

OpenAlex unlocked: smart literature research

Coffee Lecture FS26

Dr. Merula Stout, Liaison Librarian
5th May 2026

OpenAlex

What is OpenAlex and what can I search with it?

- Entities of OpenAlex
- Sources of OpenAlex

How to search and analysis with OpenAlex

- Search settings
- Search results and filtering
- Stats and analysis

Comparison of OpenAlex with other Databases

- Advantages and disadvantages of OpenAlex

What is OpenAlex?

- **Free** database of scientific papers, authors and institutions
- Competes with e.g., Web of Science and Scopus
- Successor of Microsoft Academic
- Also has bibliometric tools and API (application programming interface)



Works

Scholarly Documents (articles, books, datasets, theses)



Funders

Organizations that fund research (e.g. SNF)



Publishers

Organizations that distribute works



Authors

Researchers who create works



Topics

Subject classifications (4-level hierarchy)



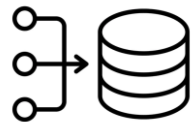
Institutions

Organizations where authors are affiliated



Countries

Geographic information (countries, continents)



Sources

Where works are hosted (journals, repositories, conferences)

Data Sources of OpenAlex

- Mainly Microsoft Academic & Crossref
- Also: ORCID, ROR (Research Organization Registry), DOAJ (Directory of Open Access Journals), Unpaywall, Pubmed, repositories like arXiv and Zenodo

	Number of works	Open Access works	Citations	Price	Data Openness	Org structure
OpenAlex	243M	48M	1.9B	Freemium	Fully open, CC0 license	Non-profit
Scopus	87M	20.5M (ref)	1.8B	Subscription	Closed	For Profit
Web of Science (core)	87M (ref)	12M (ref)	1.8B	Subscription	Closed	For Profit
Dimensions	135M	29M (ref)	1.7B	Freemium	Partly open, personal use	For Profit
Google Scholar	389M (estimated)	?	?	Free	Closed	For Profit
Crossref	145M	20M	1.45B	Free	Fully open, CC0 license	Non-profit

Open Alex About <https://openalex.org/about> Accessed 9.4.2026

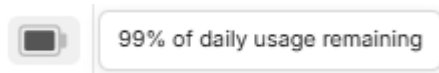
All the world's research, connected and open.

Inspired by the Library of Alexandria, we catalog 474 million scholarly works, linking them to authors, institutions, funders, and more—all fully open.

The screenshot shows the OpenAlex search interface. At the top, a search bar contains the query «Live cell microscopy» AND «DNA damage». Below the search bar, there are three main sections: 1. Entity types: A dropdown menu labeled 'works' is open, showing options: Works (checked), Authors, Institutions, Sources, and More entity types... 2. Search fields: A dropdown menu is open, showing options: Title, Title & abstract (checked), Title, abstract, & fulltext, and a 'Vote' section with 'Enable stemming' (checked) and 'Disable stemming'. 3. Search methods: A dropdown menu labeled 'boolean' is open, showing options: Boolean (checked) and Semantic (beta). The 'xpac' button is also visible next to the search bar.

«expansion pack» → higher coverage but lower quality

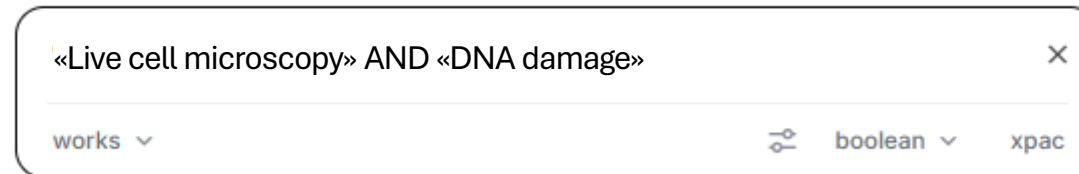
Shows you how many searches you have left



Semantic search uses AI embeddings to find works by meaning. A query about “machine learning in healthcare” finds papers using “AI-driven diagnosis” or “computational medicine.”

All the world's research, connected and open.

