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## Citation Classics: Highly Cited Papers on COVID-19 Drugs, Vaccines and Medicines

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<https://digitalcommons.unl.edu/libphilprac/5854>

## **Citation Classics: Highly Cited Papers on COVID-19 Drugs, Vaccines and Medicines**

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### **Abstract**

*The number of citations of a scientific article is considered as the weight of that work in the field of interest. Bibliometric/Scientometric analysis of the most cited articles conducted in some medical disciplines has identified the most relevant scientific contributions that pushed forward knowledge and practice of that discipline. We conducted a bibliometrics/Scientometric analysis of the most cited articles in Covid-19 Drugs, Vaccines and Medicines, by extracting relevant words that identify and querying the Scopus online database. A rank with the 100, 500 and 1000 above Citations of the most cited articles was obtained, based on the absolute number of citations. Word(s) extracted from the Scopus database. Among the Highly cited articles there are 22 articles received more than 1000 Citations, 83 articles have recorded more than 500 Citations and 816 articles recorded 100 Citations. A total of 22005 scientific journals had published the top 816 most cited articles in Covid-19 Drugs, Medicine and Vaccines of publications are published in reputed journals like The Lancet, Cell, Cell Research, New England Journal of Medicine, International Journal of Antimicrobial Agents, The Lancet Infectious Diseases, Allergy: Eropceans Journal of Allergy and Clinical Immunology, Military Medical Research, BioScience Trends, Journal of Hospital Infection, The Lancel Respiratory Medicine etc..*

**Keywords:** Scientometrics; Citations; Citation Classics; Highly Cited Papers, Covid-19; Drugs; Vaccines; Medicine

### **INTRODUCTION**

Citation Classics will enable the authors of these papers to discuss their work retrospectively. It is the kind of science 'reviewing' rarely seen in scientific journals. It will provide a kind of living history. Authors will discuss interesting aspects in the development of

their techniques, the role played by coauthors or others, and the encouragement received from colleagues. This is the human side of science.

In recent years, efforts have been made to define relevant articles in Covid-19 specialty areas (Drugs, Medicines and Vaccines) by identifying the most cited articles. We therefore employed a bibliometrics analysis aimed at identifying the top 100 most cited scientific articles on Covid-19 Vaccines, Drugs and medicines.

### **Short History of Citation Classics Commentaries by Eugene Garfield**

From 1977 to 1993, four thousand Citation Classic Commentaries were published in Current Contents. The full texts of these mostly one-page articles are now available in an open access server at: <http://garfield.library.upenn.edu/classics.html>

On January 3, 1977 essay -" Introducing Citation Classics: The human side of scientific papers "appeared in Current Contents. The first group was selected from the 500 papers most-cited from 1961-1975. This collection contained some of the most-cited papers ever published.

First Citation Classics commentary by Oliver H. Lowry was a fitting choice as his 1951 paper is the most-cited paper in the history of science.<sup>1</sup> Over the past eleven years since this feature of Current Contents was concluded, numerous readers have requested copies of these commentaries. The reason is quite simple : most libraries do not store the print version of Current Contents.

### **What is a Citation Classic?**

A Citation Classic is a highly cited publication as identified by the Science Citation Index (SCI) the Social Sciences Citation Index (SSCI), or the Arts & Humanities Citation Index (A&HCI). Citation rates differ for each discipline. The number of citations indicating a classic in botany, a small field, might be lower than the number required to make a classic in a large field like biochemistry. In general, a publication cited more than 400 times should be considered a classic; but in some fields with fewer researchers, 100 citations might qualify a work.

Citation Classics authors were asked to write an abstract and a commentary about the publication, emphasizing the human side of the research - how the project was initiated, whether any obstacles were encountered, and why the work was highly cited. Undoubtedly most of these

authors will not only be among the most cited, but also the most highly-qualified in their respective fields. The candidates for Citation Classics will be selected from a group of 500 papers most cited during the years 1961-1975. Many of these have been listed before in Current Contents.

## **OBJECTIVES OF THE STUDY**

The following are the major objectives of this study

- To identify most cited Sources.
- To identify the most cited Countries;
- To identify the most cited Authors;
- To identify the highly Cited papers;
- To find research output on Covid-19 Drugs, Vaccines and Medicine;
- To find Field-Weighted Citation Impact of Highly Cited Papers;

## **MATERIALS AND METHODS**

The Scopus tool, which restitutes for each article the number of citations, was used to search for the most cited articles of Covid-19 Drugs, Vaccines and Medicines interest. The search was conducted by introducing in the field “Covid-19 Drugs” or Covid-19 Vaccines” and Covid-19 Medicines, general terms that could capture all relevant articles. The top most cited 100 articles were identified. A preliminary analysis of number of citations allowed us to set a cut-off of 100, 500 and 1000 Citations, so all articles that received a higher number of citations were extracted and listed to generate a rank based on absolute number of citations received by each article. Concerning the country origin of the articles, individual countries have been listed if the authors derived from countries.

Field-Weighted Citation Impact shows how well cited this document is when compared to similar documents. A value greater than 1.00 means the document is more cited than expected according to the average. It takes into account: (i) The year of publication (ii) Document type, (iii) Disciplines associated with its source. The FWCI is the ratio of the document’s citations to the average number of citations received by all similar documents over a three-year window. Each discipline makes an equal contribution to the metric, which eliminates differences in researcher citation behavior.

