

InCites Benchmarking & Analytics: *Explaining the Metrics*

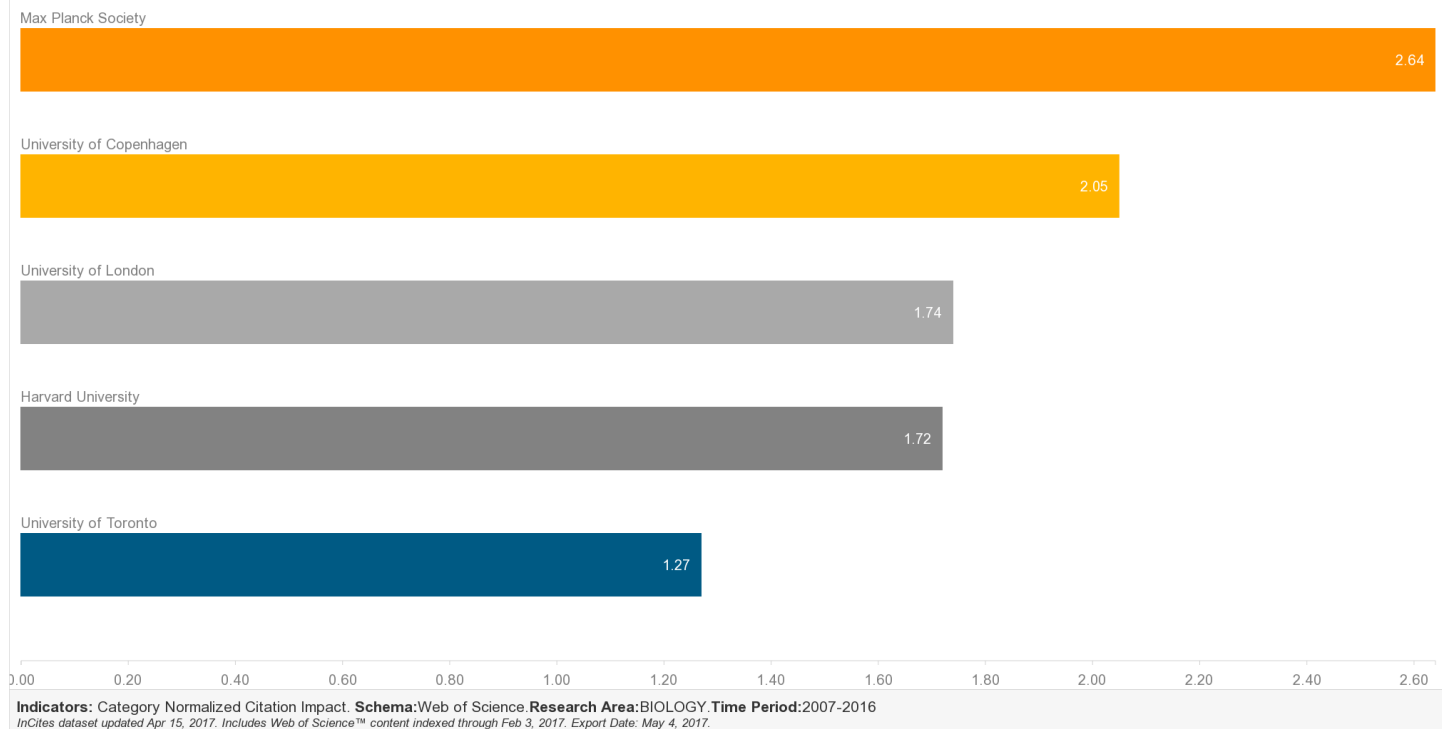
This guide provides users with concrete examples of InCites metrics explanations. For complete metrics definitions, please use the InCites Indicators Handbook available [here](#).

When communicating the results of your analysis to other stakeholders at your institution, you may want to start by specifying the filters or parameters of your analysis, e.g. “These tiles/reports look at all biology papers in the InCites dataset published from 2007-2016.” Or you can include this information in the explanation of each tile, e.g. “Institution x’s biology output from 2007-2016 performs...”

