



# LENS.ORG

Solving The Problem Of Problem Solving™

## The Lens: An ‘Innovator’s Perspective’

World Intellectual Property Organisation

Standing Committee on the Law of Patents

Dec 4, 2018

Richard A. Jefferson PhD

CEO & Professor of Biological Innovation



# The Jigsaw Puzzle and Science- and Technology-Enabled Problem Solving (STEPS)

Creating products and practices for improved health is like assembling a jigsaw puzzle of capabilities.

Patents are only one type of piece of the puzzle.

Scholarly, Regulatory, Standards & Clinical Knowledge, Manufacturing & QC, Market, Policy & Support Capabilities are all equally important.

Understanding how patent knowledge and patent rights impact the assembly of the puzzle is crucial.







# nature INDEX 2017 INNOVATION

NATURE INDEX | 2017 NATURE, VOL. 548, ISSUE NO. 7666 (10 AUGUST 2017)



FOCUS KEY  
RICHARD JEFFERSON

## TURNING SCIENCE INTO SOCIAL OUTCOMES

For innovation to bring public benefit, mapping the influence of academic papers is just the beginning

It takes much more than science to make an impact on society. The complex nature of modern innovation requires assembling a jigsaw puzzle of complementary and essential capabilities before benefits reach the public as useful and affordable products. These include research findings, intellectual property, market and manufacturing knowledge, quality assurance, and legal standards, and regulatory compliance.

Finding, understanding, visualizing and assembling these capabilities is expensive and difficult. Knowledge lies in silos of specialization, curated and overseen by expensive, skilled, practitioners. These silos must be joined and mapped of the social and economic outcomes from science and technology are to be increased and the benefits more equitably distributed.

To develop maps of how science and technology influence industry, the idea of 'innovation cartography', the primary knowledge corpus need to be open, linked, standardized and made more meaningful. Openness is essential to achieve a truly effective ecosystem.

Patents are a critical part of the primary knowledge corpora. They are a main tool in the innovation strategy used by the private sector, but rarely by the public sector, to reveal findings and innovations that have not reached economic use.

Because a patented invention must be publicly disclosed, patents offer a valuable insight into the actors, capabilities and aspirations of inventive product developers. They also contain metadata links to diverse knowledge, including people and institutions, science, standards, legal and regulatory issues. Almost 50 million patent inventions disclosed in the last 100 years include aspects of virtually all technology in use today.

But, simply indexing the performance of the public sector by counting a university or scholar's patents or patent applications is of marginal use to determine or improve innovation. In many cases, these patents are non-performing — most are never licensed — and mainly indicate the ambitions of the

academic applicant, and the willingness of the university's commercialization office to fund the application in anticipation of licensing revenue. It is more often patents owned by third parties, informed by and citing academic work, that expose the influence of research on the development of products and services.

To map such influence on industry and the innovation process, we need to combine published research with the patent corpus.

When patents are filed, the applicants or the patent examiners often cite published scholarship that informs, contextualizes, influences or enables their new inventions. By linking these published citations to meaningful identifiers, we can begin connecting the two bodies of knowledge, creating an influence map.

Two often this process is tied up with programmes conducted by academic staff who either know next care about third intellectual property considerations. Understanding the patent landscape on content and more transparent partnerships. Most innovative businesses spend up to understand and map the knowledge patent ecosystem in which they work cannot afford not to do it — the legal and financial and technical risks from inaction are too great.

For the public sector, or for public targets, the same constraints and needs that they cannot afford it, nor is it part culture of public science and inventing it must be done.

The challenge is to make it cheap and more effective to join the know corpora in a way that increases the value for all participants, public and private, and enables more effective and equitable policy and practice of innovation.

Richard Jefferson is professor of Biological Innovation at Queensland University of Technology in Australia, and the founder of Cambia, a social enterprise, and Lens.org, a free, open, private and secure format that encourages scientists and innovators to discover and build bridges with the other actors in the innovation system.

Consider a disease vaccine whose lack of profitability means private industry alone is not justified the investment and risks of commercialization.

## GAME-CHANGERS

Some papers have a profound and obvious influence on future research and industry applications. Patents citing these life science papers indicate their bearing on developments which have widespread health implications.

Lists of the most highly cited academic articles garner considerable attention from the research community. But articles that are highly cited in patents don't receive the same attention. This is surprising given the demand from governments that scientists demonstrate the societal or economic value of their research. Citations of articles in

patents are a general indicator of the dynamic between science and technology, and can infer that a piece of research has influenced an invention (see Patently clear). Here, the index profiles three life science articles that have been highly cited in patents. Each article has had profound impact on industry and, eventually, consumers. The 5 papers were

selected from the Lens platform, based on articles cited in patents. Each paper had been cited in more than 1,000 patent families by 2016. Patent families represent a single invention. Inventors often file patents in multiple countries, which is why the number of citing patents is larger than the number of patent families.

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David Lipman, who co-authored the BLAST paper, which has been cited in at least 4,000 inventions according to patent document in the Lens database.

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## PATENTS OPEN

### Mapping the global influence of published research on industry and innovation

Osmat A Jefferson<sup>1,3</sup>, Adam Jaffe<sup>1,2</sup>, Doug Ashton<sup>3</sup>, Ben Warren<sup>3</sup>, Deniz Koellhofer<sup>1</sup>, Uwe Dulleck<sup>4,5</sup>, Aaron Ballagh<sup>1</sup>, John Moe<sup>6</sup>, Michael DiCuccio<sup>6</sup>, Karl Ward<sup>7</sup>, Geoff Bilder<sup>7</sup>, Kevin Dolby<sup>8</sup> & Richard A Jefferson<sup>1,3</sup>

Measuring citations to scholarly works in the global patent literature enables assessment of the influence of published research on invention, industry and enterprise, at the individual and institutional level.

