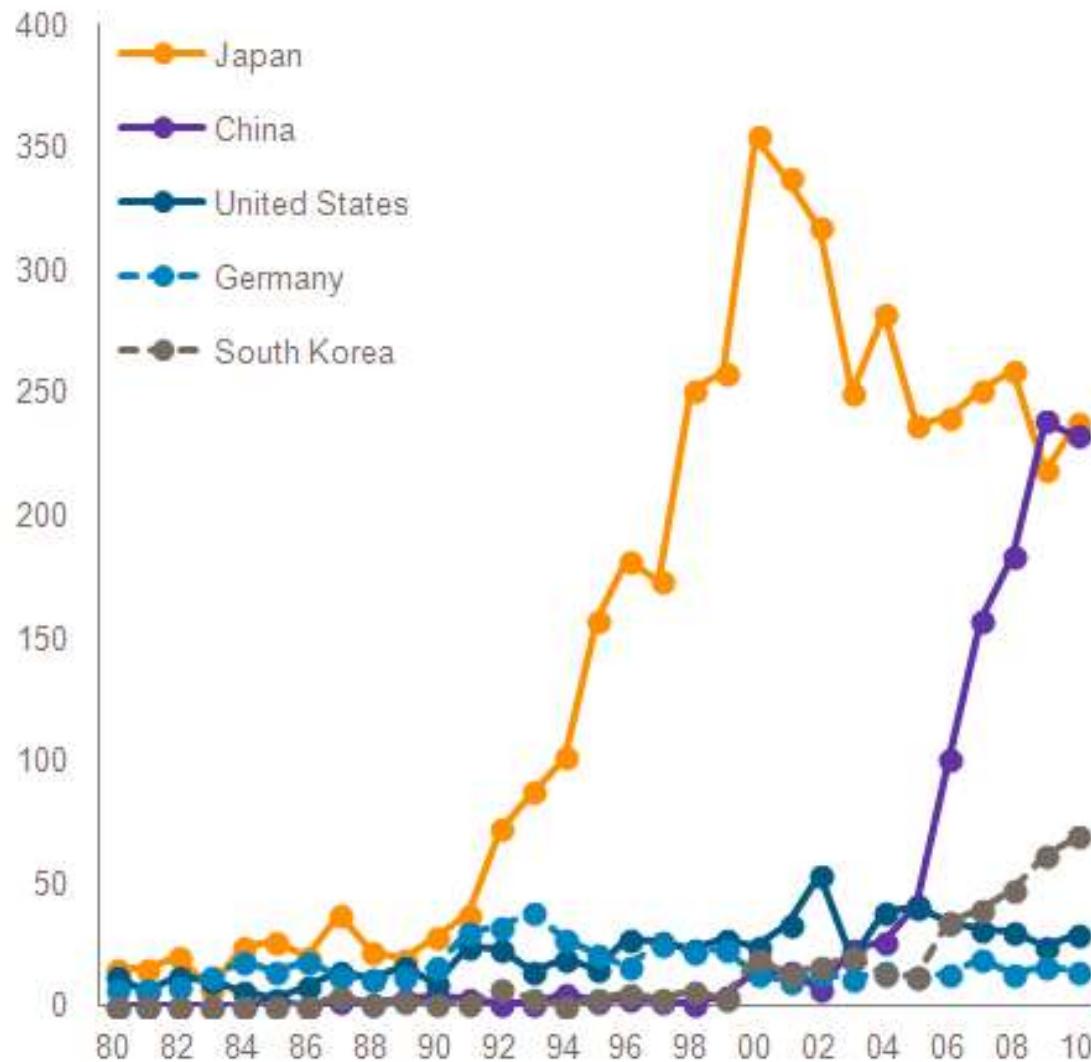
# Patent Information analyses

- What can we learn from such a network graph?
  - At first: Little
  - Too many details
- > Dig deeper: **mining of data for relevant details**
  - Data mining
  - Text mining
  - By using specific tools