Category Normalized Citation Impact

Why use Category Normalized Citation Impact? A paper's citation count cannot tell you the whole story by itself. When was the paper published? What type of document is it? How frequently does work in that field typically get cited? Normalization puts citation counts in context. CNCI shows you how a paper or group of papers performs relative to averages or baselines for its category. This metric allows you to fairly compare institutions of different sizes, because the number of papers does not affect CNCI the same way that it affects the total Times Cited count for a group of papers. It also allows for fair comparisons between multidisciplinary document sets and institutions that have very different subject area strengths, e.g. business vs. genetics.

This tile shows the CNCI score for each institution’s biology papers published from 2007-2016.



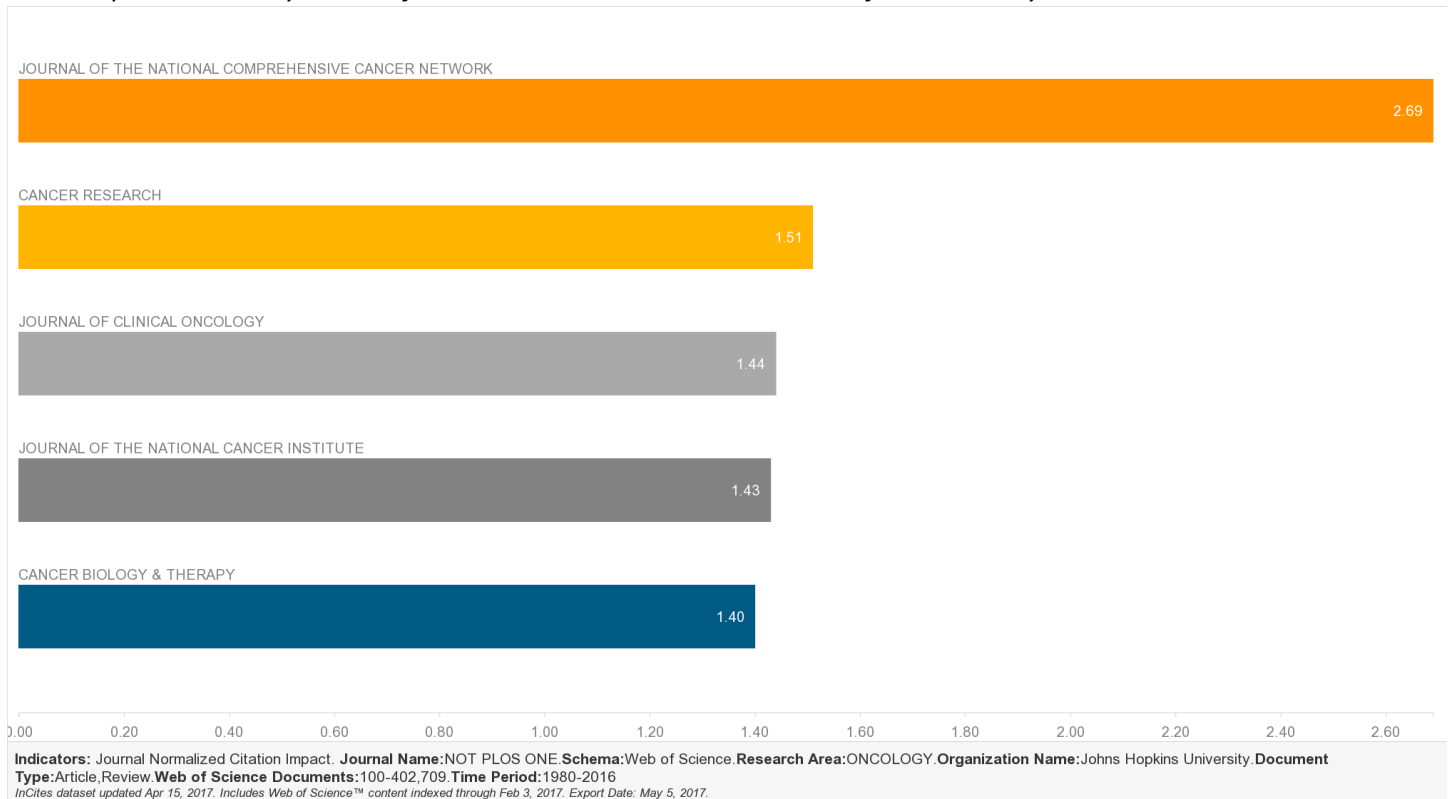
- The collective CNCI of Max Planck Society’s biology papers is 2.64, meaning that Max Planck’s research is cited at 2.64 times the average expected rate for that category.
- University of Copenhagen’s biology papers from 2007-2016 have a CNCI score of 2.05, meaning that this research is performing two times better than the global average based on citations accrued.