## DATA ANALYSIS AND INTERPRETATIONS

### Covid-19 Drugs: Citation Classic Papers

Among the Highly cited articles there were 22 articles received more than 1000 Citations, 83 articles received more than 500 Citations and 816 articles received 100 Citations. A total of 22005 scientific journals had published the top 816 most cited articles in Covid-19 Drugs, Medicine and Vaccines of publications are published in reputed journals like The Lancet, Cell, Cell Research, New England Journal of Medicine, International Journal of Antimicrobial Agents, The Lancet Infectious Diseases, Allergy: European Journal of Allergy and Clinical Immunology, Military Medical Research, BioScience Trends, Journal of Hospital Infection, The Lancet Respiratory Medicine etc.. The most cited articles are: Zhou, F.a, et al. (2020), Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study(Article)(Open Access), The Lancet, Volume 395, Issue 10229, 28 March - 3 April 2020, Pages 1054-1062 with 6860 Citations from China, followed by Hoffmann, M (2020), SARS-CoV-2 Cell Entry Depends on ACE2 and TMPRSS2 and Is Blocked by a Clinically Proven Protease Inhibitor(Article)(Open Access), Cell, Volume 181, Issue 2, 16 April 2020, Pages 271-280.e8 with 3845 Citations from Germany and Li, W.a et al.(2003), Angiotensin-converting enzyme 2 is a functional receptor for the SARS corona virus(Article)(Open Access), Nature, Volume 426, Issue 6965, 27 November 2003, Pages 450-454 with 2425 Citations from USA.

### Classic papers (Highly Cited Papers)

	Documents	Citations	<2017	2017	2018	2019	2020	2021	Sub total	Total
		<b>Total</b>	<b>8864</b>	<b>483</b>	<b>437</b>	<b>501</b>	<b>43737</b>	<b>10428</b>	<b>55586</b>	<b>64450</b>
1	Clinical course and risk factors for mortality of adult inpa...	2020				2	5488	1370	<b>6860</b>	<b>6860</b>
2	SARS-CoV-2 Cell Entry Depends on ACE2 and TMPRSS2 and Is	2020				3	2966	876	<b>3845</b>	<b>3845</b>

	Blo...									
3	Angiotensin-converting enzyme 2 is a functional receptor for...	2003	962	38	30	22	1139	234	<b>1463</b>	<b>2425</b>
4	Remdesivir and chloroquine effectively inhibit the recently ...	2020				3	1894	402	<b>2299</b>	<b>2299</b>
5	First case of 2019 novel coronavirus in the United States	2020				1	1821	309	<b>2131</b>	<b>2131</b>
6	Knocking down barriers: Advances in siRNA delivery	2009	1381	193	172	175	125	43	<b>708</b>	<b>2089</b>
7	Hydroxychloroquine and azithromycin as a treatment of COVID-...	2020				1	1680	327	<b>2008</b>	<b>2008</b>
8	Cryo-EM structure of the 2019-nCoV spike in the prefusion co...	2020					1498	394	<b>1892</b>	<b>1892</b>
9	A trial of lopinavir-ritonavir in adults hospitalized with s...	2020				1	1566	319	<b>1886</b>	<b>1886</b>
10	Tissue distribution of ACE2 protein, the functional receptor...	2004	242	11	7	4	1191	310	<b>1523</b>	<b>1765</b>
11	Characterization of a novel coronavirus associated with seve...	2003	1512	26	22	16	146	29	<b>239</b>	<b>1751</b>
12	Structure, Function, and Antigenicity of the SARS-CoV-2 Spik...	2020				1	1288	399	<b>1688</b>	<b>1688</b>
13	The genome sequence of the SARS-associated coronavirus	2003	1319	14	15	16	109	25	<b>179</b>	<b>1498</b>
14	A crucial role of angiotensin	2005	246	14	8	12	899	188	<b>1121</b>	<b>1367</b>

	converting enzyme 2 (ACE2) in ...									
15	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)...	2020					1081	270	<b>1351</b>	<b>1351</b>
16	Angiotensin-converting enzyme 2 protects from severe acute l...	2005	366	18	24	19	619	110	<b>790</b>	<b>1156</b>
17	Clinical characteristics of 140 patients infected with SARS-...	2020				2	952	182	<b>1136</b>	<b>1136</b>
18	The origin, transmission and clinical therapies on coronavir...	2020				1	922	201	<b>1124</b>	<b>1124</b>
19	Breakthrough: Chloroquine phosphate has shown apparent effic...	2020					935	135	<b>1070</b>	<b>1070</b>
20	In vitro antiviral activity and projection of optimized dosi...	2020				1	872	175	<b>1048</b>	<b>1048</b>
21	Remdesivir for the treatment of COVID-19 — Final report	2020				1	703	328	<b>1032</b>	<b>1032</b>
22	Persistence of coronaviruses on inanimate surfaces and their...	2020					821	182	<b>1003</b>	<b>1003</b>
23	Are patients with hypertension and diabetes mellitus at incr...	2020				2	855	137	<b>994</b>	<b>994</b>
24	Immune Signaling by RIG-I-like Receptors	2011	498	93	101	118	125	31	<b>468</b>	<b>966</b>
25	Compassionate use of remdesivir for	2020					783	180	<b>963</b>	<b>963</b>

	patients with severe Cov...									
26	Temporal profiles of viral load in posterior oropharyngeal s...	2020				2	723	233	<b>958</b>	<b>958</b>
27	Remdesivir in adults with severe COVID-19: a randomised, dou...	2020					683	226	<b>909</b>	<b>909</b>
28	Mice lacking expression of secondary lymphoid organ chemokin...	1999	796	15	12	15	13	3	<b>58</b>	<b>854</b>
29	Clinical evidence does not support corticosteroid treatment ...	2020				1	746	101	<b>848</b>	<b>848</b>
30	Genomic characterization of the 2019 novel human-pathogenic ...	2020				1	684	141	<b>826</b>	<b>826</b>
31	Pharmacologic Treatments for Coronavirus Disease 2019 (COVID...	2020				1	657	160	<b>818</b>	<b>818</b>
32	Pathogenic human coronavirus infections: causes and conseque...	2017		5	6	7	651	140	<b>809</b>	<b>809</b>
33	Chloroquine is a potent inhibitor of SARS coronavirus infect...	2005	66	4	2	4	609	109	<b>728</b>	<b>794</b>
34	Role of lopinavir/ritonavir in the treatment of SARS: Initia...	2004	134	4	4	10	549	89	<b>656</b>	<b>790</b>
35	Coronavirus main proteinase (3CL <sup>pro</sup> ) Structure: B...	2003	499	12	6	3	216	54	<b>291</b>	<b>790</b>
36	Structure of the	2020					570	217	<b>787</b>	<b>787</b>