Public research is critical to the economy and to society. However, tangible economic and social impact occurs only when research outputs are combined, used and reused with other elements and capabilities, to deliver a product, practice or service. Assessing the context and influence of scholarship during the dynamic process of innovation rather than measuring *ex post* impact, may improve performance. With this aim, we have integrated and interconnected scholarly citations with the global patent literature and created new tools to link the scholarly literature with the patent literature. The resulting tools we present here enable diverse stakeholders to freely evaluate the influence published research has on the generation and potential use of inventions as reflected by the patent system. We outline an evolving toolkit, Lens Influence Mapping, that allows assessment of individual scholarly works and aggregated outputs of authors for influence on industry and enterprise, as measured by citations within patents. This performance measure, applied at many levels and normalized by either research disciplines

or technology fields of use, may expose and highlight institutional strengths and practices, and guide future partnerships.

Public investment in science and technology is increasingly expected to demonstrate social and economic benefits<sup>1–4</sup>. Much effort has been focused on developing metrics, databases and methodologies for identifying and quantifying impacts of past investments and actions<sup>5–7</sup>. Understanding the connections between desired outcomes and research conducted many years earlier will at best provide signposts for current public policy or to help evaluate past policy. But in rapidly evolving and complex innovative environments, this *ex post* assessment provides limited guidance as to how to improve performance. We need tools that provide guidance throughout the trajectory of innovations that can increase the likelihood of impact in the future.

The term 'impact' implies causation. Research findings can strongly influence or enable the development of a product or service with economic value, but a particular piece of scholarship rarely 'causes' the delivery of such products or services. The concept of influence, rather than impact *per se*, reveals one-to-many relationships or many-to-many relationships and surfaces opportunities to alter decisions and partnerships dynamically to enhance uptake of the scholarship.

For instance, contributions such as DNA and protein sequencing methods by Fred Sanger<sup>8</sup>, monoclonal antibodies by Kohler and Milstein<sup>9</sup>, or BLAST algorithms by Lipman, Altschul et al.<sup>10</sup> have influenced and inspired tens of thousands of scholarly works and similar numbers of patented inventions that

led to many products, without being themselves patented or monetized by the authors' institutions.

Few, if any, products in the marketplace are produced solely by public research institutions, and while spinouts may contribute some inventions, almost all products and services with social and economic impact require an innovation system<sup>11</sup> and participation by diverse actors, to assemble complementary capabilities with diverse incentives and norms. Aligning these incentives, minimizing risk, decreasing transaction costs between these actors and motivating them in common pursuit of product development is thought to be the fundamental driver behind the evolution of companies, as articulated by Coase<sup>12</sup> 'The Nature of the Firm'<sup>10</sup>. Optimum choices of persistent partnerships in product development will determine the effectiveness of any attempt to use science and technology as a critical component in innovation. For outcome-oriented philanthropy or for public funding that seeks a deliverable product to improve the public good (e.g., a vaccine), these considerations should be paramount and should drive decisions. Regrettably, for much public investment, they are not paramount.

Modern innovation — the marketplace introduction of a new product or practice<sup>13</sup> — requires the aggregation of scientific and intellectual property (IP) rights, regulatory compliance, and manufacturing or marketing capabilities<sup>14</sup>, among many others. Can we learn from this evolution of company behavior to generalize interventions that make all innovation more effective and efficient, especially that for good public outcomes?

Here, we offer new open tools, including a new application, Pat.Cite, for any party, not only

<sup>1</sup>Queensland University of Technology (QUT), Brisbane, Queensland, Australia. <sup>2</sup>Mota Economic and Public Policy Research, Wellington, New Zealand. <sup>3</sup>Cambia, Canberra, Australia. <sup>4</sup>AMU, Research Services Division, Canberra, Australia. <sup>5</sup>CESifo Ludwig-Maximilians-Universität, Center for Economic Studies, Munich, Germany. <sup>6</sup>National Library of Medicine, National Institutes of Health, Bethesda, Maryland, USA. <sup>7</sup>Crossref/Inflow Centre for Innovation, New Road, Oxford, United Kingdom. <sup>8</sup>Medical Research Council, London, United Kingdom. <sup>9</sup>e-mail: osmat@cambia.org



The screenshot shows the LENS.ORG Scholar Results page for the search term "climate change mitigation". The page is divided into several sections:

- Filters:** Includes options for Date Range, Flags, Open Access, Cited by Patent, Abstract, Indirect Full Text, Substance, Funding, Clinical Trials, Affiliation, Field of Study, Keywords, and MeSH Term.
- Scholarly Works:** Lists search results with details such as "Industrial Energy Efficiency and Climate Change Mitigation" by Ernst Worrell, Leny Bernstein, Jayashree Ray, Lynn Price, and Jochen Hornisch. It includes metrics like "182 Works in Set", "497 Patent Citations", and "26,670 Scholarly Citations".
- Cited Institution:** Displays logos for CSIC, Berkeley Lab, Columbia University, and Carnegie Mellon University.
- Timeline of cited works based on publication year:** A small chart showing the distribution of cited works over time.

Siloed Knowledge can now be linked and interpreted in various contexts. Features can be used openly, freely and securely.

The screenshot shows the LENS.ORG Patent Results page for the search term "Parkinson". The page is divided into several sections:

- Filters:** Includes options for Date Range, Jurisdictions, Inventors, Owners (102), Applicants, Cited Works, Document Families, Classifications, Document Types, Collections, and Query Tools.
- Patent Results:** Lists search results with details such as "Treatment Of Parkinson's Disease With Cape" and "Methods For Treatment Of Parkinson's Disease". It includes metrics like "11,367 Patent Results (40,877 families)".
- Counts of citing patents based on publication date:** A line graph showing the number of citing patents over time, with a significant increase starting around 2010.
- Jurisdiction of the Citing Patents:** A world map showing the geographical distribution of citing patents, with a concentration in North America and Europe.



# Free

Everyone gets the best we have at no cost; NOT 'Freemium'.

The ability for anyone to create new value should not be constrained by access to critical knowledge.



Our data is open, global and can be accessed, used, reused and shared by anyone.