# Vaccines: top applicant's time line



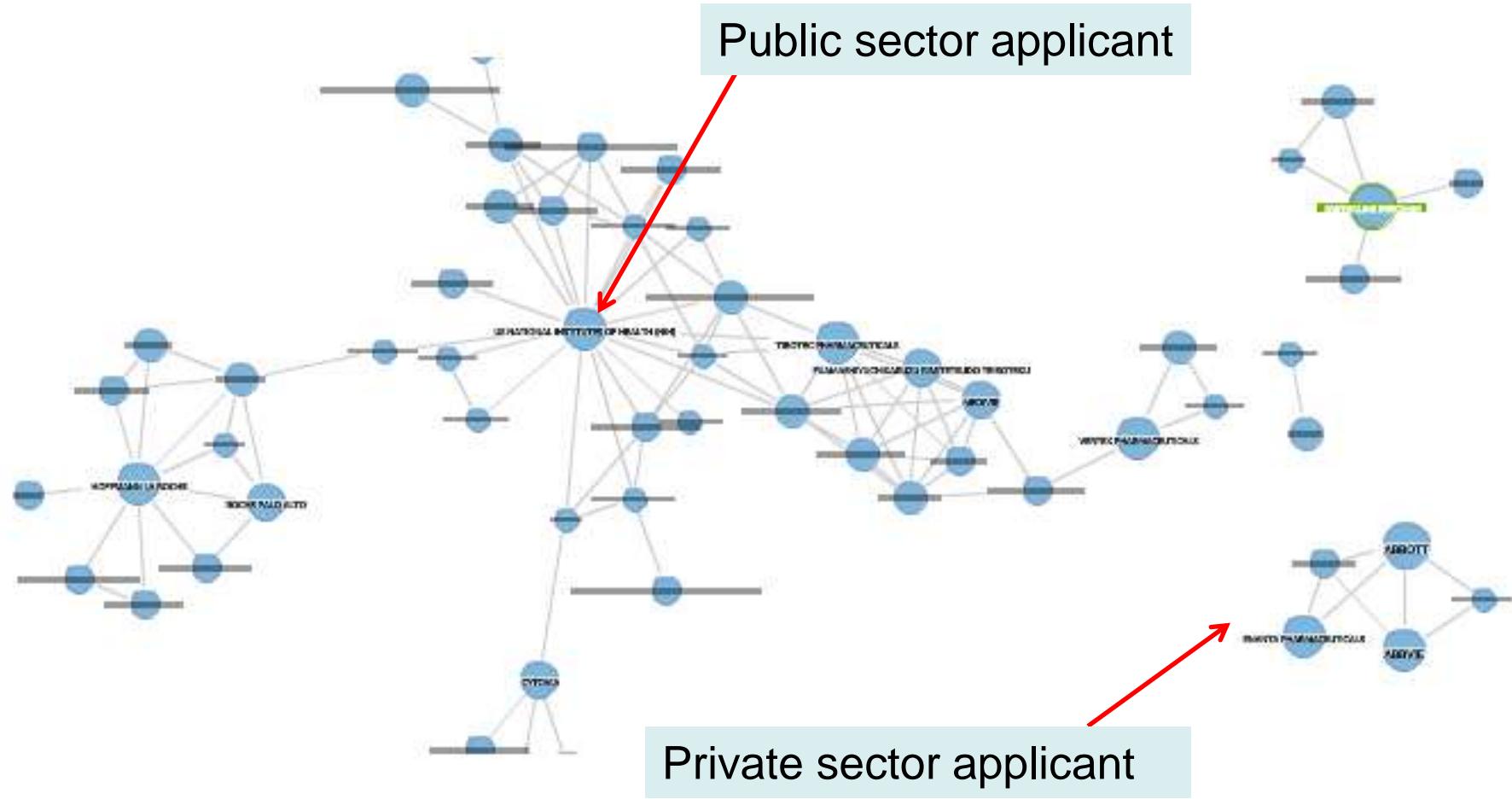
# Electronic waste management: top 5



Statistical analysis  
as an example of  
“data mining”