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«Live cell microscopy» AND «DNA damage»

works ▾ boolean ▾ xpac

Boolean search: **AND, OR, NOT** (uppercase) for complex queries
Exact phrase search with double quotes “”
Truncation and Wildcards: * matches zero or more characters and
? matches exactly one character

Search for «works» with OpenAlex

Download entries (e.g., as csv or endnote file) or bibliographic information

"live cell microscopy" AND "DNA damage"

works

Year

Type

Open Access

Field

Author

Institution

more

About 1'074 works

Feedback between p21 and reactive oxygen production is necessary for cell senescence

2010 · João F Passos, Glyn Nelson, et al. · *Molecular Systems Biology* · 982

Phase separation of 53 BP 1 determines liquid-like behavior of DNA repair compartments

2019 · Sinan Kilic, Aleksandra Lezaja, et al. · *The EMBO Journal* · 442

Feedback-regulated poly(ADP-ribosyl)ation by PARP-1 is required for rapid response to DNA damage in living cells

2007 · Oliver Mortusewicz, Jean-Christophe Amé, et al. · *Nucleic Acids Research* · 321

Live Cell Microscopy of DNA Damage Response in *Saccharomyces cerevisiae*

2012 · Sonia Silva, Irene Gallina, et al. · *Methods in molecular biology* · 21

Live cell microscopy analysis of radiation-induced DNA double-strand break motion

2009 · B. Jakob, J. Splinter, et al. · *Proceedings of the National Academy of Sciences* · 181

Chromatin stiffening underlies enhanced locus mobility after DNA damage in budding yeast

2017 · Sébastien Herbert, Alice Brion, et al. · *The EMBO Journal* · 78

Recruitment of RNA polymerase II cofactor PC4 to DNA damage sites

2008 · Oliver Mortusewicz, Wera Roth, et al. · *The Journal of Cell Biology* · 71

Comparison of High- and Low-LET Radiation-Induced DNA Double-Strand Break Processing in Living Cells

2020 · Stefan J. Roobol, Irene van den Bent, et al. · *International Journal of Molecular Sciences* · 88

Year

Open Access

Topic

Institution

Type

97.4%

1'046

DNA Repair Mechanisms

Microtubule and mitosis dynamics

Genomics and Chromatin Dynamics

Advanced Fluorescence Microscopy Techniques

Cell Image Analysis Techniques

article

preprint

review

Dissertation

dataset

Relevance

Citation count

Date

63

53

39

39

37

643

171

121

117

5

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Search for «works» with OpenAlex

"live cell microscopy" AND "DNA damage"

works

YearTypeOpen AccessFieldAuthorInstitutionmore

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Year

More...

Open Access

97.4%

1'046

Topic

☐ DNA Repair Mechanisms

☐ Microtubule and microtubule dynamics

☐ Genomics and Chromatin Dynamics

☐ Advanced Fluorescence Microscopy Techniques

☐ Cell Image Analysis Techniques

52

38

29

More...

Sort by:

Relevance

Citation count

Date

Institution

☐ National Center for Scientific Research

☐ Helmholtz Association of German Research Centres

☐ Inserm

☐ Institute of Biological Sciences

☐ United States Department of Health and Human Services

63

53

39

39

37

More...

Type

☐ article

☐ preprint

☐ review

☐ Dissertation

☐ dataset

643

171

121

117

5

More...

Save search

Create alert

Copy API call

Get QR code

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Search for «works» with OpenAlex

"live cell microscopy" AND "DNA damage"

works

boolean

xpac

Year

Type

Open Access

Field

Author

Institution

more

Filters

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More...

Open Access

97.4%

1'046

Topic

DNA Repair Mechanisms

155

Microtubule and mitosis dynamics

59

Genomics and Chromatin Dynamics

52

Advanced Fluorescence Microscopy Techniques

38

Cell Image Analysis Techniques

29

More...

Institution

National Center for Scientific Research

63

Helmholtz Association of German Research Centres

53

Inserm

39

Institute of Biological Sciences

39

United States Department of Health and Human Services

37

More...

Type

article

643

preprint

171

review

121

Dissertation

117

dataset

5

More...

