

Visual Biographies of Scholars and the Topics they Studied

Egon Willighagen
Researcher meet Curator
2019-03-22, Maastricht/NL
ORCID: 0000-0001-7542-0286
@egonwillighagen

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Antoine Lavoisier

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"Lavoisier" redirects here. For other uses, see [Lavoisier \(disambiguation\)](#).



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Antoine-Laurent de Lavoisier (also **Antoine Lavoisier** after the [French Revolution](#); French: [ɑ̃twan ʁɛnɑ̃ də lavwazje]; 26 August 1743 – 8 May 1794)^[1] was a [French nobleman](#) and [chemist](#) who was central to the 18th-century [chemical revolution](#) and who had a large influence on both the [history of chemistry](#) and the [history of biology](#).^[2] He is widely considered in popular literature as the "[father of modern chemistry](#)".^{[3][4]}

It is generally accepted that Lavoisier's great accomplishments in chemistry largely stem from his changing the science from a qualitative to a quantitative one. Lavoisier is most noted for his discovery of the role [oxygen](#) plays in [combustion](#). He recognized and named [oxygen](#) (1778) and [hydrogen](#) (1783) and opposed the [phlogiston theory](#). Lavoisier helped construct the [metric system](#), wrote the first extensive [list of elements](#), and helped to reform [chemical nomenclature](#). He predicted the existence of [silicon](#) (1787)^[5] and was also the first to establish that [sulfur](#) was an element (1777) rather than a compound.^[6] He discovered that, although matter may change its form or shape, [its mass always remains the same](#).

Lavoisier was a powerful member of a number of [aristocratic](#) councils, and an administrator of the *Ferme générale*. The *Ferme générale* was one of the most hated components of the *Ancien Régime* because of the profits it took at the expense of the state, the secrecy of the terms of its contracts, and the violence of its armed agents.^[7] All of these political and economic activities enabled him to fund his scientific research. At the height of the [French Revolution](#), he was charged with tax fraud and selling adulterated [tobacco](#), and was [guillotined](#).

Contents [hide]

1 Biography

- 1.1 Early life and education
- 1.2 Early scientific work
- 1.3 Lavoisier as a social reformer
 - 1.3.1 Research benefitting the public good

Antoine-Laurent de Lavoisier



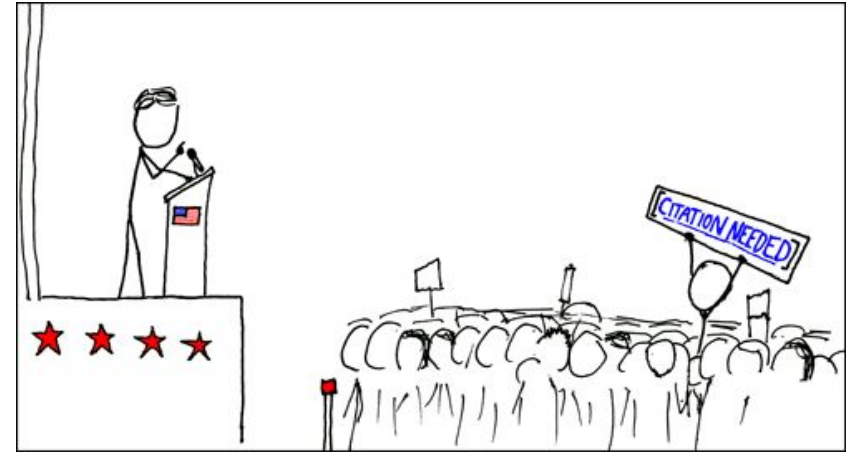
Line engraving by Louis Jean Desire Delaistre, after a design by Julien Leopold Boilly

Born	26 August 1743 Paris, France
Died	8 May 1794 (aged 50) Paris, France
Cause of death	Execution by guillotine

Wikipedia, CC-BY-SA 3.0

Two “problems” with Wikipedia

1. not a database
(free text mostly)
2. loose provenance model
 - *what specifically does that citation support?*





Lifting a veil on the sources of free knowledge
through structured bibliographic data

Dario Taraborelli • Daniel Mietchen • Andy Mabbett • Andra Waagmeester

Wikimania 2018 • Cape Town, 21 July 2018

*“**WikiCite 2018** is a 3-day conference, summit, and hack day dedicated to the vision of creating an [open repository of bibliographic data](#) to support the citation and fact-checking needs of Wikimedia projects, and possibly, to serve as an open infrastructure for research, education, and information quality across the web.”*

<https://wikicite.org/>



Maastricht University

https://www.wikidata.org/wiki/Q39607



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[Special pages](#)
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Antoine Laurent Lavoisier (Q39607)

French chemist

[edit](#)