We don't discriminate by who you are or where you are. We aspire to help problem solvers in any jurisdiction and any language.



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We don't share or sell any knowledge of your use of The Lens. We don't allow web beacons or click-trackers to monitor your experience. We don't keep track of what you do (unless you ask us to). We don't advertise or let others advertise on Lens. And we avoid any third party software and analytics that could expose your use to others.



Innovator's imperative:  
be in control of your own  
creative journey.

Privacy is the new  
battleground for public good  
on the internet.

A responsible public  
agency will respect this.

The screenshot shows the LENS-ORG interface with a search result for 'Altschul Et Al. Journal of Molecular Biology (1990);215(3),403-410'. The main content area lists several publications with details such as title, date, family, and patent information. A sidebar on the right shows a 'Publications By Year' chart and a list of 'Applicants' including Danisco, Pioneer, and University of California. The bottom of the page features the LENS-ORG logo and contact information.



# The Google journey - 'every click you make...

Google Patents

arthur ouwehand
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SEARCH TERMS ⓧ

+ *Synonym*

SEARCH FIELDS

Date · Priority ▾

YYYY-MM-DD — YYYY-MM-DD

👤 arthur ouwehand ✕ or + *Inventor*

📅 + *Assignee*

Patent Office ▾ Language ▾

Status ▾ Type ▾

About 20 results ↓ Download 📄 Side-by-side

Sort by · Relevance ▾ Grouped by · None ▾ Results / page · 10 ▾

**Animal feed product**

EP WO · [Application WO2008155536A1](#) · Hagen Klaus Schulze · Danisco A/S

Priority 2007-06-18 · Filing 2008-06-17 · Publication 2008-12-24

The present invention provides an animal feed additive obtainable by: (a) mixing water, an emulsion stabilizer and a physiologically acceptable carrier to form a gum solution; (b) adding to the gum solution, separately or combined, an oil blend comprising: (i) cinnamaldehyde and (ii) a compound ...

**Use of probiotic microorganisms for the treatment and prevention of obesity and ...**

CN EP JP RU US WO · [Application WO2007085970A2](#) · Nina Rautonen · Danisco A/S

Priority 2006-01-27 · Filing 2007-01-26 · Publication 2007-08-02

Use of at least one strain of a microorganism and/or a metabolite thereof in the manufacture of a support for administration to a subject for modulating satiety signalling, wherein the support is a pharmaceutically acceptable support or a food product. Suitably, the at least one strain of a ...

**Probiotic bacteria for the topical treatment of skin disorders**

EP US WO · [Application WO2012150269A1](#) · Heli Putaala · Dupont Nutrition Biosciences Aps

Priority 2011-05-03 · Filing 2012-05-02 · Publication 2012-11-08

The present invention relates to a probiotic bacteria, and/or soluble metabolite of a probiotic bacteria and/or a cell lysate of a probiotic bacteria for use in the treatment of a disorder associated with Tight Junction function, characterised in that the probiotic bacteria, soluble metabolite of ...

**Probiotics for use in reducing the incidence and duration of illness**

CN DK EP ES JP KR US WO · [Application WO2008042101A2](#) · Gregory Leyer · Danisco A/S

Priority 2006-10-02 · Filing 2007-09-14 · Publication 2008-04-10

The present invention provides probiotic compositions suitable for reducing the incidence and duration of human illness. In particular, the present invention provides methods and compositions suitable for preventing disease in young children. In some particularly preferred embodiments, the present ...

**Probiotics for inducing satiety and/or satiation**

CA CN EP JP US WO · [Application WO2009014421A1](#) · Marta Zdzisława Korczynska · Campina Nederland Holding B.V.

Priority 2007-07-25 · Filing 2007-07-25 · Publication 2009-01-29

The invention relates to the field of nutrition and medicine. Provided are compositions, bacterial strains and methods for inducing or enhancing satiety and satiation and for treating or preventing obesity, overweight and overweight related diseases.

Top 1000 results by filing date

Relative count of top 5 values

Assignees	Inventors	CPCs
<ul style="list-style-type: none"> <li><span style="color: blue;">■</span> Danisco A/S</li> <li>A23L33/135 A23L33/10 A23K50/75 A23K50</li> </ul>		35%
	<ul style="list-style-type: none"> <li><span style="color: red;">■</span> E. I. Du Pont De Nemours And Company</li> <li>C12Y204 A61K31/716 C12P19/08 C12Y204/00</li> </ul>	30%
	<ul style="list-style-type: none"> <li><span style="color: orange;">■</span> Dupont Nutrition Biosciences Aps</li> <li>A61K35/745 A61K35/66 A61K35/744 A61K35/74</li> </ul>	20%
	<ul style="list-style-type: none"> <li><span style="color: purple;">■</span> Campina Nederland Holding B.V.</li> <li>A23L33/135 A23L33/10 A61K35/744 A61K35/74</li> </ul>	10%
	<ul style="list-style-type: none"> <li><span style="color: teal;">■</span> Bioferme Oy</li> <li>C12R1/01 A23L7/00 C12Q1/04 A23L7/10</li> </ul>	5%
Expand		



# The Google journey - 'every link you take...



The image is a collage of overlapping screenshots from various Google services and a journal. At the top left, there is a decorative binary code pattern. On the right side, there is a green circular icon with a white silhouette of a person wearing a hat and a suit. The main content consists of several overlapping windows:

- Google Scholar:** A screenshot showing a search for "Arthur C. Ouwehand" with filters for "Any time" (Since 2018, Since 2017, Since 2014, Custom range), "Sort by relevance", and "Sort by date". It also shows a list of articles and a "ScienceDirect" logo.
- Google Account:** A screenshot of the "Activity controls" page, showing a toggle for "Web & App Activity" which is turned on. Below the toggle, it says "Saves your activity on Google sites and apps, including associated info like location, to give you faster searches, better recommendations, and more personalized experiences in Maps, Search, and other Google services. Learn more". There is a checkbox for "Include Chrome history and activity from sites, apps, and devices that use Google services" which is checked. Below that is a "MANAGE ACTIVITY" link and a note: "Activity may be saved from another account if you use a shared device or sign in with multiple accounts. Learn more at support.google.com."
- Scientific Reports:** A screenshot of a journal article page. The header shows "nature > scientific reports > articles > article" and "a natureresearch journal". The article title is partially visible: "oil increases on via gut". The authors listed are "Gagliano, Sargurunathan Hariom Yadav". The page includes a "Download PDF" button, "Citations" (0), "Altmetric" (438), and "Article metrics". There are tabs for "Sections", "Figures", and "References". The "Sections" tab is active, showing a list of sections: Abstract, Introduction, Results, Discussion, Conclusions, Methods, Additional information, References, and Acknowledgements.