	SARS-CoV-2 spike receptor-binding domain bo...									
37	Structural biology: Structure of SARS coronavirus spike rece...	2005	257	10	15	15	392	78	<b>510</b>	<b>767</b>
38	Renin-angiotensin-aldosterone system inhibitors in patients ...	2020				1	651	110	<b>762</b>	<b>762</b>
39	Evidence for Gastrointestinal Infection of SARS-CoV-2	2020					609	150	<b>759</b>	<b>759</b>
40	Epidemiologic Features and Clinical Course of Patients Infec...	2020					617	132	<b>749</b>	<b>749</b>
41	The trinity of COVID-19: immunity, inflammation and interven...	2020					521	225	<b>746</b>	<b>746</b>
42	Hydroxychloroquine, a less toxic derivative of chloroquine, ...	2020				1	606	121	<b>728</b>	<b>728</b>
43	A rapid advice guideline for the diagnosis and treatment of ...	2020				1	610	98	<b>709</b>	<b>709</b>
44	Angiotensin-converting enzyme 2 (ACE2) as a SARS-CoV-2 recep...	2020					577	126	<b>703</b>	<b>703</b>
45	Structural bioinformatics and its impact to biomedical scien...	2004	586	26	13	36	18	5	<b>98</b>	<b>684</b>
46	Structural basis of receptor recognition by SARS-CoV-2	2020					509	165	<b>674</b>	<b>674</b>
47	Characterization of	2020				1	501	165	<b>667</b>	<b>667</b>

	spike glycoprotein of SARS-CoV-2 on viru...									
48	Comparative therapeutic efficacy of remdesivir and combinati...	2020				1	562	96	<b>659</b>	<b>659</b>
49	Clinical and biochemical indexes from 2019-nCoV infected pat...	2020					550	107	<b>657</b>	<b>657</b>
50	The socio-economic implications of the coronavirus pandemic ...	2020					435	221	<b>656</b>	<b>656</b>

## PlumX Metrics:

PlumX is a web-primarily based totallydevicethat offersfactsat the use and effect of studies and scholarly products. It belongs to the small howeveran increasing number of influential network of alt-metric facts providers. ... Altmetrics additionallyconsist of a extensivetype of scholarly products, which includes articles, patents, datasets, figures, and videos.

## Paper 1: Highly Cited paper with PlumX Metrics

The screenshot shows the PlumX Metrics interface for a paper titled "Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study". The paper is cited in The Lancet, ISSN: 0140-6736, Vol: 395, Issue: 10229, Page: 1054-1062, published in 2020.

**Metrics Summary:**

- CITATIONS: 6,874
- Captures: 11,667
- Mentions: 573
- Social Media: 53,699

**Metrics Details:**

- CITATIONS: 6,874
  - Citation Indexes: 6,860
  - Scopus: 6,860
  - CrossRef: 370
  - Clinical Citations: 14
  - PubMed Guidelines: 14
- CAPTURES: 11,667
  - Readers: 11,667
  - Mendeley: 11,667
- MENTIONS: 573
  - News Mentions: 526
  - News: 526
  - Blog Mentions: 43
  - Blog: 43
  - References: 3
  - Wikipedia: 3
  - Q&A Site Mentions: 1
  - Stack Exchange: 1
- SOCIAL MEDIA: 53,699

**Most Recent Tweet:**

Hector L Frisbie (@HFriskie)   
 Tengo COVID. ¿cuando voy a estar mejor y cuando sé si voy mal?   
 ~10% mejoran en la 2a semana   
 Si en las 2 primeras semanas no mejoran, estas mejorando y así lo hacen el 80% de los pacientes   
 El deterioro es acelerado la mejoría es lenta   
 thelancet.com/journals/lance...

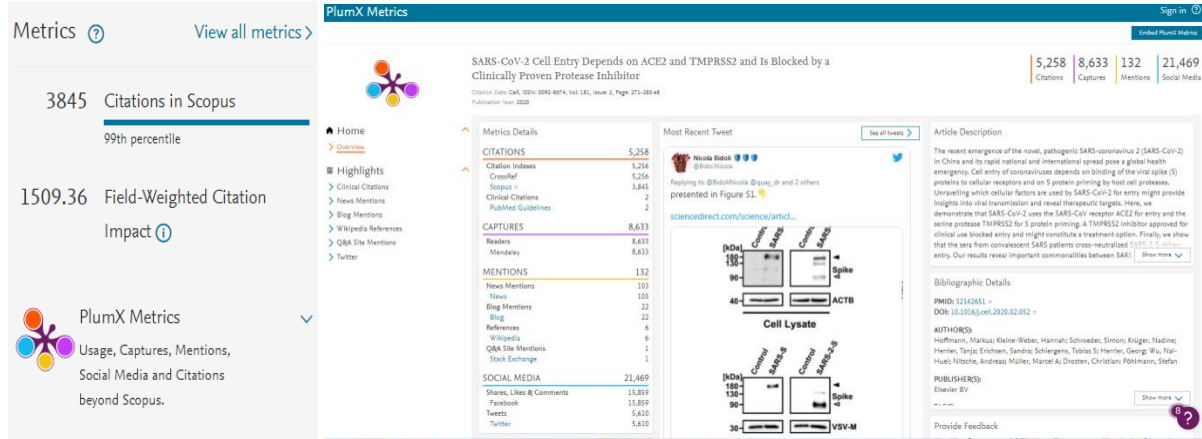
**Article Description:**

Since December, 2019, Wuhan, China, has experienced an outbreak of coronavirus disease 2019 (COVID-19), caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Epidemiological and clinical characteristics of patients with COVID-19 have been reported but risk factors for mortality and a detailed clinical course of illness, including viral shedding, have not been well described. In this retrospective, multicentre cohort study, we included all adult inpatients (≥18 years old) with laboratory-confirmed COVID-19 from Jinyintan Hospital and Wuhan Pulmonary Hospital (Wuhan, China) who had been discharged or had died by Jan 31, 2020. Demographic, clinical, treatment, and laboratory data, including serial samples for viral RNA detection, are reported.