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Use filters to decrease the number of results

"live cell microscopy" AND "DNA damage"

works

boolean

xpac

2016-2026

Type

Open Access

Field

Author

Institution

more

856 works

Phase separation of DNA repair factors in the nucleus

2019 · Sinan Kiliç · *EMBO Journal* · 442

Chromatin stiffening underlies enhanced locus mobility after DNA damage in budding yeast

2017 · Sébastien Herbert, Alice Brion, et al. · *The EMBO Journal* · 78

Comparison of High- and Low-LET Radiation-Induced DNA Double-Strand Break Processing in Living Cells

2020 · Stefan J. Roobol, Irene van den Bent, et al. · *International Journal of Molecular Sciences* · 88

Live Dynamics of DNA Repair Factors Following Simultaneous Induction of Clustered and Dispersed DNA Damage

2018 · Alice Sollazzo, Beata Brzozowska, et al. · *International Journal of Molecular Sciences* · 47

Live cell microscopy analysis of radiation-induced DNA double-strand break motion

2009 · B. Jakob, J. Splinter, et al. · *Proceedings of the National Academy of Sciences* · 181

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2020 · Stefan J. Roobol, Irene van den Bent, et al. · *International Journal of Molecular Sciences* · 88

Select Filters

Search filters...

Aboutness

Author

Source

Funder

Institution

Geo

Open Access

Quote

Ids

Other

Institution Type

Institutions Count

GEO

Continent

Countries Count

Country

From Global South

Language

OPEN ACCESS

License

Linked To A PDF

Open Access

Open Access Accepted

Open Access Published

Open Access Status

QUOTE

Citation Count

Citation Percentile (By Year/Subfield)

Year

Open Access

Topic

Type

Get the full text

"live cell microscopy" AND "DNA damage"

works

2016–2026 Article Open Access Field Author Institution more

500 works

Phase separation of 53 BP 1 determines liquid-like behavior of DNA repair compartments

2019 · Sinan Kilic, Aleksandra Lezaja, et al. · The EMBO Journal · 442

PDF

Chromatin stiffening underlies enhanced locus mobility after DNA damage in budding yeast

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2020 · Stefan J. Roobol, Irene van den Bent, et al. · International Journal of Molecular Sciences · 88

PDF

Live Dynamics of 53BP1 Foci Following Simultaneous Induction of Clustered and Dispersed DNA Damage in U2OS Cells

2018 · Alice Sollazzo, Beata Brzozowska, et al. · International Journal of Molecular Sciences · 47

PDF

Controlled Drug Release and Chemotherapy Response in a Novel Acoustofluidic 3D Tumor Platform

2016 · Ioannis K. Zervantonakis, Costas D. Arvanitis · Small · 42

Bacterial filaments recover by successive and accelerated asymmetric divisions that allow rapid post-stress cell proliferation

2022 · Julien Cayron, Annick Dedieu-Berne, et al. · Molecular Microbiology · 31

PDF

Cytotoxic effect of Efavirenz in BxPC-3 pancreatic cancer cells is based on oxidative stress and is synergistic with ionizing radiation

2017 · Markus Hecht, Thomas Harrer, et al. · Oncology Letters · 36

PDF

Phase separation of 53 BP 1 determines liquid-like behavior of DNA repair compartments

Work

HTML PDF RPT CD

Link to publisher/database

Year: 2019

Type: article

Source: The EMBO Journal

Authors: Sinan Kilic, Aleksandra Lezaja, Marco Gatti, Eliana Bianco, Jone Michelena +2 more

Institutions: University of Zurich, Life Science Zurich

Language: English

Cites: 94

Cited by: 442

Related to: 10

FWCI: 18.89

Citation percentile (by year/subfield): 99.62

Topic: RNA Research and Splicing

Subfield: Molecular Biology

Field: Biochemistry, Genetics and Molecular Biology

Domain: Life Sciences

Open Access status: bronze

Funders: National Science Foundation, Novartis Foundation, European Commission, Swiss National Science Foundation, Swiss Cancer League +3 more

Awards: G1522333319, G317906873, G4900071528, G6202402804, G7821535393

Everything highlighted in blue is clickable, allowing you to view the citations, related works, and other authors