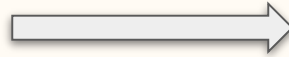


The Google journey - 'every click you make, every link you take...they'll be watching you.'



The stack of windows includes:

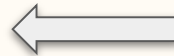
- Google Scholar profile for Arthur C. Ouwehand, Technical Fellow, Health and Nutrition Sciences, DuPont Nutrition & Health.
- ScienceDirect search results for 'multistrain probiotics impact on gut health' and 'insulin levels probiotics effects effects of the intestinal microbiota role of bacteria bowel syndrome'.
- Scientific Reports article page: 'Human-origin probiotic cocktail increases short-chain fatty acid production via modulation of mice and human gut microbiome' by Ravinder Nagpal, Shaohua Wang, Shokouh Ahmadi, Joshua Hayes, Jason Gagliano, Sangrunathan Subashchandrabose, Dalane W. Kitzman, Thomas Spector, Russel Read & Harison Yadav. Published: 23 August 2018.



The profile page features the DuPont logo at the top. Below it, the text reads 'Arthur Ouwehand: A Passion for Probiotics'. A large red banner contains the name 'ARTHUR OUWEHAND' and '2017 DuPont Pedersen Medalist'. To the right, a 'RELATED LINKS' section lists: 'Have You Eaten Your Bifidobacteria Today?', 'Striving for Sustainability', 'Lavoisier Medalist Focuses on Research', 'Creating New Food Ingredients', and 'Dave Rodini - 2017 Pedersen Medalist'. A portrait of Arthur Ouwehand is shown on the right side of the banner.



The product page features a large image of various food items including a glass of pink yogurt, a loaf of bread, a slice of ham, and a wedge of Swiss cheese. The text below the image reads 'DUPONT NUTRITION & HEALTH'. At the bottom, there is a 'QUICK LINKS' section with 'Food Insights' and 'Food & Beverage'.





**patsnap**

Products S

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**16**

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**TRACKERS** Block All

Collapse All

- 1 TRACKER
- Google Tag Manager
- Site Analytics** 3 TRACKERS 1 BLOCKED
  - Google Analytics
  - New-Relic
  - LinkedIn Analytics
- Social Media** 1 TRACKER 1 BLOCKED
  - Facebook-Connect

List View

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# 'Free' can cost a great deal

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**FPO** DRIVING IP FORWARD

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SEARCH RESEARCH MP

Expert Search Quick Search

Click here for [syntax instructions](#), [field abbreviations](#) and [character sets](#)

US Patent  US Patent  EP document  Abstract  WIPO (F)  German

Search Reset

**Coverage Details:** Coverage details for the patent database

Note that most fields support Phrase (ABST/"cardboard box"), Proximity (ABST/"cardboard box"~5), Wildcard (ABST/card\*), and Leading Wildcard (ABST/\*ectomy) queries. Some fields support range queries and math operations. Only basic examples are provided below. See the [syntax guide](#) for advanced syntax details.

**GHOSTERY** Simple View Detailed View

2

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Trackers Blocked: 2  
Page Load: 0.65 secs