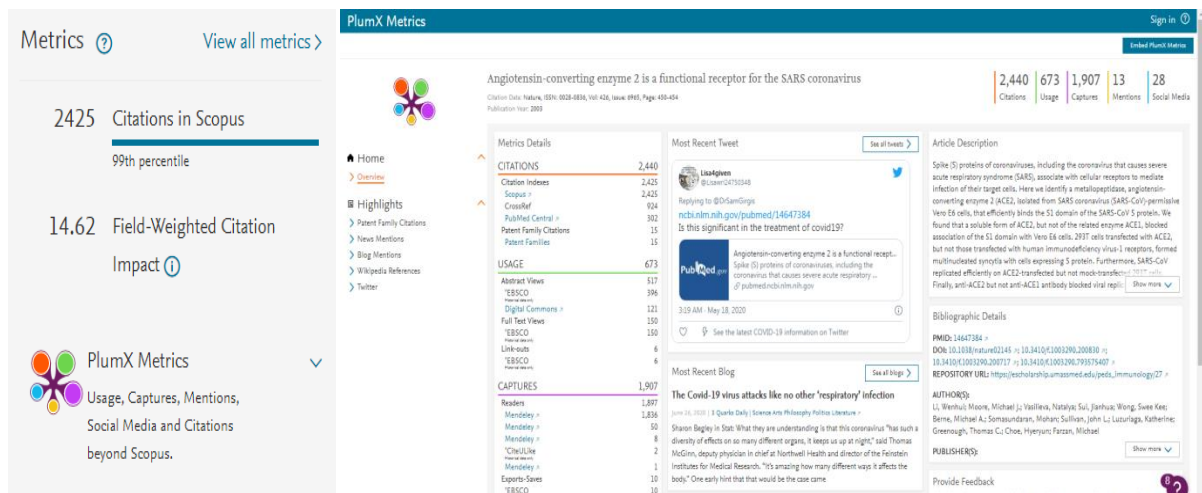
**Bibliographic Details:**

PMID: 32171076   
 DOI: 10.1016/S0140-6736(20)30566-3   
 AUTHOR(S): Zhou, Fei; Yu, Ting; Du, Ronghui; Fan, Guohui; Liu, Ying; Liu, Zhibo; Xiang, Jie; Wang, Yeming; Song, Bin; Gu, Xiaoying; Guan, Lulu; Wei, Yuan; Li, Hui; Wu, Xudong; Xu, Juyang; Tu, Shenglin; Zhang, Yi; Chen, Hui; Cao, Bin

## Paper 2: Highly Cited paper with PlumX Metrics



## Paper 3: Highly Cited paper with PlumX Metrics



## Covid-19 Vaccines: Citation Classics

In Table 2, all terms used for searching the Scopus database are listed. A total of 6038 articles were identified that produced Scopus search. Top most cited 105 articles collected with the range of 100 to 831 citations. The most cited papers indexed in high impact journals: The Lancet, Nature Communication, Journal of Advanced Research, Cell Asian Pacific Journal of Allergy and Immunology, JAMA Cardiology, Nature Reviews Drugs Discovery, Emerging

Microbes and Infections, Journal of Medical Virology, Journal of Pharmaceutical Analysis, BioScience Trends etc., and covers all the classical papers. It is noted that 18 papers received more than 500 Citations, 202 papers have registered more than 100 Citations and only 3 papers received more than 1000 Citations. The most cited articles are: Wrapp, D.a, et al. (2020), Cryo-EM structure of the 2019-nCoV spike in the prefusion conformation(Article), Science, Volume 367, Issue 6483, 13 March 2020, Pages 1260-1263 with 1892 Citation(Field Weighted Citation Impact is 743.12 using PlumX Metrics) from United States followed by Walls, A.C.a et al., (2020), Structure, Function, and Antigenicity of the SARS-CoV-2 Spike Glycoprotein(Article)(Open Access), Cell, Volume 181, Issue 2, 16 April 2020, Pages 281-292.e6 with 1988 Citations from USA and France (Field Weighted Citation Impact is 663.72 using metrics) and Marra, M. A. (2003), The genome sequence of the SARS-associated coronavirus(Article)(Open Access), Science, Volume 300, Issue 5624, 30 May 2003, Pages 1399-1404 with 1498 Citations from Canada (Field Weighted Citation Impact is 30.19 using metrics).

#### Citation Classics: Highly Cited papers

Documents	Citations	<2017	2017	2018	2019	2020	2021	Sub total	Total	
<b>Total</b>		<b>3099</b>	<b>291</b>	<b>284</b>	<b>292</b>	<b>8850</b>	<b>2469</b>	<b>12186</b>	<b>15285</b>	
1	Cryo-EM structure of the 2019-nCoV spike in the prefusion co...	2020				1498	394	<b>1892</b>	<b>1892</b>	
2	Structure, Function, and Antigenicity of the SARS-CoV-2 Spik...	2020			1	1288	399	<b>1688</b>	<b>1688</b>	
3	The genome sequence of the SARS-associated coronavirus	2003	1319	14	15	16	109	25	<b>179</b>	<b>1498</b>
4	How will country-based mitigation measures influence the cou...	2020			1	659	166	<b>826</b>	<b>826</b>	
5	Structural biology: Structure of SARS coronavirus spike rece...	2005	257	10	15	15	392	78	<b>510</b>	<b>767</b>
6	Angiotensin-converting enzyme 2 (ACE2) as a SARS-CoV-2 recep...	2020				577	126	<b>703</b>	<b>703</b>	
7	Characterization of spike glycoprotein of SARS-	2020			1	501	165	<b>667</b>	<b>667</b>	