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Import references to your reference manager from OpenAlex

ication_year:2016-2026,type:article&zoom=w2953749471



I import the reference via the Zotero connector browser extension

Phase separation of 53 BP 1 determines liquid-like behavior of DNA rep

Work

HTML

PDF

API

Alternatively: go to publisher site and download citation from there or import PDF to reference manager

Year: 2019

Type: article

Source: [The EMBO Journal](#)

Authors: [Sinan Kilic](#), [Aleksandra Lezaja](#), [Marco Gatti](#), [Eliana Bianco](#), [Jone Michelena](#) +2 more

Institutions: [University of Zurich](#), [Life Science Zurich](#)

Language: English

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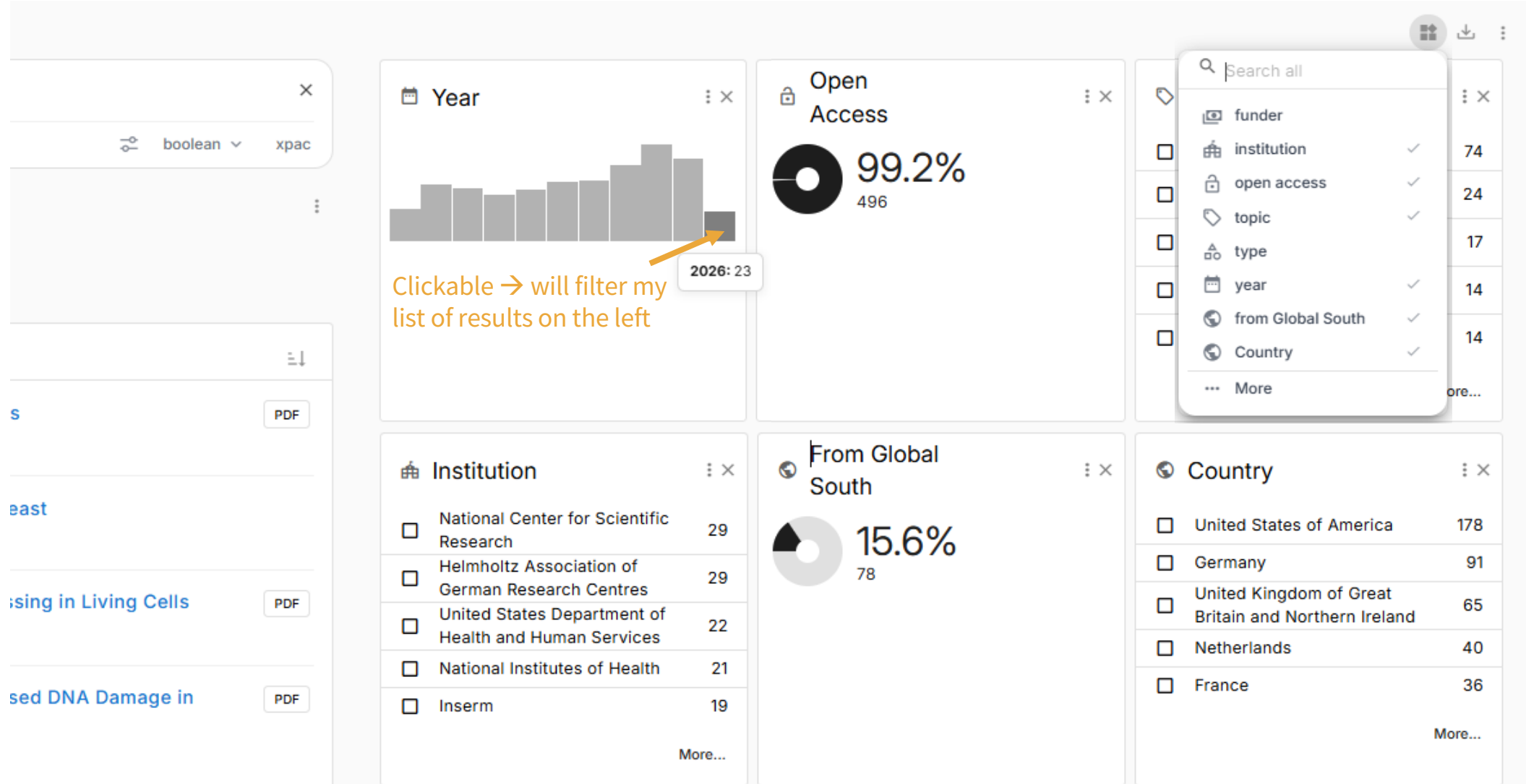
Subfield: [Molecular Biology](#)

