

# Patents, societal impact, and sustainability

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Division 1 of our [Institute of Nutrition and Translational Research in Metabolism](#) (NUTRIM) held a meeting last week which had a panel discussion on the use of patents to bring research to the market, aimed at PhD candidates of the institute. Patents are one of the routes to make research output more sustainable. For example, the research output into a new method to study something or make something often needs the development into a product. For example, a new multivariate statistics method may need a graphical user interface. As such, the “development” after the research (think, R&D) is often part of the *sustainability* of some research.

Patents, trade secrets, and precompetitive collaboration are three methods that have been used to make research output sustainable. Of course, in addition to the fourth, which is simply the published journal article or book chapter.

This led to the notion that PhD research, if it is to benefit (the Dutch) society, then it needs to get used. There needs to be a market of users. This could be other scholars that use the method, use the data (see also [Citation Typing Ontology](#) that captures such reuse), or could be a product sold to other businesses or even a consumer market product.

Filing a patent is often seen as research having societal impact. It captures the notion that one or more people trust the impact enough to invest a considerable amount of money. BTW, patents allow others to reuse your knowledge, to extend it, and to modify it. It is just that the patent limits how you use the results of that reuse commercially.

But patents are interesting in another way. A mention of your research means that the people that cited your work in their patent found your research valuable enough to list it as support of their patent. This is similar to getting cited in another journal article (or book (chapter)), but much closer to society.

Therefore, if you are interested to learn which of the research you do, and the output of that research, has an impact on society, scanning patent literature for citations to your work or the work of the research group you work in, can give surprising results. Worst case, it gives you ideas of how the research may benefit society.

## Google Patents

Nowadays, there are multiple patent search engines and sometimes they do a lot of text mining, e.g. to find patents that mention a certain chemical structures. But a general search engine like [Google Patents](#) will already to you a great service. If you search here on terms related to your research, or your last name, you can find results. If your research project has a unique name, this will, of course, greatly simplify the search.

For example, when I search for [WikiPathways](#) (our biological WikiPathways knowledge graph), it finds [over 200 patents that mention it](#). WikiPathways is an Open Science project and there is no patent on our approach, but what this project has done, turns out to be important for SMEs

enough that they base a patent on it. Of course, the role is often just supportive, just like a journal article citation. This is what a results page may look like:

Google Patents search results for **wikipathways**. The interface shows search filters, sorting options (Sort by: Relevance, Group by: None, Deduplicate by: Family, Results / page: 10), and a list of patent results.

**Methods for assessing risk of developing a viral disease using a genetic test**  
 WO EP US AU CA DK FI • US10563264B2 • Eli Hatchwell • Pml Screening, Llc  
 Priority 2017-02-03 • Filed 2019-08-16 • Granted 2020-02-18 • Published 2020-02-18  
 This document provides methods and materials related to treating a disease. For example, this document provides methods for treating a subject's disease based on identifying the risk of progressive multifocal leukoencephalopathy PML using a genetic test.

**Methods for analyzing genotypes**  
 WO US GB • US11640405B2 • Gemma L. CHANDRATILLAKE • Personalis, Inc.  
 Priority 2013-10-03 • Filed 2020-12-01 • Granted 2023-05-02 • Published 2023-05-02  
 In some embodiments, the publicly-available databases are selected from the group consisting of Orphanet, Human Phenotype Ontology (HPO), Online Mendelian Inheritance in Man (OMIM), Model Organism Gene Knock-Out databases, Kegg Disease Database, Reactome, BioCyc, WikiPathways, PID, Gene Ontology, ...

**Systems and methods for inferring scores for health metrics**  
 WO US • US20210233615A1 • Guruduth S. Banavar • Viome, Inc.  
 Priority 2018-04-22 • Filed 2019-04-22 • Published 2021-07-29  
 Provided herein are systems and method for producing models that infer health scores for health metrics for a subject. A first model, using raw feature data derived from the subject, infers feature cluster scores for each of a plurality of feature clusters in a feature group. A second model, using ...

**Method and apparatus for multimodal prediction using trained statistical models ...**  
 WO EP CN JP KR AU BR CA MX • JP7490576B2 • エム・ロスバーク、ジョナサン・クアンタム・エスアイ インコーポレイテッド  
 Priority 2018-05-30 • Filed 2019-05-08 • Granted 2024-05-27 • Published 2024-05-27  
 1. A method for predicting associations between input data in a first modality and data in a second modality using a

## Citations to specific article

There are also tools that make available text mining results that found which articles have been cited in which patent. [Altmetric.com](https://altmetric.com) is one of them. For many articles (DOIs) they provide information on where that article (DOI) is mentioned. And they provide a [donut to visualize that attention](#). Over time, the diversity of what mentions they find has gone down, and new media are not added frequently and Mastodon is a big one missing, but patents is still one of the supported resources.

For any DOI you can look up what data Altmetric.com has using this URL pattern (the example is for the DOI [10.1039/D3DD00069A](https://doi.org/10.1039/D3DD00069A)):


<https://altmetric.com/details/doi/10.1039/D3DD00069A>

Maastricht University users can use our [cris](#) which provides an HTML page listing all your articles (e.g. [mine](#)) and each has a Altmetric.com donut, which an orange band for patents:

## chem-bla-ics

In: Journal of biomedical semantics. 2, Suppl 1, p. S6

Research output: Contribution to journal › Article › Academic › peer-review


 Open Access

☐ Resource Description Framework ☐ Cheminformatics ☐ Proteochemometrics ☐ Resources ☐ Chemometrics

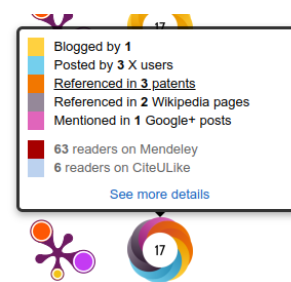
### New developments on the cheminformatics open workflow environment CDK-Taverna

Truszkowski, A., Jayaseelan, K. V., Neumann, S., Willighagen, E. L., Zielesny, A. & Steinbeck, C., 1 Dec 2011, In: Journal of Cheminformatics. 3, 1

Research output: Contribution to journal › Article › Academic › peer-review

 Open Access

☐ Cheminformatics ☐ Environmental Chemistry ☐ Chemistry Development Kit ☐ Taverns ☐ Chemistry



We can see here that this article is cited in three patents. You can click the donut to find which patents those are. The *cris* overview page gives a quick look which articles (or research lines) are cited in patents.

Also look out for the purple bands, which reflect citations in policy documents, which reflect another kind of societal impact.

## Potential

For early career researchers with few articles and not a lot of time to get cited in patents (or policies), it can also be useful to look at articles that your work is based on, e.g. those of your supervisor.