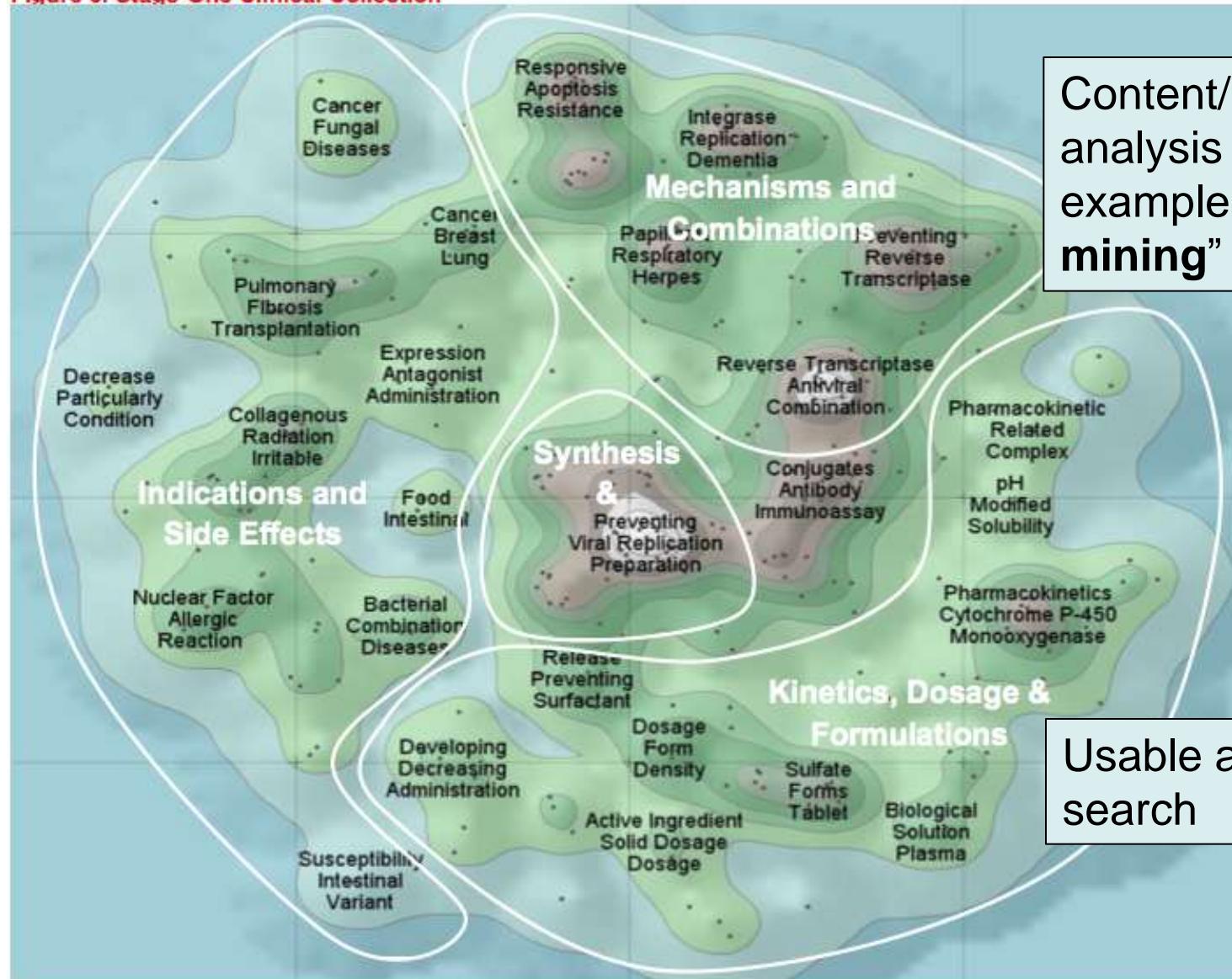
# Ritonavir co-assignments

Network analysis“ as an example of data mining



# Atazanavir patent cluster map

Figure 6. Stage-One Clinical Collection



Content/Concept analysis as an example of “text mining”