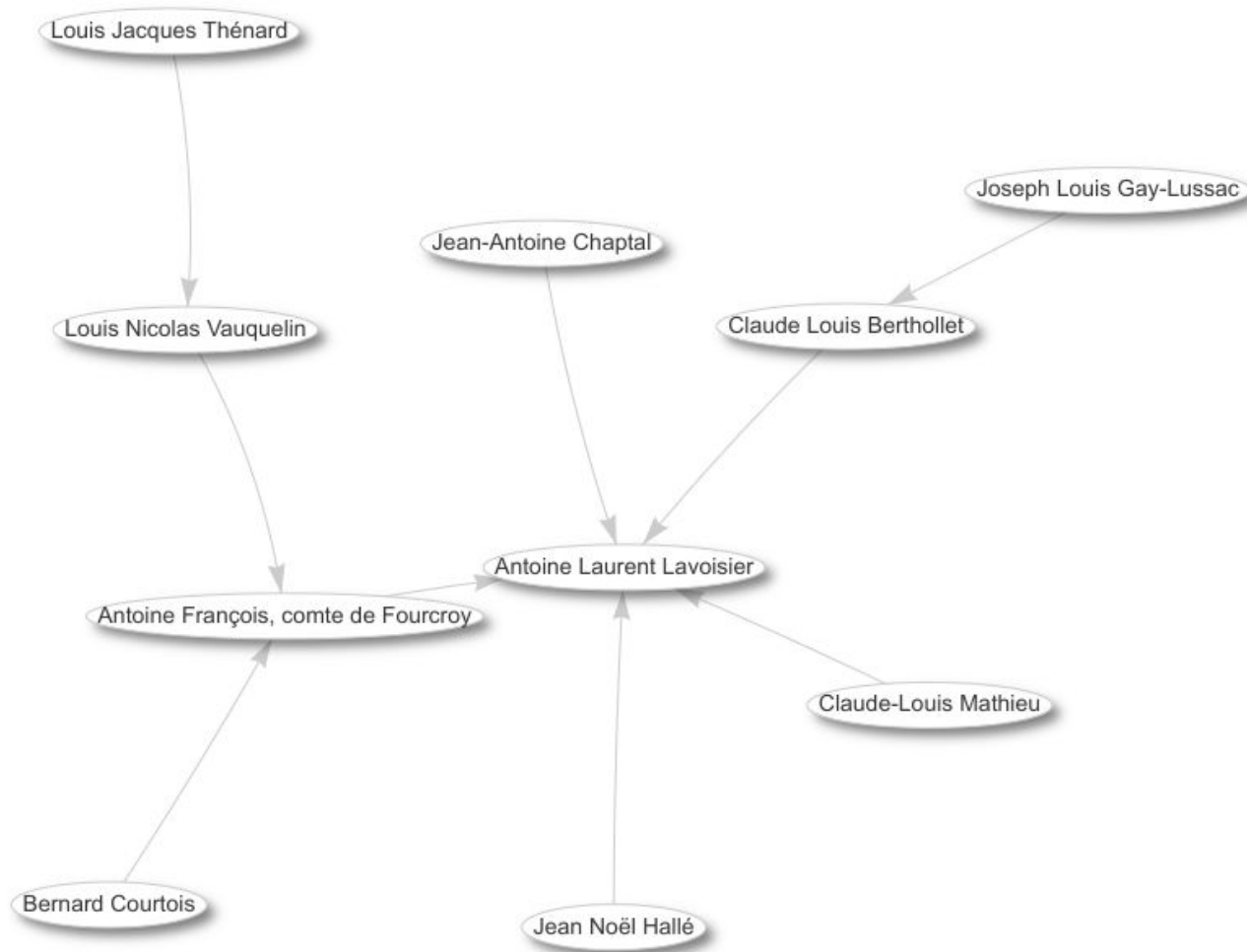
Antoine-Laurent de Lavoisier | Lavoisier | father of modern chemistry

▸ [Recoin: Most relevant properties which are absent](#)

▾ [In more languages](#)

Language	Label	Description	Also known as
English	Antoine Laurent Lavoisier	French chemist	Antoine-Laurent de Lavoisier Lavoisier father of modern chemistry
German	Antoine Laurent de Lavoisier	französischer Chemiker	Antoine Lavoisier Antoine-Laurent de Lavoisier
French	Antoine Lavoisier	chimiste, physicien et économiste français	Antoine de Lavoisier Antoine Laurent Lavoisier Antoine Laurent de Lavoisier Lavoisier, Antoine-Laurent de Antoine-Laurent de Lavoisier
Dutch	Antoine Lavoisier	Frans filosoof	Lavoisier Antoine-Laurent Lavoisier Antoine Laurent Lavoisier
Swedish	Antoine Lavoisier	No description defined	Lavoisier, Antoine Laurent Lavoisier Antoine Laurent Lavoisier

Lavoisier' academic tree



Lavoisier around the world



Lavoisier's research

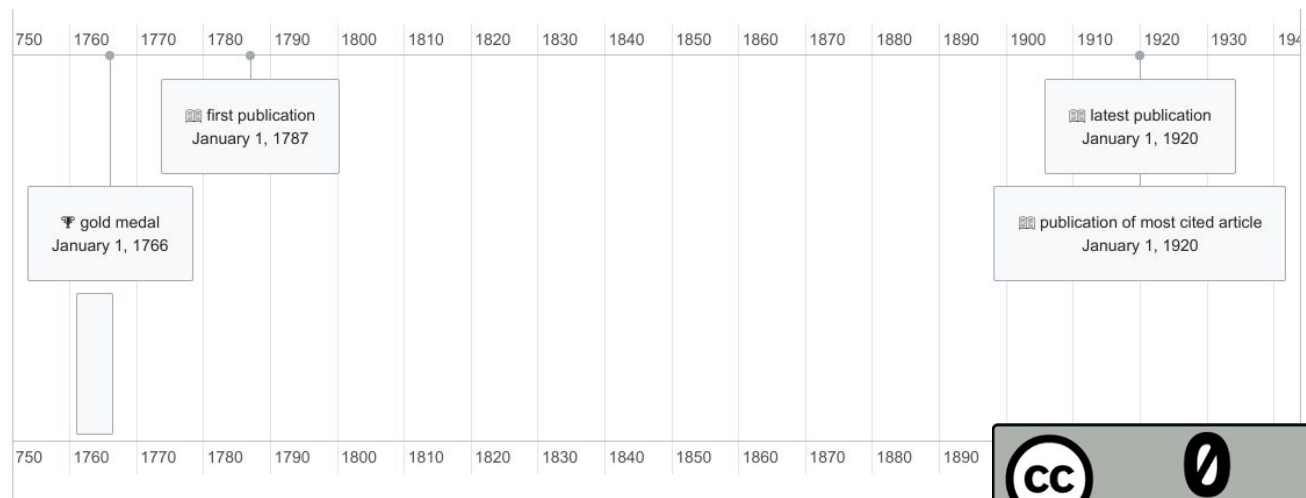
Works of the author ordered according to number of citations received.