Phase separation of 53BP1 determines liquid-like behavior of DNA repair compartments

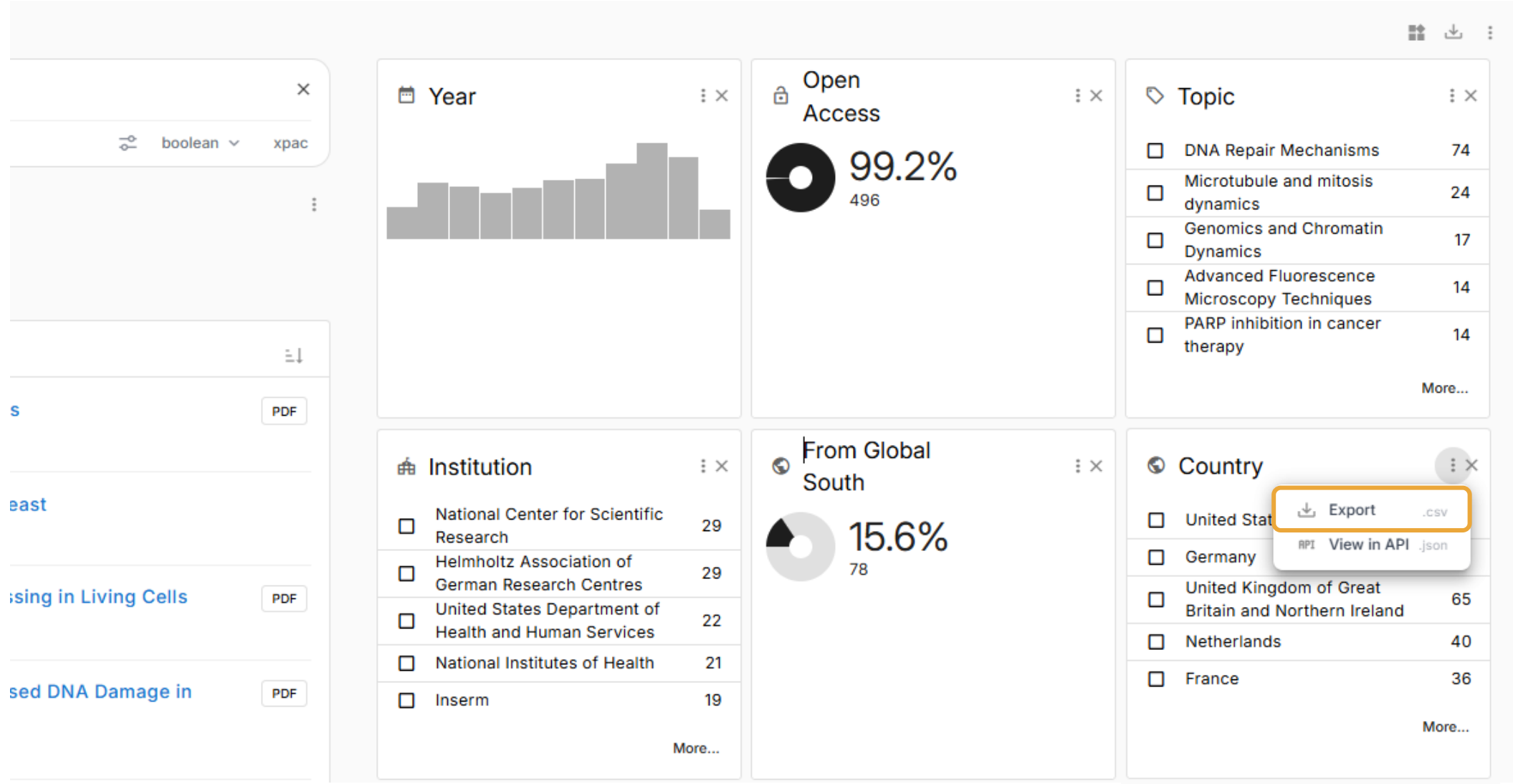
Info

Item Type	Journal Article
Title	Phase separation of 53BP1 determines liquid-like behavior of DNA repair compartments
Author	Kilic, Sinan
Author	Lezaja, Aleksandra
Author	Gatti, Marco
Author	Bianco, Eliana
Author	Michelena, Jone
Author	Imhof, Ralph
Author	Altmeyer, Matthias
Publication	The EMBO Journal
Publisher	
Place	
Date	2019-07-01
Volume	38
Issue	16
Section	
Part Number	
Part Title	
Pages	e101379
Series	
Series Title	
Series Text	
Journal Abbr	The EMBO Journal