Trust Site  
Restrict Site  
Pause Ghostery

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Map These Trackers

**TRACKERS** Unblock All

Collapse All

Advertising 1 TRACKER 1 BLOCKED

Google AdSense

Site Analytics 1 TRACKER 1 BLOCKED

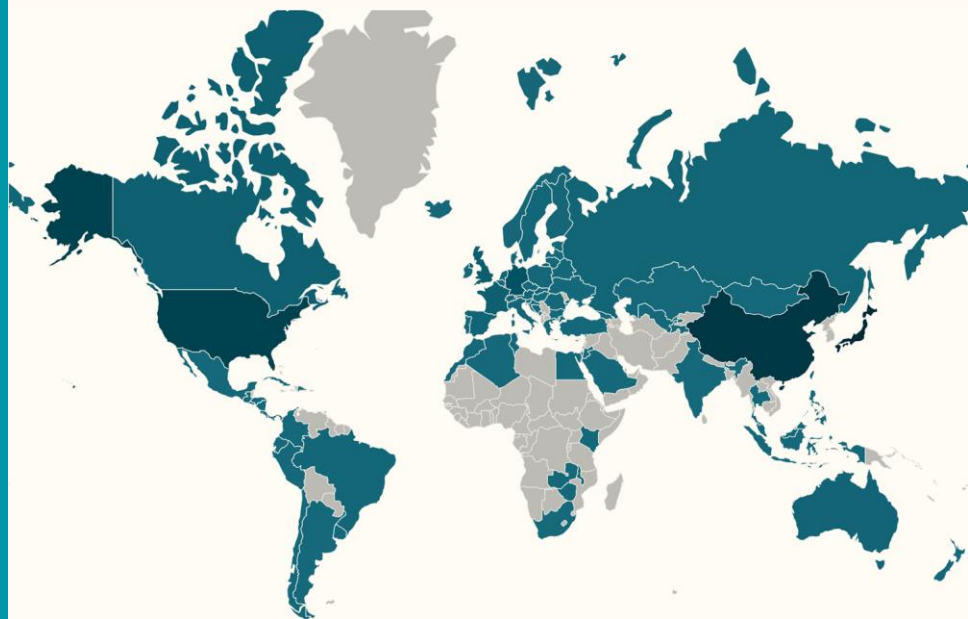
Google Analytics

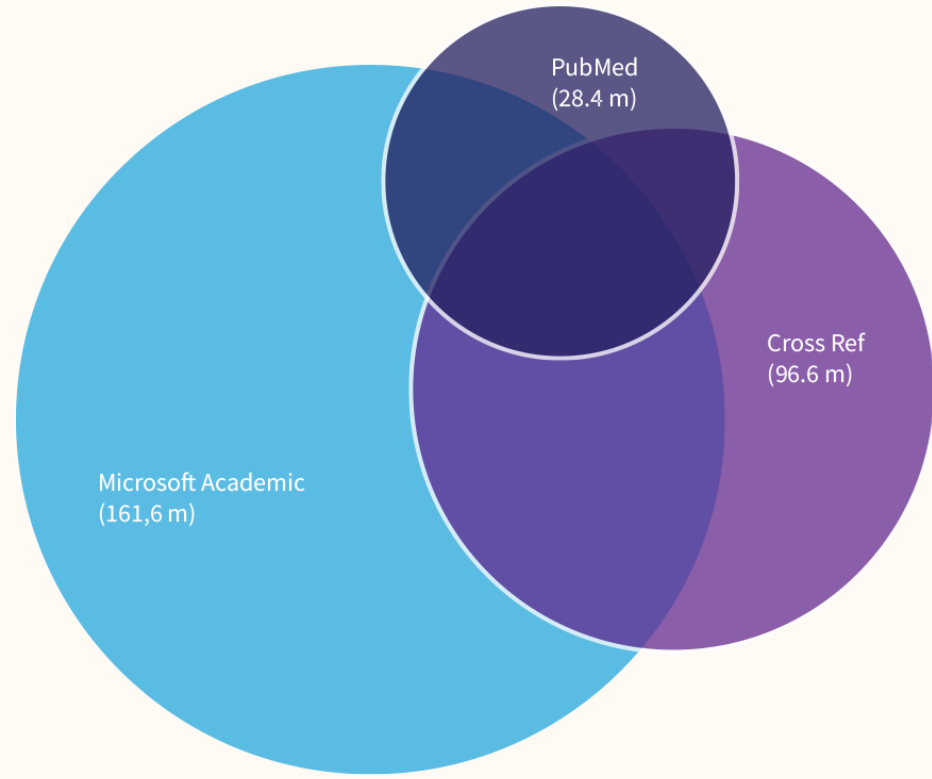
List View

# Lens Patent Data

112 Million Patent Records:

- 95 jurisdictions
- 61M patent families
- 550k biological patents
- 300M patent sequences





# Lens Scholarly Data

195 million scholarly records:

- 103M journal articles
- 13.2M Books and book chapters
- 6.3M conference proceedings
- 3.7M works cited in patents
- 61.7M works cited by other scholarly works
- 1.3B scholarly citations



# Patents

Features	EPO Espacenet	Google Patents	WIPO PatentScope	Lens
Jurisdictions	90+	17	41	95
Sequence Data	No	No	No	550k biological patents
Collections & Portfolios	Yes	No	No	Yes
Graphing and Analysis	No	Yes	Yes	Yes
Alert Service	RSS only	No	RSS Only	Yes

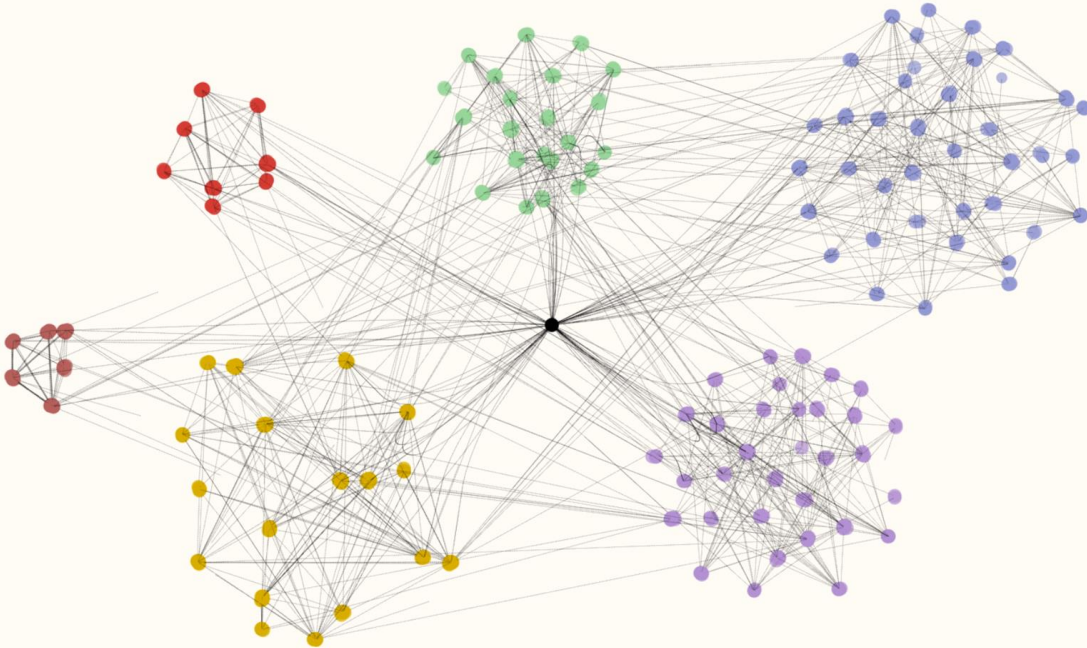


# Scholarly Works

Features	Elsevier's Scopus	Clarivate Analytics Web of Science	Google Scholar	Lens
Number of Journals	23,700	33,000	unknown	39,594
Number of Works	72,000,000	105,000,000	389,000,000 (est.)	194,830,509
Period Covered	1996 -	1900 -	unknown	1800 -
Citation Analysis	Yes	Yes	Yes	Yes (patents & scholar)
Bulk Export	20,000 records	5,000 records	unknown	50,000 records

# Our Special Sauce

Linkages between data silos



**112M** Patent Records

**61M** Patent Families

**963k** US Owners

**195M** Scholarly Works

**30M** Authors

**19k** Research Organizations

**3.7M** Works cited in patents

**1.3B** Scholarly citations

**300M** Bio Sequences

# Lens history:

Founded in 2000, Lens was the world's first free and open full text patent search.