Show **10** entries

Search:

Count	Work
1	Mémoires sur le respiration et la transpiration des animaux.
0	Elements of natural history and chemistry
0	De la situation du trésor public au 1er juin 1791 par les commissaires de la Trésorerie nationale
0	Méthode de nomenclature chimique
0	Traité Élémentaire de Chimie

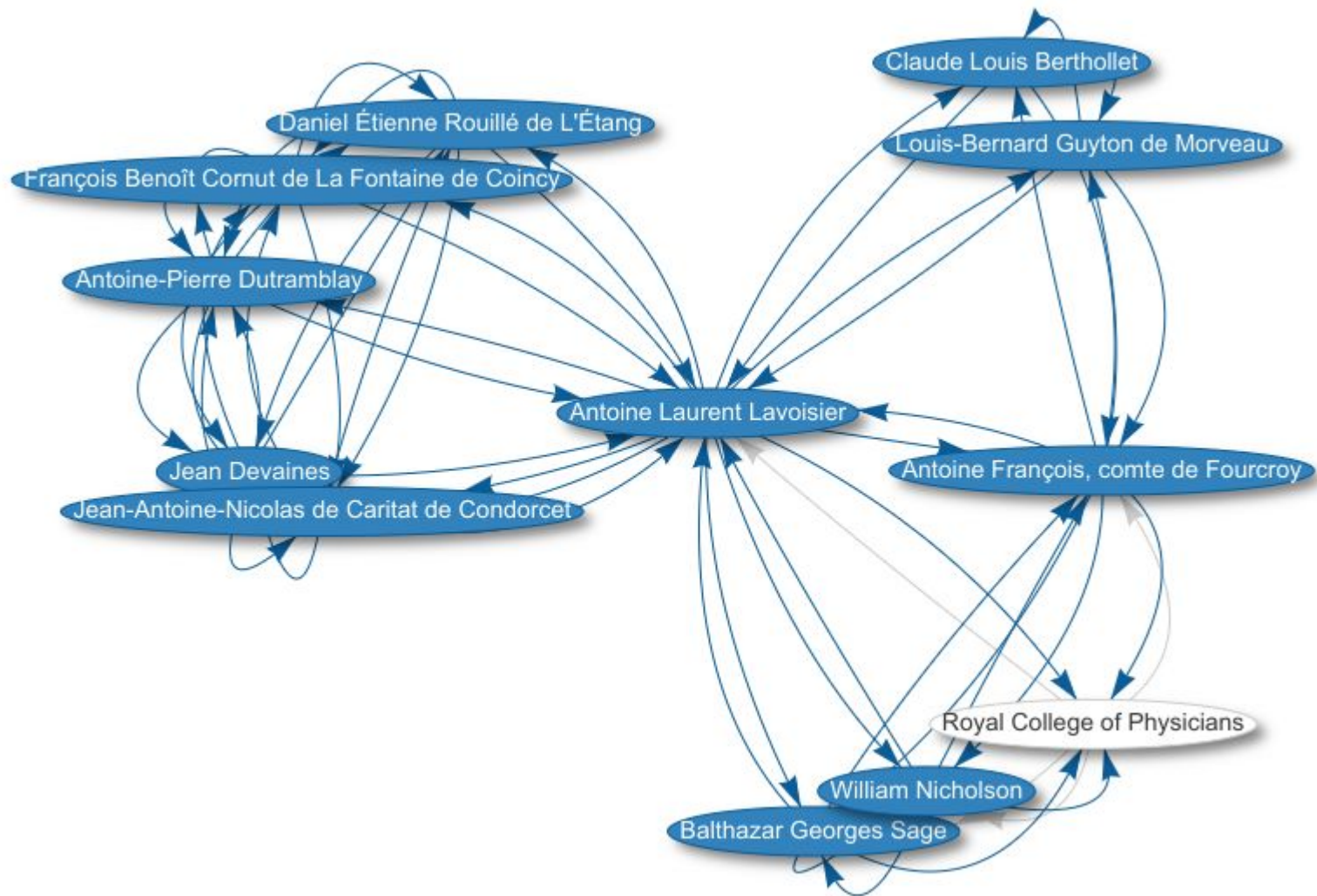
[Edit on query.Wikidata.org](#)



Maastricht University



Who did Lavoisier work with?



Provenance in Wikidata

given name



Antoine

edit

▼ 1 reference

stated in	Integrated Authority File
GND ID	11857034X
retrieved	12 August 2015

+ add reference

+ add value

date of birth



26 August 1743 *Gregorian*

edit

▼ 5 references

imported from Wikimedia project	English Wikipedia
stated in	BNF authorities
retrieved	10 October 2015
reference URL	http://data.bnf.fr/ark:/12148/cb120790362
stated in	Comité des travaux historiques et scientifiques 
CTHS person ID	106393
named as	Antoine Laurent Lavoisier



topic

Scholia (Q45340488)

Recently published works on the topic

Show entries

Search:

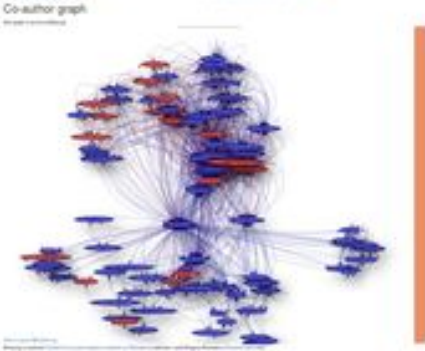
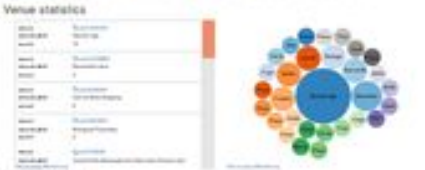
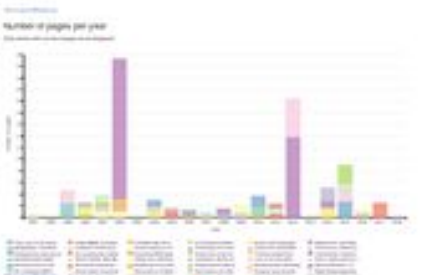
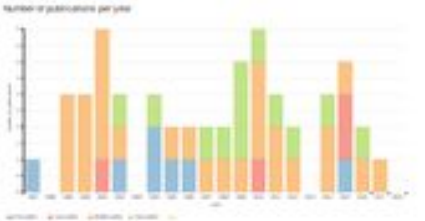
Date	Work	Topics
2018-12-10	Creating Structured Linked Data to Generate Scholarly Profiles: A Pilot Project using Wikidata and Scholia	Wikidata // citation analysis // scientometrics // linked data // Scholia
2018-11-01	WikiCite and Scholia - a Linked Open Data approach to exploring the scholarly literature and related resources	WikiCite // linked open data // Scholia
2018-07-02	The EU NanoSafety Cluster as Linked Data visualized with Scholia	Wikidata // linked data // EU NanoSafety Cluster // Scholia
2018-05-01	Wikidata and Scholia as a hub linking chemical knowledge	Wikidata // chemistry // Scholia
2018-03-18	Geospatial data and Scholia	Wikidata // SPARQL // geographic information // Scholia
2018-02-16	From Wikidata to Scholia: creating structured linked data to generate scholarly profiles	Wikidata // Scholia
2017-10-01	Scholia, Scientometrics and Wikidata	Wikidata // Semantic Web // SPARQL // web service // citation analysis // scientometrics // WikiCite // reference management software // scientific collaboration network // bibliographic metadata // Scholia
2017-03-13	Scholia - March 2017	Scholia
2017-03-13	Scholia and scientometrics with Wikidata	Wikidata // Semantic Web // SPARQL // web service // citation analysis // scientometrics // WikiCite // reference management software // scientific collaboration network // bibliographic metadata // Scholia

[Edit on query.Wikidata.org](#)

Fin Arup Nielsen (Q20960928)

List of publications

id	label	date	type	status	abstract
1	Fin Arup Nielsen	2017-12-10	Article	Published	Fin Arup Nielsen
2	Fin Arup Nielsen	2017-12-10	Article	Published	Fin Arup Nielsen
3	Fin Arup Nielsen	2017-12-10	Article	Published	Fin Arup Nielsen
4	Fin Arup Nielsen	2017-12-10	Article	Published	Fin Arup Nielsen
5	Fin Arup Nielsen	2017-12-10	Article	Published	Fin Arup Nielsen
6	Fin Arup Nielsen	2017-12-10	Article	Published	Fin Arup Nielsen
7	Fin Arup Nielsen	2017-12-10	Article	Published	Fin Arup Nielsen
8	Fin Arup Nielsen	2017-12-10	Article	Published	Fin Arup Nielsen
9	Fin Arup Nielsen	2017-12-10	Article	Published	Fin Arup Nielsen
10	Fin Arup Nielsen	2017-12-10	Article	Published	Fin Arup Nielsen



Topics

id	label	count
1	Fin Arup Nielsen	10
2	Fin Arup Nielsen	10
3	Fin Arup Nielsen	10
4	Fin Arup Nielsen	10
5	Fin Arup Nielsen	10
6	Fin Arup Nielsen	10
7	Fin Arup Nielsen	10
8	Fin Arup Nielsen	10
9	Fin Arup Nielsen	10
10	Fin Arup Nielsen	10