	CoV-2 on viru...									
8	COVID-19 infection: Origin, transmission, and characteristic...	2020					470	156	<b>626</b>	<b>626</b>
9	A SARS-CoV-2 protein interaction map reveals targets for dru...	2020					430	183	<b>613</b>	<b>613</b>
10	Structure of M <sup>pro</sup> from SARS-CoV-2 and discovery o...	2020					417	175	<b>592</b>	<b>592</b>
11	Broad-spectrum antiviral GS-5734 inhibits both epidemic and ...	2017		3	17	14	461	91	<b>586</b>	<b>586</b>
12	Community-acquired pneumonia requiring hospitalization among...	2015	113	114	107	100	127	19	<b>467</b>	<b>580</b>
13	Severe acute respiratory syndrome	2004	338	26	10	9	166	27	<b>238</b>	<b>576</b>
14	Viral pneumonia	2011	306	61	51	59	90	7	<b>268</b>	<b>574</b>
15	Targets of T Cell Responses to SARS-CoV-2 Coronavirus in Hum...	2020					389	177	<b>566</b>	<b>566</b>
16	The spike protein of SARS-CoV - A target for vaccine and the...	2009	93	15	8	11	348	79	<b>461</b>	<b>554</b>
17	Immune responses in COVID-19 and potential vaccines: Lessons...	2020					424	83	<b>507</b>	<b>507</b>
18	Coronavirus avian infectious bronchitis virus	2007	242	32	48	54	102	22	<b>258</b>	<b>500</b>

**Paper 1: Highly Cited paper with PlumX Metrics**

**Metrics** [View all metrics >](#)

**1892 Citations in Scopus**  
99th percentile

**743.12 Field-Weighted Citation Impact**

**PlumX Metrics**  
Usage, Captures, Mentions, Social Media and Citations beyond Scopus.

**PlumX Metrics** [Sign in](#)

**Cryo-EM structure of the 2019-nCoV spike in the prefusion conformation**  
Citation Data: Science, ISSN: 1095-9298, Vol. 347, Issue 6483, Page 1260-1263  
Publication Year: 2020

**1,892 Citations** **3,992 Captures** **1 Mentions** **447 Social Media**

**Metrics Details**

CITATIONS	1,892
Citation Indexes	1,892
Scopus >	1,892
CrossRef >	28
CAPTURES	3,992
Readers	3,992
Mendeley >	3,771
Mendely >	221
MENTIONS	1
News Mentions	1
News	1
SOCIAL MEDIA	447
Shares, Likes & Comments	361
Facebook	361
Tweets	86
Twitter	86

**Most Recent Tweet**

**Article Description**

The outbreak of a novel coronavirus (2019-nCoV) represents a pandemic threat that has been declared a public health emergency of international concern. The CoV spike (S) glycoprotein is a key target for vaccines, therapeutic antibodies, and diagnostics. To facilitate medical countermeasure development, we determined a 3.5-angstrom-resolution cryo-electron microscopy structure of the 2019-nCoV S trimer in the prefusion conformation. The predominant state of the trimer has one of the three receptor-binding domains (RBDs) rotated up in a receptor-accessible conformation. We also provide biological and structural evidence that the 2019-nCoV S protein binds angiotensin-converting enzyme 2 (ACE2) with higher affinity than does severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

**Bibliographic Details**

PMID: 32165588  
DOI: 10.1126/science.abb3221

**AUTHORS**  
Logezman, Sampath K; Schleicher, Krista; Malik, Ahmad; Qureshi, Renee; Langille, Ellen; Teng, Kate; Chi, Robin H; Baruch, Shandiz; Tsai, Ricky; Sanwarshi-Nehras, Payam; Pugh, Trevor J; Gingras, Anne-Claude; Schramke, Daniel

**Paper 2: Highly Cited paper with PlumX Metrics**

**Metrics** [View all metrics >](#)

**1688 Citations in Scopus**  
99th percentile

**663.72 Field-Weighted Citation Impact**

**PlumX Metrics** [Sign in](#)

**Structure, Function, and Antigenicity of the SARS-CoV-2 Spike Glycoprotein**  
Citation Data: Cell, ISSN: 0092-8674, Vol. 181, Issue 2, Page 281-292e4  
Publication Year: 2020

**1,688 Citations** **5,555 Captures** **77 Mentions** **2,718 Social Media**

**Metrics Details**

CITATIONS	1,688
Citation Indexes	1,688
Scopus >	1,688
CrossRef >	1,077
CAPTURES	5,555
Readers	5,555
Mendeley >	5,511
Mendely >	1
MENTIONS	77
News Mentions	64
News	64
Blog Mentions	9
Blog	9
Q&A Site Mentions	2
Stack Exchange	2
References	2
Wikidata	2

**Most Recent Tweet**

**Article Description**

The emergence of SARS-CoV-2 has resulted in >90,000 infections and >3,000 deaths. Coronavirus spike (S) glycoproteins promote entry into cells and are the main target of antibodies. We show that SARS-CoV-2 S uses ACE2 to enter cells and that the receptor-binding domains of SARS-CoV-2 S and SARS-CoV S bind with similar affinities to human ACE2, correlating with the efficient spread of SARS-CoV-2 among humans. We found that the SARS-CoV-2 S glycoprotein harbors a furin cleavage site at the boundary between the S1/S2 subunits, which is processed during biogenesis and sets this virus apart from SARS-CoV and SARS-related CoVs. We determined cryo-EM structures of the SARS-CoV-2 S ectodomain trimer, providing a blueprint for the design of vaccines and therapeutics.