Lens has been up 24/7 for 18 years

Now serves global scholarly knowledge and analytics integrated with patents.

Lens created In4M - measuring influence of research through its citations in patents.

Lens is been supported by philanthropies, governmental donors, universities, visionary patent offices.

Lens honors privacy and its data is fully open and reuseable and combinable.





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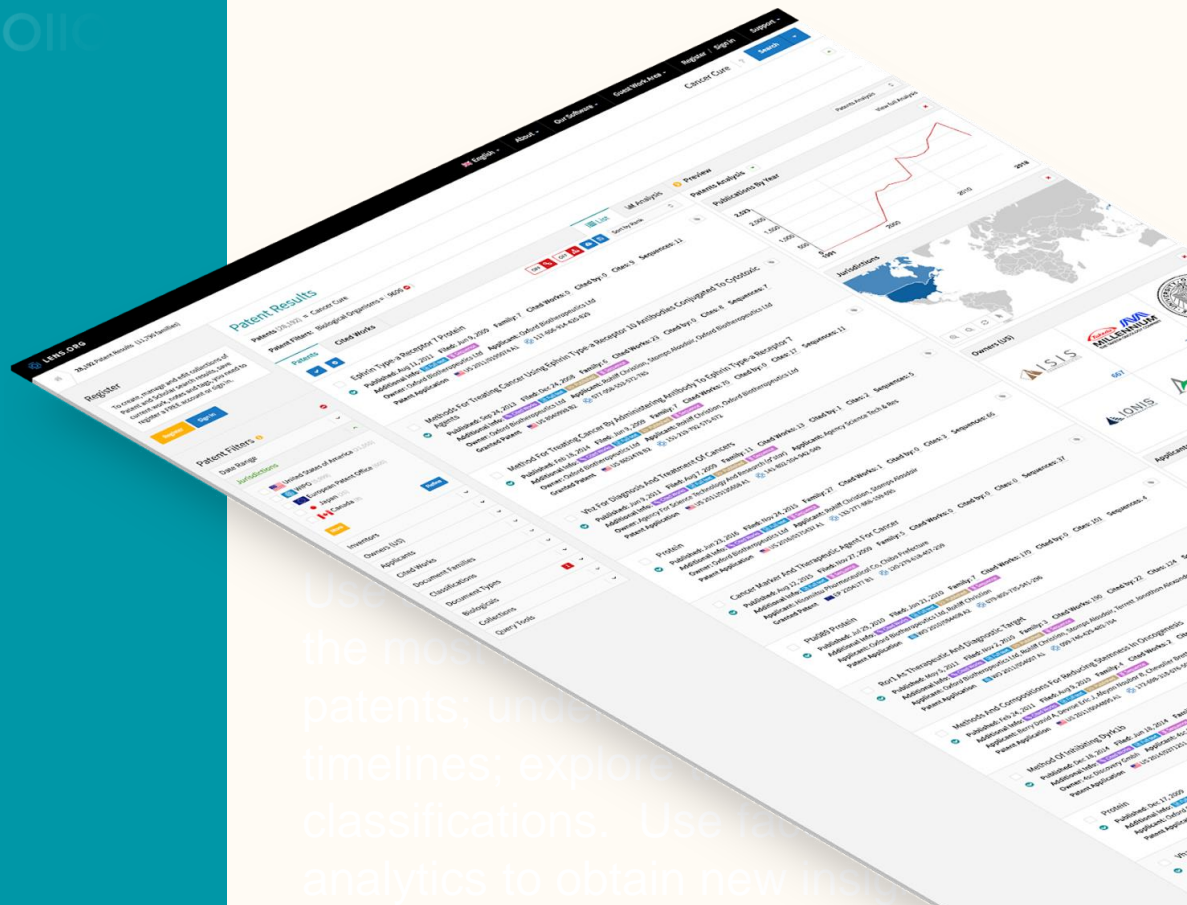
GORDON AND BETTY  
MOORE  
FOUNDATION





# PATENT Search & Analysis

Use advanced search options to find the most relevant and important patents; understand their families and timelines; explore the richness of classifications. Use facets and analytics to obtain new insights. .



Use the most relevant and important patents; understand their families and timelines; explore the richness of classifications. Use facets and analytics to obtain new insights.



# SCHOLARLY Search & Analysis

Find, collect and explore scholarly literature, fetch open access works and discover the influence of scholarship on both academia and industry. Share your findings with anyone.



PATCITE

# Patents & Scholarship

Discover which scholarly articles have influenced what patents and who is using scholarly work to build products. Visualise linkages and explore networks of collaborations.

The screenshot displays the LENS.ORG interface. On the left, there's a search sidebar with filters for 'Your search query', 'Filter your search', 'Classification', and 'Export results'. The main content area shows search results for 'Patents' with a list of 5 items, each with a title, earliest priority date, and a link to view the full family. A large network visualization is centered on the page, showing a central node 'EP 0485887 A2' connected to numerous other patent nodes. A legend at the bottom right explains the node types: Application, Granted, Other, NPL citation, Parent family, Parent, NPL citation, awarded US, and NPL citation, awarded yet.

Showing 1 to 20 of 1,037 patent families.