- With a CNCI score of 1.27, University of Toronto’s research is performing above average when compared to global baselines.
- Institution x’s biology research has a CNCI score of .87, which means that it performs below the average expected rate of citation.

Journal Normalized Citation Impact

Why use Journal Normalized Citation Impact? Journal Impact Factor (from Journal Citation Reports) is a popular metric, when it comes to journal analysis, but this journal-level metric does not tell you how individual papers perform when published in a particular journal. You may have published a highly cited paper in a journal with a low JIF, or you may have published a paper in *Science* with 0 citations. JNCI helps you understand how an individual paper or subset of papers in a journal performs compared to similar research in the same journal. This makes it an appropriate metric for author-, paper-, and institution-level analyses that take journal citation behavior into account.

This tile shows the Journal Normalized Citation Impact score of articles and reviews published in oncology journals by Johns Hopkins University authors from 1980-2016. It excludes PLOS ONE from the analysis.



- When JHU authors publish in the *Journal of the National Comprehensive Cancer Network*, their research outperforms the average citation rate for that journal.
- The collective JNCI of JHU’s papers in the *Journal of the National Comprehensive Cancer Network* is 2.69, meaning that this research is cited at 2.69 times the average citation rate for that journal.
- With a JNCI of 1.51, JHU’s papers in *Cancer Research* show above-average citation performance when compared to peer papers in that journal.

Percentile in Subject Area and Average Percentile

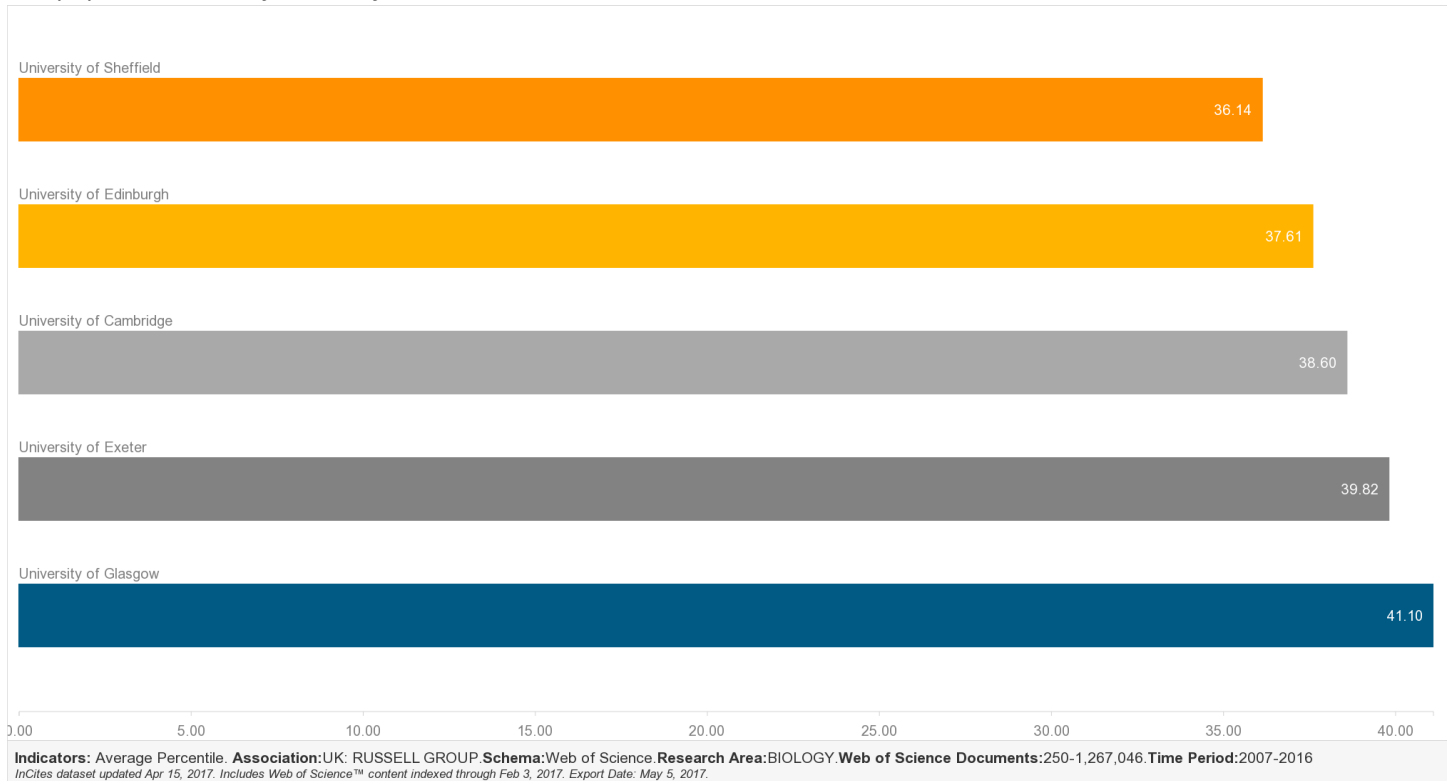
What is Percentile in Subject Area? This metric appears on the document list view. Percentiles are based on the distribution of citations to all papers of the same document type, publication year, and subject area. This means that percentiles are also normalized and put citation counts in context. The smaller the percentile, the better the performance. If a paper has more than one subject area, the percentile is based on the subject area in which the paper performs best, i.e. the lowest value.