Stats and bibliometric data in OpenAlex

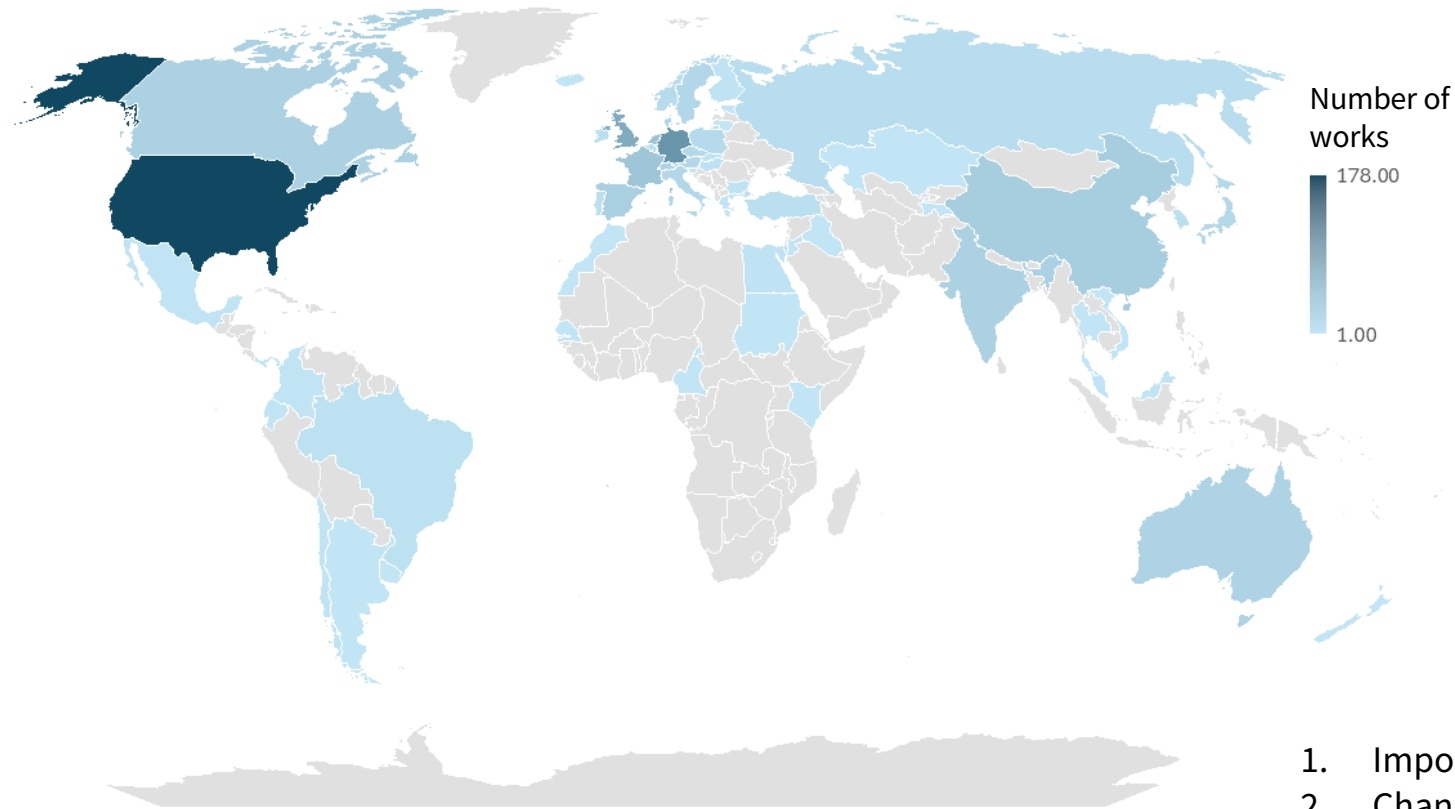


Stats and bibliometric data in OpenAlex



Stats and bibliometric data in OpenAlex

Number of works by country (with my filter settings) → «live cell microscopy» AND «DNA damage»
Filters: Year: 2016-2026, Type: article



1. Import .csv file in Excel
2. Change Country names to Data Type «Geography»
3. Highlight both columns → Insert → Maps → Filled map

Advantages and disadvantages of OpenAlex (compared to WoS, Scopus etc.)



- Free
- More inclusive of other languages and formats (includes non-English literature and preprints)
- Supports open access principles
- The Global South is less underrepresented