Number of QNPL: 2

Search Results

1. Methods for generating chemically sensitive sample and hold sensors  
Earliest priority date: 14 Dec 2006  
Class 2 QNPLs  
View full family (31 members) in The Lens IP  
+ 29 citing patent members in this family
2. Method for analysing sword  
Earliest priority date: 30 Mar 2011  
Class 2 QNPLs  
View full family (5 members) in The Lens IP  
+ 1 citing patent members in this family
3. Diagnosing fetal chromosomal aneuploidy using massively parallel genomic sequencing  
Earliest priority date: 23 Jul 2007  
Class 2 QNPLs  
View full family (108 members) in The Lens IP  
+ 23 citing patent members in this family
4. Diagnosing fetal chromosomal aneuploidy using paired end sequencing  
Earliest priority date: 23 Jul 2007  
Class 2 QNPLs  
View full family (12 members) in The Lens IP  
+ 2 citing patent members in this family
5. Non-invasive fetal genetic screening by digital analysis  
Earliest priority date: 02 Feb 2006  
Class 2 QNPLs  
View full family (29 members) in The Lens IP

20 Results | Page: 1 | 2 | 3 | Next >

LENS.ORG The Lens is a joint initiative of Centrica and Queensland University of Technology

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# In4M

Using patent citations to map the influence of scholarship on academia and industry

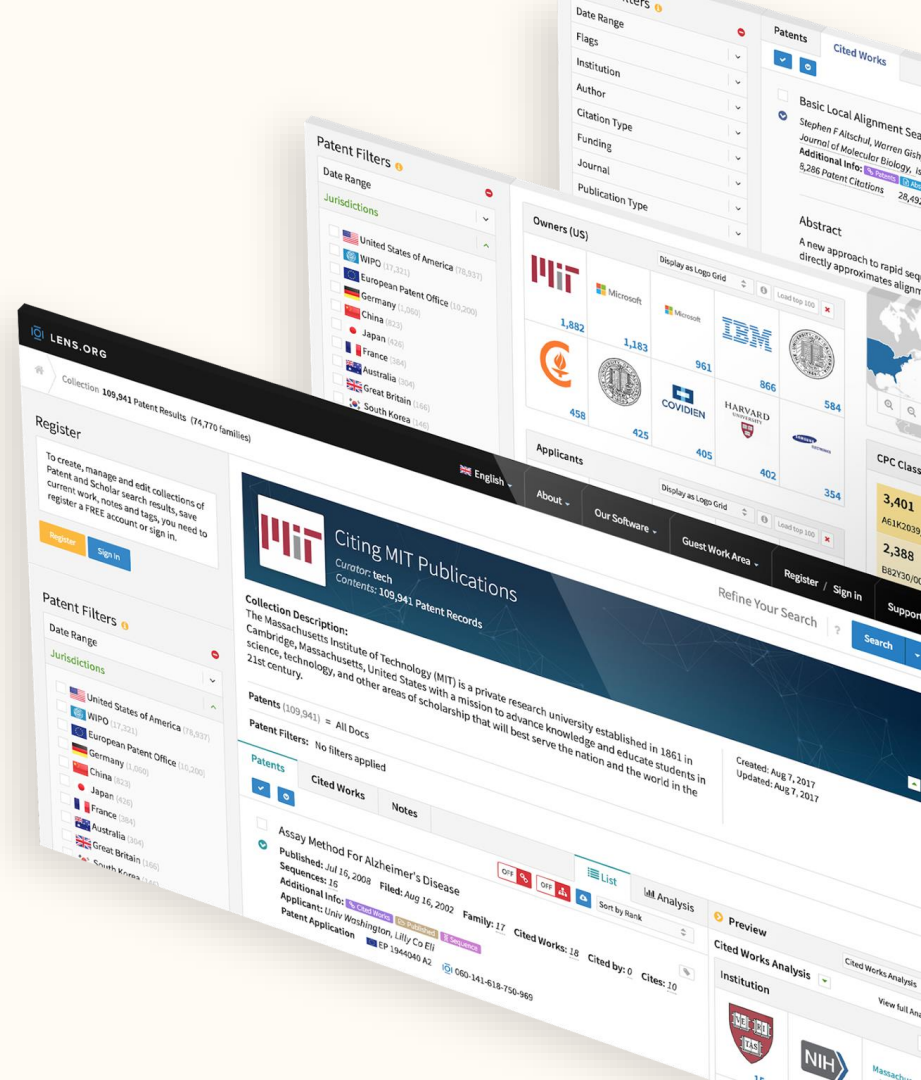
In4M explores, exposes and ranks the degree to which research works, scholars' work product, or whole institutions influence outcomes for society.



COLLECTIONS

# Portfolios & Reports

Create and publish collections of patents or scholarship. Create and explore collections to understand who does what, when and where to inform decision-making.





LENS.ORG

PatSeq Facility

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Explore Science, Technology & Innovation... ? New Search

PatSeq Home Data Text Explorer Finder Analyzer

### Biological Sequences Toolset

The Lens' unique open facility allows you to search, analyse and share the biological sequences disclosed in patents. This is the world's largest publicly available database with internal transparency metrics. Choose among the 5 apps available to you to search and analyse the DNA, RNA and protein sequences found in patents.

#### PatSeq Data

Compare biological patent holdings in the Lens with national and regional patent offices databases, view sequence disclosures across jurisdictions over time, and download...

Launch PatSeq Data...

#### PatSeq Explorer

Navigate and analyse patent-disclosed sequences mapped onto genomes and chromosomes and explore linkages between sequences and phenotypes...

Launch PatSeq Explorer...

#### PatSeq Analyzer

Compare patenting activity at the chromosomal locus or gene level, filter by sequence or search by patent attributed to analyze extent and scope of invention at that level...

Launch PatSeq Analyzer...