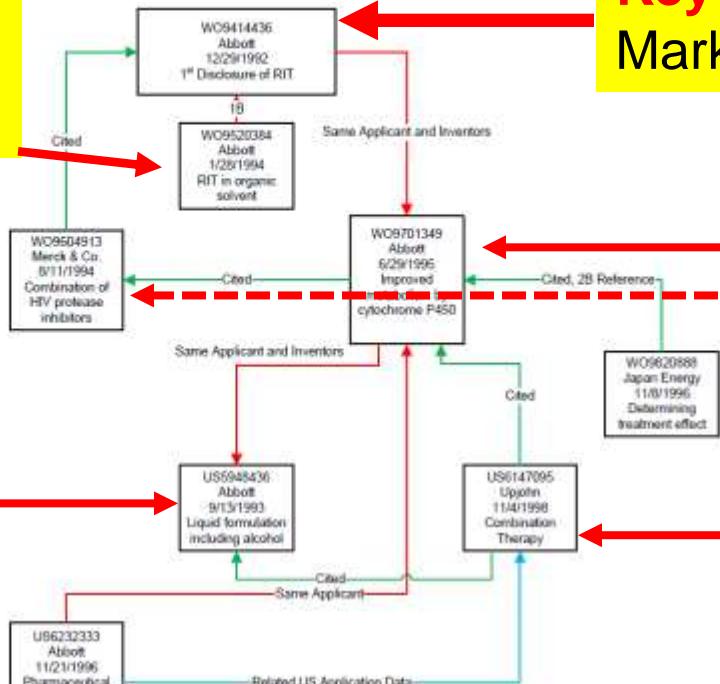
Usable also for search

# Innovation tracks liquid dosage Ritonavir

2nd generation  
1st liquid dosage  
no 3rd generation

## Innovation Track 1- Liquid Oral Dosage Forms

**Key patent:**  
Markush formula



2nd generation  
Combination  
Potentially liquid

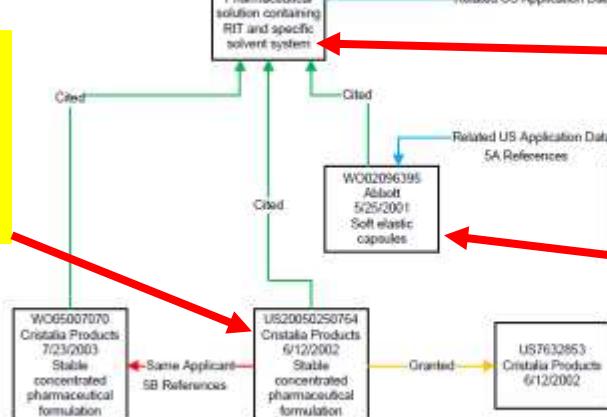
3rd generation  
Liquid dosage

3d generation  
Potentially liquid

5th generation  
More specific  
liquid dosage

4th generation  
Liquid dosage

5th generation  
Capsule for lq. Dos.



# Business questions

- Which technology trends exist and how have they developed over time?  
Emerging trends? Diversity of technologies?
- Where are the crowded areas ?
- Is it worth investing money in the development of a particular technology, or  
are there already solutions for our technical problem ?
  - Don't reinvent the wheel!
  - E.g. preparing request for research funding
- Are there any gaps or white spaces, i.e. areas with little patent protection, that  
permit business opportunities ?
  - What further applications or uses are possible ?
  - Which further adaptations or embodiments could be explored ?
  - What is not yet covered by patent claims ?

# Business questions

- Which players are the most active ?
- Which other patents are most relevant for our own activities ?
  - Infringement, licensing-in, collaborations
- Is there freedom to operate ?
- Does a product infringe patent rights ?
- Which patents are about to expire ? Which technologies move in the public domain and provide business opportunities ?
- Patent portfolios of companies ? Their value?
- Who bought or sold IP rights ?
- What is the value of a patent portfolio ?
  - Preparing merger and acquisitions

Thank You for Your Attention!

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