SPARQL: very powerful

 Wikidata Query Service

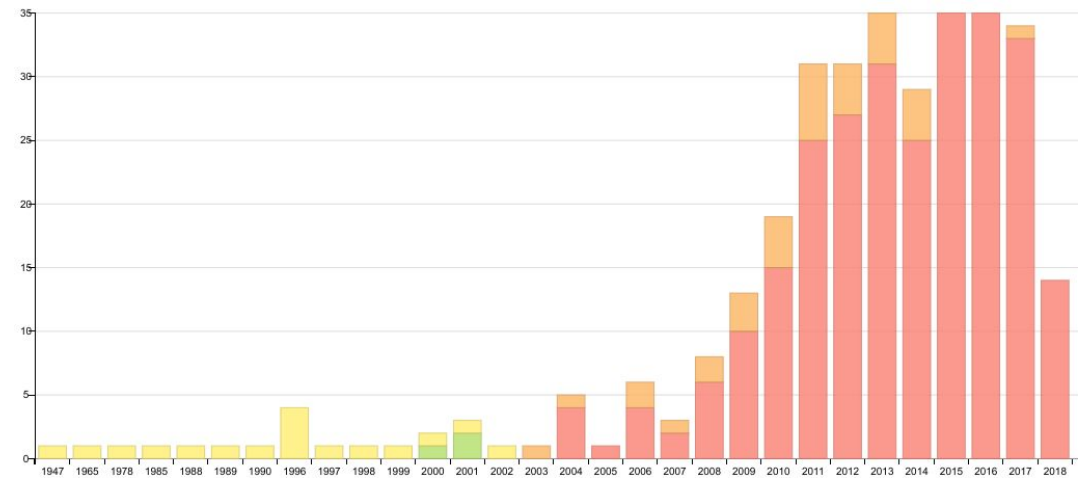
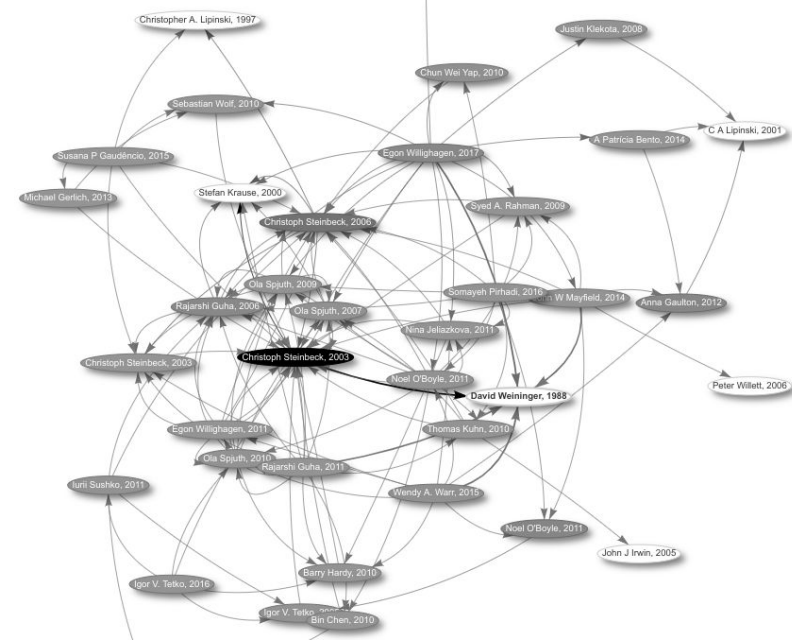
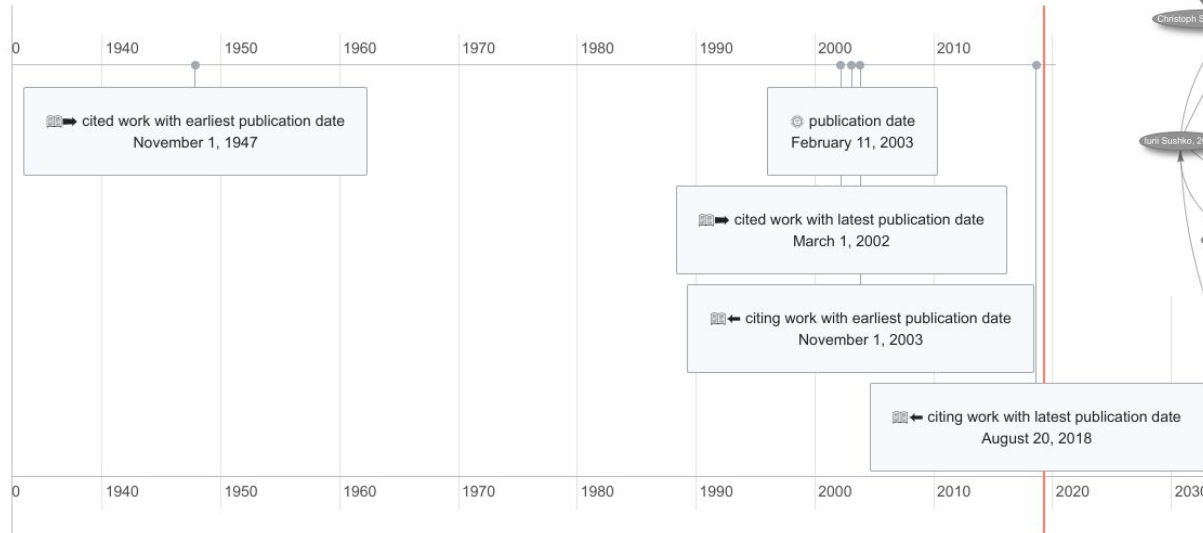
Examples Help More tools English

```
1 |
2 SELECT ?date ?work ?workLabel ?topics
3 WITH {
4   SELECT DISTINCT ?work WHERE {
5     ?work wdt:P921 / (wdt:P361+ | wdt:P1269+ | (wdt:P31* / wdt:P279*)) wd:Q45340488 .
6   }
7 } AS %works
8 WITH {
9   SELECT (MAX(?dates) as ?datetime) ?work (GROUP_CONCAT(?topic_label; separator=" // ") AS ?topics) WHERE {
10     INCLUDE %works
11     ?work wdt:P921 ?topic .
12     OPTIONAL { ?work wdt:P577 ?dates . }
13     ?topic rdfs:label ?topic_label . FILTER (lang(?topic_label) = 'en')
14   }
15   GROUP BY ?work
16 } AS %result
17 WHERE {
18   INCLUDE %result
19
20   # There is a problem with BC dates
21   # BIND(xsd:date(?datetime) AS ?date)
22   BIND(REPLACE(STR(?datetime), 'T.*', '') AS ?date)
23
24   SERVICE wikibase:label { bd:serviceParam wikibase:language "en,da,de,es,fr,jp,nl,no,ru,sv,zh". }
25 }
26 ORDER BY DESC(?date)
27 LIMIT 500
28
```

⏮

Citation Networks

Timeline



Topics: chemicals

Wikidata and Scholia as a hub linking chemical knowledge

Egon Willighagen^A, Denise Slenter^A, Daniel Mietchen^B, Chris Evelo^{A,C}, Finn Nielsen^D

^A Department of Bioinformatics - BiGCaT, Maastricht University, The Netherlands, ^BData Science Institute, University of Virginia, Charlottesville, Virginia, USA,

^C Maastricht Centre for Systems Biology - MaCSBio, Maastricht University, The Netherlands, ^D Cognitive Systems, DTU Compute, Technical University of Denmark, Denmark

Introduction

Making chemical databases more FAIR (findable, accessible, interoperable, and reusable) benefits computational chemistry and cheminformatics. We here discuss Wikidata, a young sister project of Wikipedia, with one key difference: it is a machine readable database, making it far more useful for interoperability of molecular databases in systems biology [1,2]. Thanks to the WikiProject Chemistry community on Wikidata, there is a growing amount of information about chemical compounds.



Methods

Scholia is a Python/Flask-based server system that creates webpages using a template approach [5]. It defines templates for concepts around knowledge exchange, such as publications, journals, publishers, but also topics. It uses SPARQL queries against the Wikidata Query Service (WDQS, query.wikidata.org) and visualizes the data in various forms. Furthermore, we used a combination of Bioclipse (bioclipse.net) and QuickStatements to add missing chemical compounds for biological pathways from WikiPathways [6]. Where needed, new Wikidata properties were proposed.