**Bibliographic Details**

PMID: 32155444  
DOI: 10.1016/j.cell.2020.02.058

**AUTHORS**  
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**Paper 2: Highly Cited paper with PlumX Metrics**

**Metrics** [View all metrics >](#)

**1498 Citations in Scopus**  
99th percentile

**30.91 Field-Weighted Citation Impact**

**PlumX Metrics**  
Usage, Captures, Mentions, Social Media and Citations beyond Scopus.

**PlumX Metrics** [Sign in](#)

**The genome sequence of the SARS-associated coronavirus**  
Citation Data: Science, ISSN: 0098-9298, Vol. 293, Issue 5626, Pages 1599-1604  
Publication Year: 2003

**1,567 Citations** **1,917 Usage** **814 Captures** **22 Mentions** **285 Social Media**

**Metrics Details**

CITATIONS	1,567
Citation Indexes	1,567
Scopus >	1,498
CrossRef >	967
PubMed Central >	380
Parent Family Citations	69
Parent Families	69
USAGE	1,917
Abstract Views	1,073
"EBSCO" >	1,073
Full Text Views	834
"EBSCO" >	834
Link-outs	10
"EBSCO" >	10
CAPTURES	814
Readers	784
Mendeley >	782
"CrossRef" >	2
Expansive Spans	2
"EBSCO" >	30

**Most Recent Tweet**

**Article Description**

We sequenced the 29,721-base genome of the severe acute respiratory syndrome (SARS)-associated coronavirus known as the 229E isolate. The genome sequence reveals that this coronavirus is only moderately related to other known coronaviruses, including two human coronaviruses, HKU1 and NL63. Phylogenetic analysis of the predicted viral proteins indicates that the virus does not closely resemble any of the three previously known groups of coronaviruses. The genome sequence will aid in the diagnosis of SARS virus infection in humans and potential animal hosts (using polymerase chain reaction and immunological tests), in the development of antivirals (including neutralizing antibodies), and in the identification of putative epitopes for vaccine development.

**Bibliographic Details**

PMID: 12730501  
DOI: 10.1126/science.1089993

**AUTHORS**  
Marra, Marco A; Jones, Steven J; Renwick, Caroline R; Holt, Robert A; Brooks-Wilson, Angela; Butterfield, Yvonne S H; Khouri, Jennifer; Adams, Jennifer K; Barber, Sarah A; Chan, Susanna Y; Chiu, Alison; Coombs, Shaun K; Freeman, Doug G; Hens, Gregory; Griffin, Chai L; Leach, Sue R; Naylor, Michael; MacInnis, Helen; Montgomery, Stephen B; Park, Pawan K; Paterson, Aina S; Robertson, A Gordon; Scher, C

### Covid-19 Medicine: Citation Classics

In Table 3, Covid-19 Medicines terms used for searching the Scopus database are listed. A total of 9533 articles were identified. Top most cited 26 articles with more than 400 Citations. It is noted that 5 papers with more than 1000 Citations followed by 15 papers with more than 500 Citations and 141 papers with more than 100 Citations. The most Cited Classic Papers are: Chan, J.F.-W. et al., (2019), A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster(Article)(Open Access), The Lancet, Volume 395, Issue 10223, 15 - 21 February 2020, Pages 514-523 with 2909 Citations from China (Field Weighted Citation Impact is 1215.43) followed by Rota, P.A. et al., (2003) Characterization of a novel coronavirus associated with severe acute respiratory syndrome(Article)(Open Access), Science, Volume 300, Issue 5624, 30 May 2003, Pages 1394-1399 with 1751 Citations from USA, Netherland and Germany (Field Weighted Citation Impact is 33.74) and Shi, H.a,b et al., (2020), Radiological findings from 81 patients with COVID-19 pneumonia in Wuhan, China: a descriptive study(Article)(Open Access), The Lancet Infectious Diseases, Volume 20, Issue 4, April 2020, Pages 425-434 with 1184 Citations from China (Field Weighted Citation Impact is 355. 33).

### Citations Classics: Highly Cited Papers

S. No	Documents	Citations	<2017	2017	2018	2019	2020	2021	Sub total	Total
		<b>Total</b>	<b>2958</b>	<b>258</b>	<b>260</b>	<b>269</b>	<b>19746</b>	<b>4666</b>	<b>25199</b>	<b>28157</b>
1	A familial cluster of pneumonia associated with the 2019 nov...	2020				5	2491	413	<b>2909</b>	<b>2909</b>
2	Characterization of a novel coronavirus associated with seve...	2003	1512	26	22	16	146	29	<b>239</b>	<b>1751</b>
3	Radiological findings from 81 patients with COVID-19 pneumon...	2020				1	984	199	<b>1184</b>	<b>1184</b>
4	Angiotensin-converting enzyme 2 protects from severe acute l...	2005	366	18	24	19	619	110	<b>790</b>	<b>1156</b>
5	Breakthrough:	2020					935	135	<b>1070</b>	<b>1070</b>

	Chloroquine phosphate has shown apparent effic...									
6	Are patients with hypertension and diabetes mellitus at incr...	2020				2	855	137	<b>994</b>	<b>994</b>
7	Temporal profiles of viral load in posterior oropharyngeal s...	2020				2	723	233	<b>958</b>	<b>958</b>
8	Clinical evidence does not support corticosteroid treatment ...	2020				1	746	101	<b>848</b>	<b>848</b>
9	Emerging coronaviruses: Genome structure, replication, and p...	2020					690	144	<b>834</b>	<b>834</b>
10	Sensitivity of chest CT for COVID-19: Comparison to RT-PCR	2020					666	166	<b>832</b>	<b>832</b>
11	Pharmacologic Treatments for Coronavirus Disease 2019 (COVID...	2020				1	657	160	<b>818</b>	<b>818</b>
12	The trinity of COVID-19: immunity, inflammation and interven...	2020					521	225	<b>746</b>	<b>746</b>
13	A rapid advice guideline for the diagnosis and treatment of ...	2020				1	610	98	<b>709</b>	<b>709</b>
14	Database resources of the National Center for Biotechnology ...	2016	34	134	159	156	127	33	<b>609</b>	<b>643</b>
15	A Review of Coronavirus Disease-2019 (COVID-19)	2020					494	141	<b>635</b>	<b>635</b>
16	Surviving Sepsis Campaign: guidelines on the management of c...	2020					436	96	<b>532</b>	<b>532</b>
17	A DNA vaccine induces SARS	2004	323	7	2	4	95	20	<b>128</b>	<b>451</b>