- *Quality assessment must be done by the user themselves*



- Metadata are less complete than in curated databases such as Web of Science or Scopus
- Abstracts and citation data may be missing due to publisher restrictions
- *Quality assessment must be done by the user themselves*

**Any
questions?**

Feedback



<https://shorturl.at/Fbss6>

Contact address

merula.stout@ub.uzh.ch

API calls limit

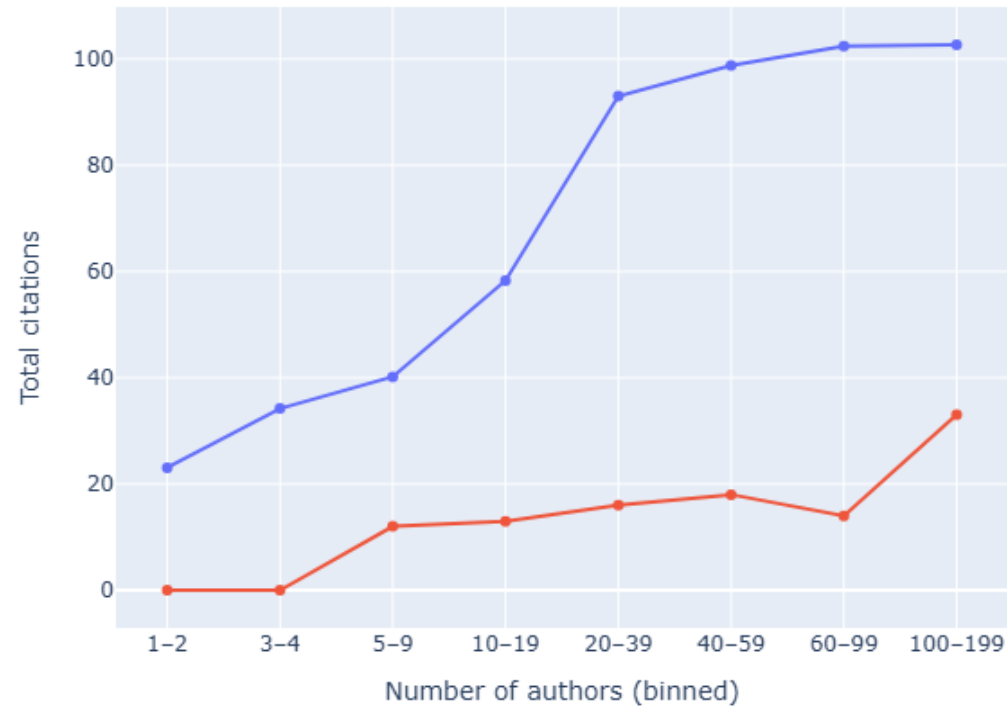
Action	Calls (per day)	Results (per day)	Example
Get a single entity	Unlimited	Unlimited	Look up a work by DOI
List+filter	10,000	1,000,000	All works from MIT in 2024
Search	1,000	100,000	Full-text search for “CRISPR”
Content download	100	100 PDFs	Download a paper’s full text