Article Title	Authors	Source	Research Area	Volume	Issue	Pages	Publication Date	Times Cited	Journal Expected Citations	Category Expected Citations	Journal Normalized Citation Impact	Category Normalized Citation Impact	Percentile in Subject Area
Constitutive Stat3 activity up-regulates VEGF expression and tumor angiogenesis	Niu, GL; Wright, KL; Huang, M; Song, LX; Haura, E	ONCOGENE	ONCOLOGY; GENETICS & HEREDITY; BIOCHEMISTRY & MOLECULAR BIOLOGY; CELL BIOLOGY	21	13	2000-2008	2002	660	61.24	50.76	10.78	13	.21

- This paper is performing in the top .21% of peer papers based on times cited count.

Average Percentile: For a set of papers, the average percentile is the harmonic mean of all the percentiles of all the papers in the set. Remember that the lower the number, the better the performance. If you are comparing entities based on this metric, make sure that you sort in ascending order for a correct ranking.

This tile looks at the average percentile of biology research from Russell Group institutions that have produced at least 250 papers in this subject area from 2007-2016.




- The citation performance of University of Sheffield's ten-year biology output places it in the top 36.14% of similar research.

% Docs Cited and % Documents in Top 1% and Top 10%

Why use percentile metrics? It is recommended that you use more than one metric in your analysis, and percentile metrics can be used to complement other indicators like Category Normalized Citation Impact. Used together, these metrics will create a more complete picture of citation performance for a set of papers. The % Docs Cited metric will show you the efficiency of a document set. The % Documents in Top 1% or Top 10% will provide more insight into the citation distribution of your document set, and they can help you understand whether outliers are responsible for elevating the CNCI of a document set. For example, if you have a high CNCI value, but you have a low percentage of documents in the top 1% or 10%, that suggests that a few heavily cited papers are responsible for the high CNCI.

This is the data table view from the previous Russell Group analysis. It looks at University of London's biology papers from 2007-2016.

	Name	Rank	Web of Science Documents	▼ Category Normalized Citation Impact	Times Cited	% Docs Cited	% Documents in Top 1%	% Documents in Top 10%
▶	University of London	614	2,024	1.74	32,631	75.69%	2.96%	20.65%

- University of London researchers have published 2,024 papers in biology journals from 2007-2016. When looking at citations received, 2.96% of those papers are performing in the top 1% of similar research.
- Over 20% of University of London's papers have been cited enough to place them in the top 10% of similar research.
- University of London's 2,024 biology papers from the last ten years have been cited 32,631 times. Over 75% of the papers in this set have been cited at least once.