	coronavirus neutralization and pr...									
18	Coronavirus Disease 2019 (COVID-19): Emerging and Future Cha...	2020					359	80	<b>439</b>	<b>439</b>
19	Unique epidemiological and clinical features of the emerging...	2020					351	81	<b>432</b>	<b>432</b>
20	Triple combination of interferon beta-1b, lopinavir-ritonavi...	2020					320	106	<b>426</b>	<b>426</b>
21	COVID-19 infection: the perspectives on immune responses	2020				2	336	88	<b>426</b>	<b>426</b>
22	Factors associated with COVID-19-related death using OpenSAF...	2020					203	216	<b>419</b>	<b>419</b>
23	Molecular Evolution of the SARS Coronavirus, during the Cour...	2004	293	8	15	4	80	17	<b>124</b>	<b>417</b>
24	Clinical and epidemiological features of 36 children with co...	2020					344	67	<b>411</b>	<b>411</b>
25	Potential interventions for novel coronavirus in China: A sy...	2020				1	332	71	<b>404</b>	<b>404</b>
26	Drug treatment options for the 2019-new coronavirus (2019-nC...	2020				3	355	46	<b>404</b>	<b>404</b>
27	COVID-19: combining antiviral and anti-inflammatory treatmen...	2020					311	61	<b>372</b>	<b>372</b>
28	Network-based drug repurposing for novel coronavirus 2019-nC...	2020					298	70	<b>368</b>	<b>368</b>
29	COVID-19: immunopathology and its implications for therapy	2020					272	92	<b>364</b>	<b>364</b>
30	Clinical features of COVID-19 in elderly patients: A compari...	2020					277	85	<b>362</b>	<b>362</b>
31	The Novel Coronavirus	2020					287	57	<b>344</b>	<b>344</b>

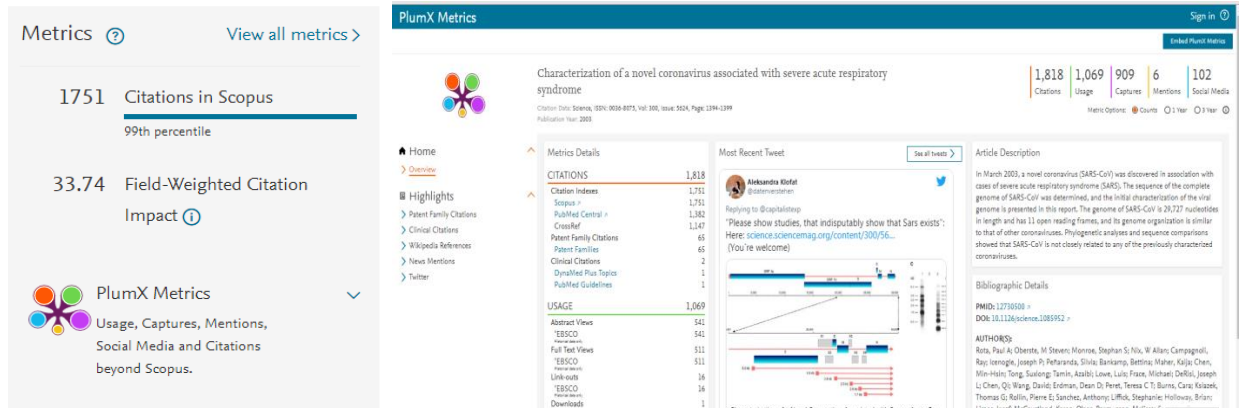
	Originating in Wuhan, China: Challenge...									
32	Cardiovascular disease, drug therapy, and mortality in COVID...	2020					269	69	<b>338</b>	<b>338</b>
33	Clinical features and treatment of COVID-19 patients in nort...	2020					264	64	<b>328</b>	<b>328</b>
34	Multisystem inflammatory syndrome in U.S. Children and adole...	2020					206	120	<b>326</b>	<b>326</b>
35	RETRACTED:Hydrox ychloroquine or chloroquine with or without ...	2020					255	61	<b>316</b>	<b>316</b>
36	COVID-19: the gendered impacts of the outbreak	2020					249	66	<b>315</b>	<b>315</b>
37	Review of the Clinical Characteristics of Coronavirus Diseas...	2020					258	56	<b>314</b>	<b>314</b>
38	Airborne transmission of SARS-CoV-2: The world should face t...	2020					208	105	<b>313</b>	<b>313</b>
39	Coronavirus diversity, phylogeny and interspecies jumping	2009	146	23	13	17	88	17	<b>158</b>	<b>304</b>
40	Vaccines: Past, present and future	2005	226	23	15	14	16	1	<b>69</b>	<b>295</b>
41	Prevalence of depression, anxiety, and insomnia among health...	2020					177	115	<b>292</b>	<b>292</b>
42	Consensus guidelines for managing the airway in patients wit...	2020					235	56	<b>291</b>	<b>291</b>
43	Understanding of COVID-19 based on current evidence	2020					236	40	<b>276</b>	<b>276</b>
44	Review of the 2019 novel coronavirus (SARS-CoV-2) based on c...	2020					224	48	<b>272</b>	<b>272</b>
45	Diagnosis, treatment, and prevention of 2019	2020				1	232	29	<b>262</b>	<b>262</b>

	novel coronavir...									
46	Laboratory abnormalities in patients with COVID-2019 infecti...	2020					215	46	<b>261</b>	<b>261</b>
47	Clinical features and obstetric and neonatal outcomes of pre...	2020					218	42	<b>260</b>	<b>260</b>
48	Clinical aspects and outcomes of 70 patients with Middle Eas...	2014	58	19	10	19	130	23	<b>201</b>	<b>259</b>
49	The pivotal link between ACE2 deficiency and SARS-CoV-2 infe...	2020					167	75	<b>242</b>	<b>242</b>
50	Prevalence of Underlying Diseases in Hospitalized Patients W...	2020					179	56	<b>235</b>	<b>235</b>