Using the API to extract data

Python script to extract and plot data from OpenAlex

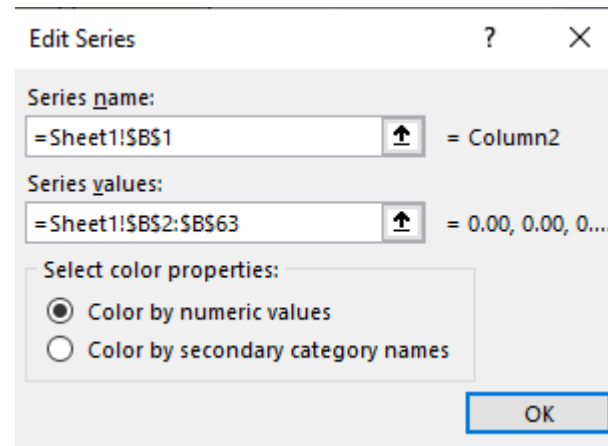
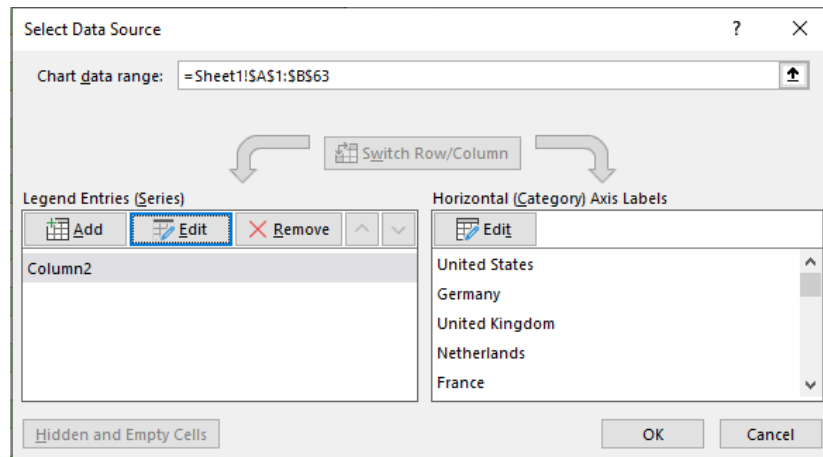
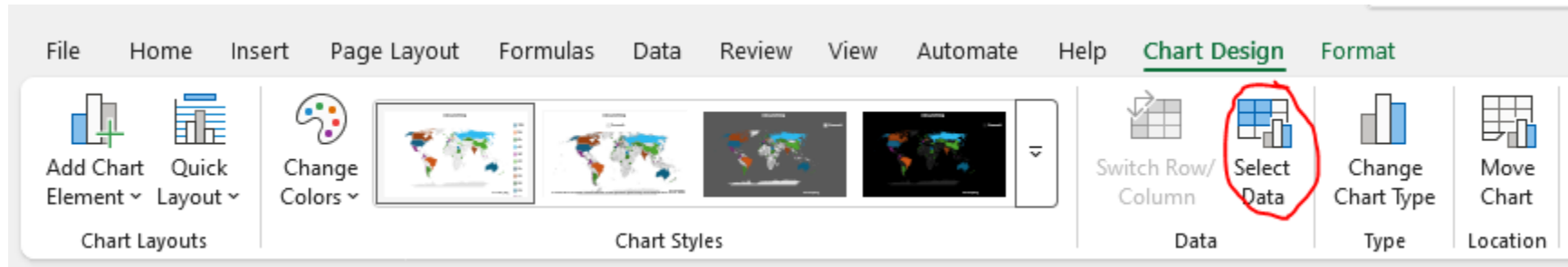
To answer the question: Does the number of citations per paper increase with increasing number of authors

Total citations vs number of authors (mean vs median)



Openalex-api-tutorials on Github <https://github.com/ourresearch/openalex-api-tutorials/blob/main/notebooks/institutions/uw-collaborators.ipynb>

To make a gradient colour for Excel Map



If it still does not work (shows value 0 on the map):

- Select column
- Data → Text to Columns → Click Next