References

- [1] Enabling Open Science: Wikidata for Research (Wiki4R), Research Ideas and Outcomes, 1, 2015, doi:10.3897/RIO.1.E7573 [2] WikiGenomes: an open Web application for community consumption and curation of gene annotation data in Wikidata, Database, 2017:1, 2017, doi:10.1101/102046 [3] The CompTox Chemistry Dashboard: a community data resource for environmental chemistry, Journal of Cheminformatics, 9(1), 2017, doi:10.1186/S13321-017-0247-6 [4] SPLASH, a hashed identifier for mass spectra, Nature Biotechnology, 34(11), 2016, doi:10.1038/NBT.3689 [5] Scholia, Scientometrics and Wikidata, The Semantic Web: ESWC 2017 Satellite Events, 2017, doi:10.1007/978-3-319-70407-4_36 [6] WikiPathways: a multifaceted pathway database bridging metabolomics to other omics research", Nucleic Acids Research, 46(D1), 2018, doi:10.1093/NAR/GKX1064

Results

We here introduce our contributions to the WikiProject Chemistry to support FAIR-ification of open chemical knowledge. For example, we proposed new Wikidata properties to annotate compounds with external database identifiers for the EPA CompTox Dashboard [3], the SPLASH [4], and MetaboLights. We also introduced a Scholia extension [5], visualizing data about chemicals and chemical classes:

<https://tools.wmflabs.org/scholia/>

Provenance: "stated in"



Related compounds

QID	Label	Chemical structure
Q11274	Acetaminophen	<chem>CC(=O)Oc1ccc(O)cc1</chem>
Q11275	Paracetamol	<chem>CC(=O)Oc1ccc(O)cc1</chem>
Q11276	Acetaminophen	<chem>CC(=O)Oc1ccc(O)cc1</chem>

Lookup by identifier

Enter an identifier (e.g., CAS, SMILES, InChI, PubChem, etc.) to look up a chemical compound.

Identifiers

Ident	Label	Value
Q11274	Acetaminophen	10000
Q11275	Paracetamol	10000
Q11276	Acetaminophen	10000
Q11277	Acetaminophen	10000
Q11278	Acetaminophen	10000
Q11279	Acetaminophen	10000
Q11280	Acetaminophen	10000
Q11281	Acetaminophen	10000
Q11282	Acetaminophen	10000
Q11283	Acetaminophen	10000
Q11284	Acetaminophen	10000
Q11285	Acetaminophen	10000
Q11286	Acetaminophen	10000
Q11287	Acetaminophen	10000
Q11288	Acetaminophen	10000
Q11289	Acetaminophen	10000
Q11290	Acetaminophen	10000
Q11291	Acetaminophen	10000
Q11292	Acetaminophen	10000
Q11293	Acetaminophen	10000
Q11294	Acetaminophen	10000
Q11295	Acetaminophen	10000
Q11296	Acetaminophen	10000
Q11297	Acetaminophen	10000
Q11298	Acetaminophen	10000
Q11299	Acetaminophen	10000
Q11300	Acetaminophen	10000

Identifier mappings are made available via BridgeDb.

Literature-backed (PhysChem) Facts



Linking Databases

Identifiers	Value
Q11274	10000
Q11275	10000
Q11276	10000
Q11277	10000
Q11278	10000
Q11279	10000
Q11280	10000
Q11281	10000
Q11282	10000
Q11283	10000
Q11284	10000
Q11285	10000
Q11286	10000
Q11287	10000
Q11288	10000
Q11289	10000
Q11290	10000
Q11291	10000
Q11292	10000
Q11293	10000
Q11294	10000
Q11295	10000
Q11296	10000
Q11297	10000
Q11298	10000
Q11299	10000
Q11300	10000

Browsing scholarly literature by topic

topic

chemical

Pinus pinaster (Q271582)

Pinus pinaster, the maritime pine or cluster pine, is a pine native to the Mediterranean region. ... (from the [English Wikipedia](#))

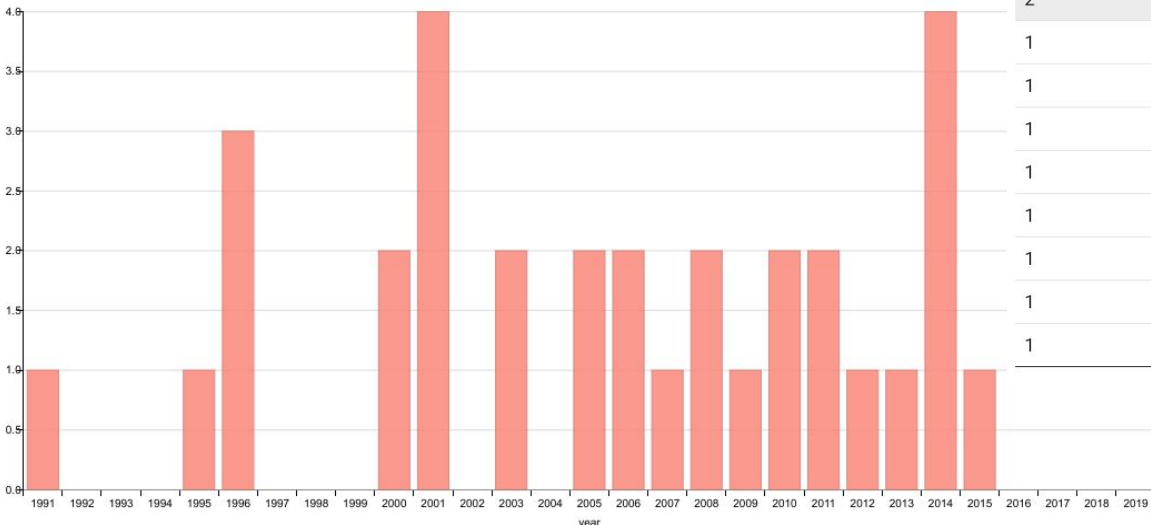
Recently published works on the topic

Show 10 ▾ entries

Search:

Date	Work	Topics
2015-09-10	High-density SNP assay development for genetic analysis in maritime pine (Pinus pinaster).	Pinus pinaster
2014-12-23	Intraspecific variation of anatomical and chemical defensive traits in Maritime pine (Pinus pinaster) as factors in susceptibility to the pinewood nematode (Bursaphelenchus xylophilus)	Pinus pinaster // Bursaphelenchus xylophilus
2014-12-11	Adaptive potential of maritime pine (Pinus pinaster) populations to the emerging pitch canker pathogen, Fusarium circinatum.	Pinus pinaster
2014-05-28	Evolution of serotiny in maritime pine (Pinus pinaster) in the light of increasing frequency of fires	Pinus pinaster
2014-	Influence of provenance, silvicultural regime and tree shape on the quality of	Pinus pinaster