Start PatSeq Search

PatSeq Search

Search for any part of the sequence

Select a sequence database and a data set

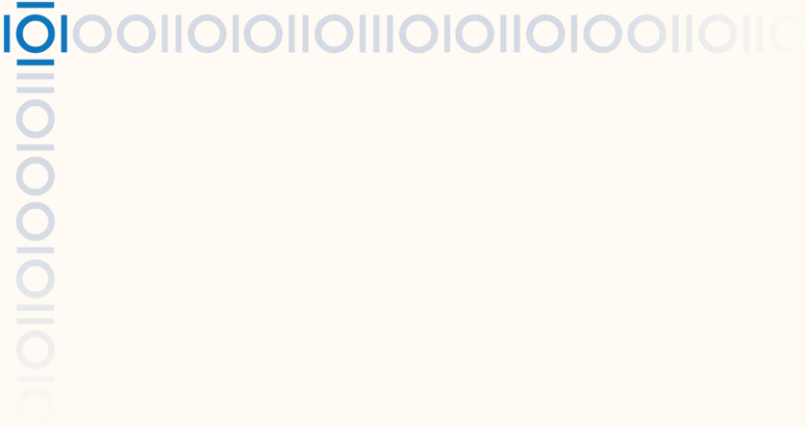
- Homo sapiens, Human
- Escherichia coli, E. Coli
- Arabidopsis thaliana, Thale Cress
- Saccharomyces cerevisiae, Yeast
- Caenorhabditis elegans, Roundworm
- Drosophila melanogaster, Fly

PATSEQ

# Explore Biological Sequences in Patents

DNA and protein in patents are crucial to understand and harness new science for health, agriculture and the environment.

Lens hosts the world's largest publicly available database and toolkit for biological patents, with internal transparency.



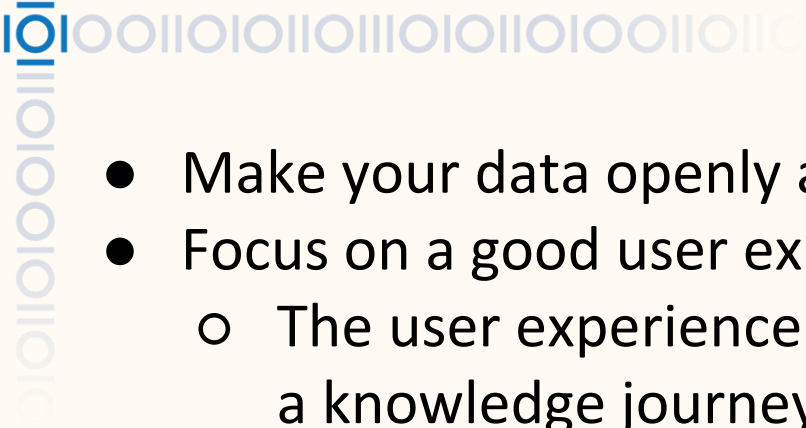
So what should patent offices do?

## Focus on empowering problem solvers

- Move beyond only administering rights.
- Remember the compact: Patents must teach.
- Be proactive to stimulate \*use\* of the system to create social value within an innovation system.
- In health related patents, research, scientific and clinical knowledge provides such critical contest.

“IP offices of the 21st century”

By Maximiliano Santa Cruz S., National Institute of Industrial Property (INAPI), Chile



- Make your data openly available & ‘free’ to public good entities.
- Focus on a good user experience that conveys context.
  - The user experience is *\*not\** an add-on. It is the essence of a knowledge journey, which is needed to create products and services.
- If you cannot or don’t wish to create a rich user experience, partner with public good entity that does.
- Give your examiners the same rich web experience to understand context.





# Lens Innovator's Platform: In your language with your data for your problem solvers

The screenshot displays the Lens Innovator's Platform interface, showing search results for 'Malaria'. The interface is divided into several sections:

- Administración de Recopilaciones:** Permite crear, añadir, administrar y editar recopilaciones de resultados de consulta.
- Refinar Consulta:** Incluye filtros de rango de fechas, jurisdicciones (Chile, OMPI, Australia, Oficina Europea de Patentes, China, Canadá, Japón, Corea del Sur, Gran Bretaña, México), inventores, propietarios (E.E.U.U.), solicitantes, autores citados, artículos citados (PubMed), artículos citados (ICR), datos de familias, clasificaciones, tipo de documento, biológicos, recopilaciones, y herramientas de consulta.
- Resultados para:** Muestra una lista de patentes con filtros aplicados. Se muestran detalles para tres patentes:
  - Método Para Hacer La Evaluación De La Sensibilidad Y Especificidad De Kits De Prueba Rápida Para Diagnóstico De Malaria:** Publicada: 20-may-2012, Solicitada: 25-nov-2011, Earliest Priority: nov-29-2011, Familia: 4, Citaciones No Patentadas: 5.
  - Tóxicos Aduvados Como Vacuna De Malaria:** Publicada: 20-may-2012, Solicitada: 05-may-2012, Earliest Priority: may-05-2010, Familia: 7, Citaciones No Patentadas: 33.
  - Agentes Terapéuticos Para El Tratamiento De La Malaria:** Publicada: 03-jul-2008, Solicitada: 20-dic-2007, Earliest Priority: dic-22-2005, Familia: 1, Citaciones No Patentadas: 4, Citado por: 0.
- Publicaciones Según Año:** Gráfico de líneas que muestra el número de publicaciones desde 1970 hasta 2018.
- Jurisdicciones:** Mapa mundial que muestra la distribución geográfica de las patentes.
- Proprietarios (E.E.U.U.):** Tabla de barras horizontales que muestra el número de patentes por propietario, incluyendo MIT, TONTECH LLC, NOVARTIS, INSTITUTE PASTERIN, y SEARTE LLC.
- Solicitante:** Tabla de barras horizontales que muestra el número de patentes por solicitante, incluyendo MEDICINES FOR MALARIA y GSK-HEALTH.
- Artículos Citados:** Lista de artículos científicos citados por las patentes.
- Clasificaciones CIP:** Tabla de barras horizontales que muestra el número de patentes por clasificación CIP.

“Enabling more and different people to make better decisions, informed by evidence and inspired by imagination.”



**LENS.ORG**

Solving The Problem Of Problem Solving™