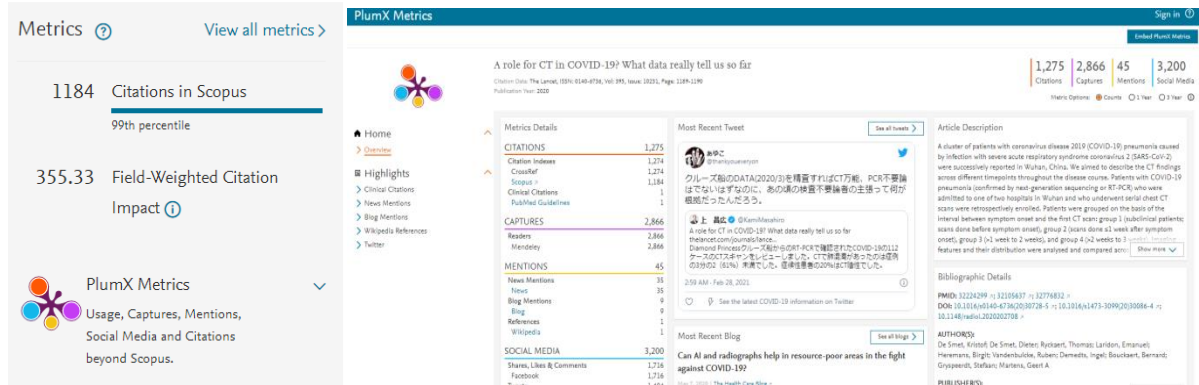
### Paper 1: Highly Cited paper with PlumX Metrics

The screenshot shows the PlumX Metrics dashboard for a specific paper. On the left, a sidebar displays key metrics: 2909 Citations in Scopus (99th percentile) and 1215.43 Field-Weighted Citation Impact. The main content area features a navigation menu, a 'Metrics Details' section with a bar chart showing 2,912 Citations (broken down into Citation Indexes, Scopus, CrossRef, Clinical Citations, and PubMed Guidelines) and 5,455 Captures (Readers, Mendeley, and Mendeley+). It also includes a 'Most Recent Tweet' from @RaheemKassam and an 'Article Description' snippet. At the top right, summary statistics are shown: 2,912 Citations, 5,455 Captures, 177 Mentions, and 9,237 Social Media interactions.

### Paper 2: Highly Cited paper with PlumX Metrics



### Paper 3: Highly Cited paper with PlumX Metrics



### FINDINGS AND CONCLUSION

- The study found (Covid-19 Drugs, Vaccines and Medicines) that 22 articles received more than 1000 Citations, 83 articles have registered more than 500 Citations and 816 articles recorded 100 Citations.
- The study found most cited sources (Covid-19 Drugs, Vaccines and Medicines) are; The Lancet, Cell, Cell Research, New England Journal of Medicine, International Journal of Antimicrobial Agents, The Lancet Infectious Diseases, Allergy: European Journal of

Allergy and Clinical Immunology, Military Medical Research, BioScience Trends, Journal of Hospital Infection, The Lancet Respiratory Medicine etc..

- The study found (Covid-19 Drugs) that 12 articles received more than 1000 Citations, 46 articles have registered more than 500 Citations and 338 articles recorded 100 Citations.
- The most cited articles (Covid-19 Drugs) are: Zhou, F.a, et al. (2020), Clinical course and risk factors for mortality of adult in patients with COVID-19 in Wuhan, China: a retrospective cohort study(Article)(Open Access), The Lancet, with 6860 Citations from China.
- The study found than top most cited 105 articles have received citations in the range of 100-831 .
- It is noted that 18 papers received more than 500 Citations, 202 papers have registered more than 100 Citations and only 3 papers received more than 1000 Citations.
- The most cited (Covid-19 Vaccines) articles are: Wrapp, D.a, et al. (2020), Cryo-EM structure of the 2019-nCoV spike in the prefusion conformation(Article), Science, with 1892 Citation(Field Weighted Citation Impact is 743.12 using PlumX Metrics) from United States
- The study found the top most cited 26 articles with more than 400 Citations.
- It is noted that 5 papers with more than 1000 Citations followed by 15 papers with more than 500 Citations and 141 papers with more than 100 Citations.
- The most Cited Classic Papers (Covid-19 Medicines) are: Chan, J.F.-W. et al., (2019), A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster(Article)(Open Access), The Lancet, Volume 395, Issue 10223, 15 - 21 February 2020, Pages 514-523 with 2909 Citations from China (Field Weighted Citation Impact is 1215.43)

In this study, we have evaluated the top 424 articles that had a high impact on the practice of Covid-19 Drugs, Vaccines and Medicines, by assessing the number of times these articles were cited(100, 500 and 1000 Citations). The relevant Covid-19 Drugs, Vaccines and Medicines literature comes from English-based journals. Information from this analysis may help guide the process of scientific updating required for a proper clinical practice of the modern Covid-19.

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- **Surulinathi, M., Rajkumar, N., Jayasuriya, T., and Rajagopal, T.(2021),** Indian Contribution in Animal behaviour research: A Scientometric Study, *Library Philosophy and Practice*, 2021, 1-19.