Pinus pinaster

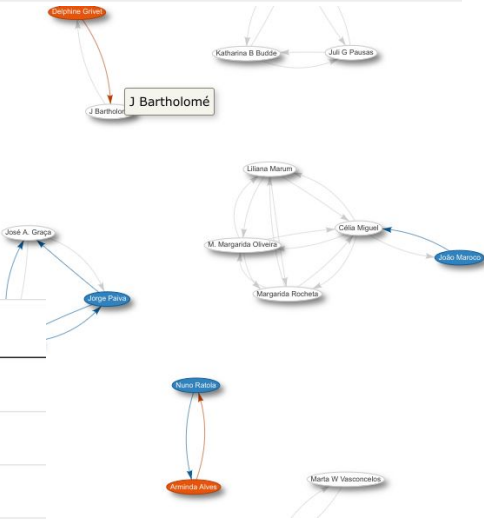


Authors publishing about the topic

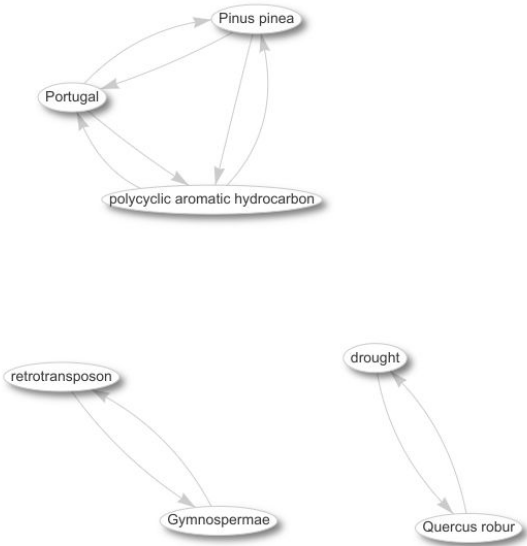
Show entries

Search:

Count	Author	Orcid
2	Josep L Torres	0000-0002-5072-8265
2	Célia Miguel	0000-0002-1427-952X
1	Delphine Grivet	0000-0001-8168-4456
1	Nuno Ratola	0000-0002-4102-9606
1	Arminda Alves	0000-0002-5090-621X
1	João Maroco	0000-0001-9214-5378
1	Juli G Pausas	0000-0003-3533-5786
1	Jorge Paiva	
1	Pedro Fevreiro	
1	José A. Graça	

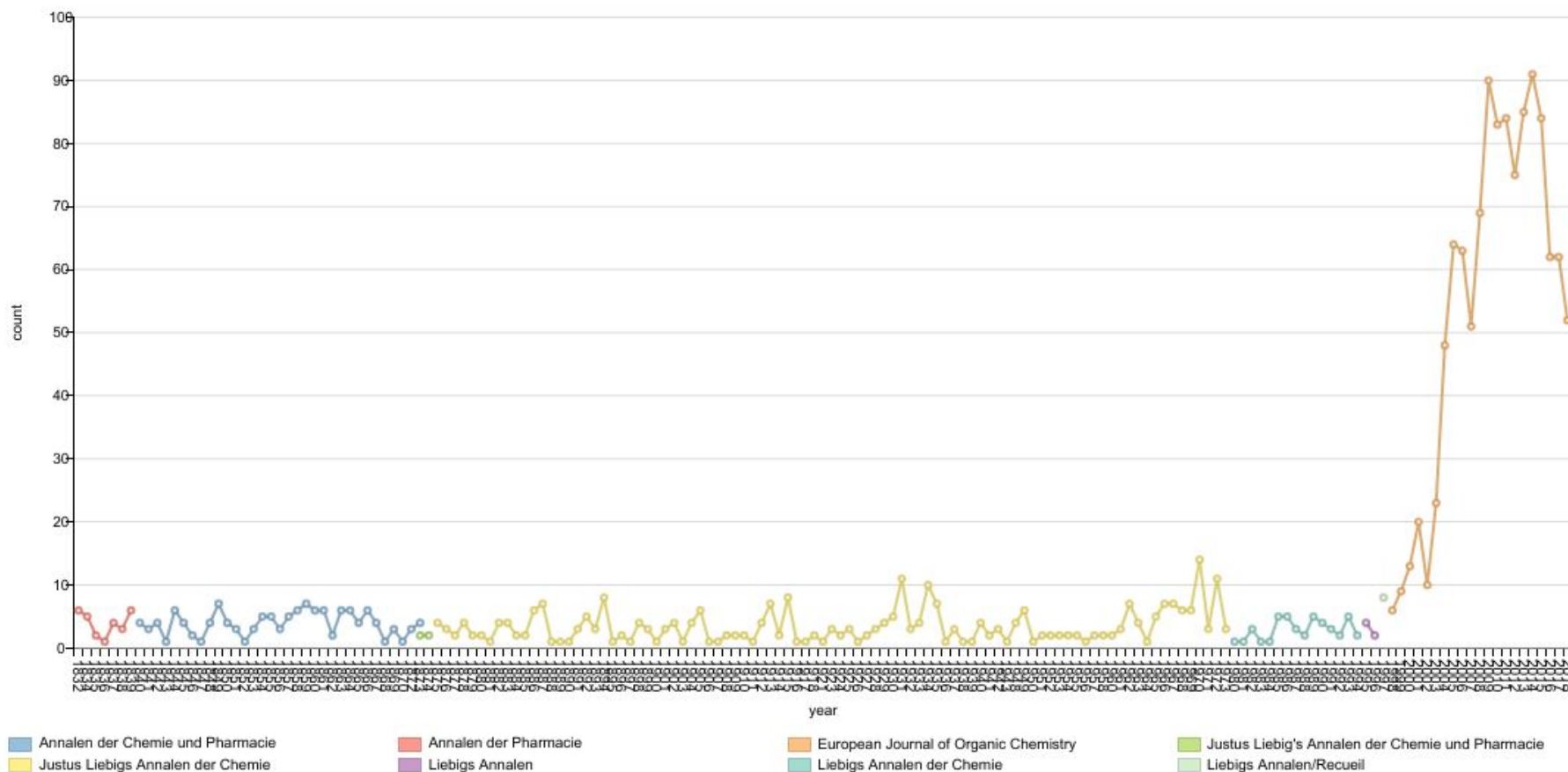


Count	Short name	Venue
3		Tree Physiology
3	New phytol.	New Phytologist
3		Theoretical and Applied Genetics
2		Wood Science and Technology
2		Journal of Experimental Botany
2		Canadian Journal of Forest Research
2		Journal of Agricultural and Food Chemistry
1		Plant Cell, Tissue and Organ Culture
1		Tree Genetics and Genomes
1		Planta



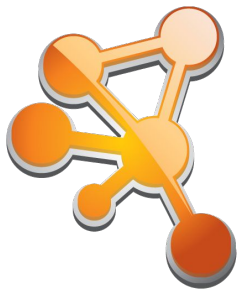
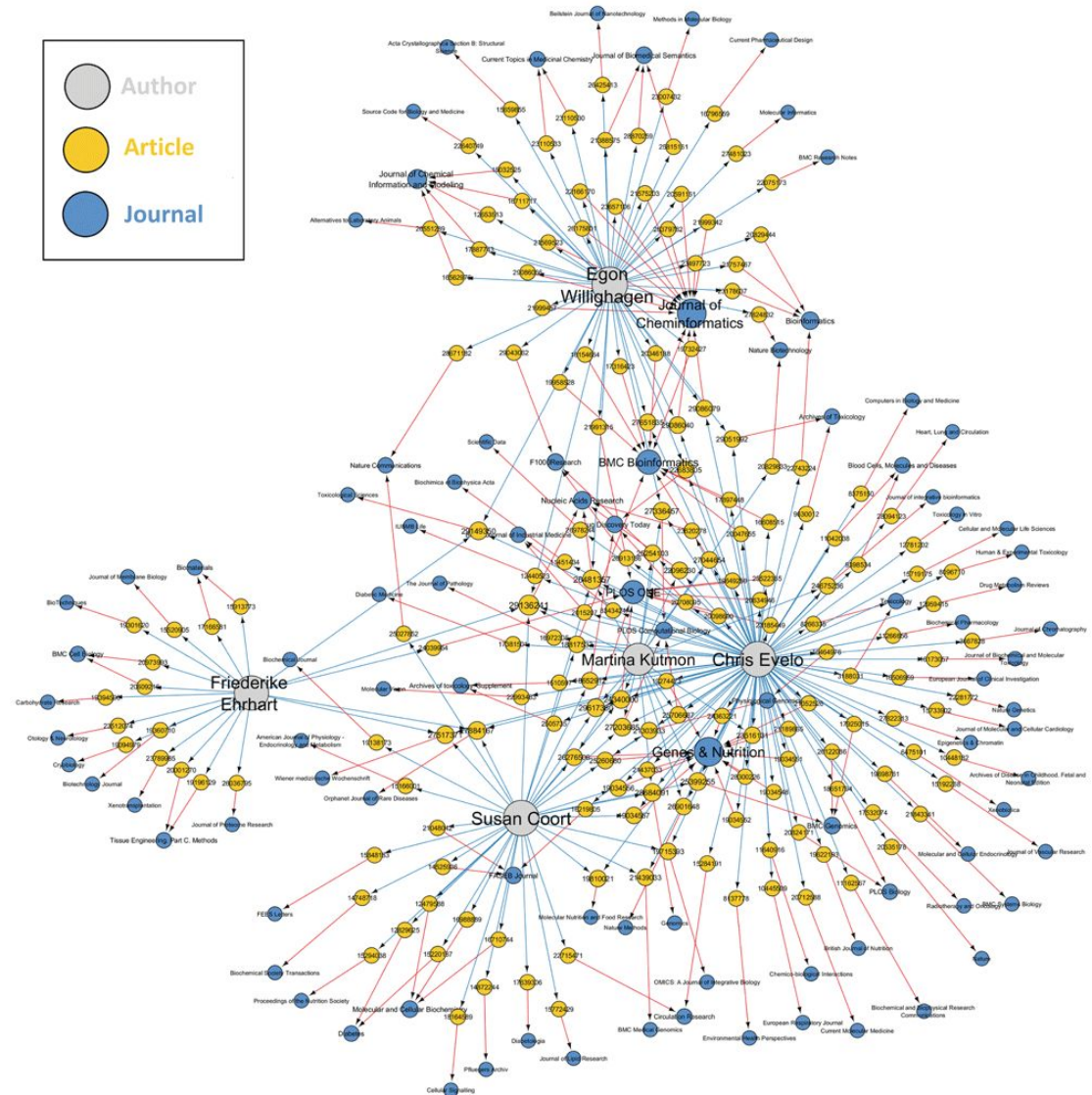
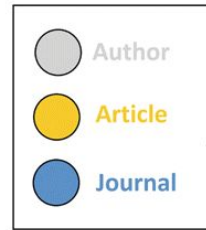
Topics: history of a journal

Published works per year



[illegible]

Tools? Cytoscape



Kutmon M, Ehrhart F, Willighagen EL *et al.* CyTargetLinker app update: A flexible solution for network extension in Cytoscape [version 1; peer review: 1 approved, 1 not approved]. *F1000Research* 2018, 7:743 (<https://doi.org/10.12688/f1000research.14613.1>)

Conclusions

- **Wikidata** provides researcher biography
 - available in various formats
 - machine readable
 - CCZero
- **Scholia visualizes** data over one or more Wikidata records
 - uses SPARQL (very flexible)
 - for researchers, topics, universities, articles, journals
- Wikidata + Scholia as ***Open Notebook Science***
- Literature about Scholia:

<https://tools.wmflabs.org/scholia/topic/Q45340488>

