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Research Article

# A Bibliometric Analysis of Remdesivir: A COVID-19 Vaccine

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**Abstract:** In October 2020, the U.S. Food and Drug Administration (FDA) approved remdesivir (RDV) for the treatment of COVID-19. This motivated us (a) to perform its bibliometric analysis and (b) to acknowledge the significant contribution of all researchers throughout the world. On 7th May 2021, we extracted the data from the Scopus database. Total documents were 3277, but we only analyzed 1496 articles and 1066 reviews. In all publications (n=2562), 13215 authors, 9854 departments, and 127 countries have significantly contributed. Based on Vosviewer analysis we presented the co-authorship network. Total citations for 2562 documents were 55366. The citation breakup for all documents is provided. The number of publications sources or journals was 1156. We also performed a bibliometric analysis of the top one hundred (n=100) most cited documents. Based on bibliometrix (biblioshiny) analysis, the local and global citations of one hundred documents are provided. These (100) documents are published in 73 sources. The citation details (h and g-indexes) are provided for all sources. By Lotka's law, we presented the frequency distribution of the productivity of authors. To describe the focus of these 100-documents, we performed the co-words analysis of titles. By biblioshiny, we presented the main focus as a thematic map and by Vosviewer, we highlighted the main co-words that appeared in the titles of the manuscripts. In this report, we bibliometrically covered 2562 publications from 2019 to May 2021.

**Keywords:** Bibliometric analysis; COVID-19; Remdesivir; and Lotka' Law

## 1. INTRODUCTION

In 2019 a novel coronavirus (CoV) was detected in Wuhan City (Hubei Province) China.The virus causes the illness Coronavirus disease 2019 (COVID-19). On March 11, 2020, the World Health Organization (WHO) declared the COVID-19 outbreak a global pandemic. Some of the predominant signs (of COVID-19) include fever, cough, and shortness of breath, ultimately causing can cause pneumonia, respiratory failure, multi-organ failure, and death. Globally, (till 5th May 2021), there have been 153,954,491 confirmed cases of COVID-19, including 3,221,052 deaths, reported by WHO. Based on the John Hopkins data, the highest deaths are recorded in United States (n=578,499), followed by Brazil (n=411,588), India (n=226,188), Mexico (n=217,740), United Kingdom (n=127,803), Italy (n=121,738), Russia (n=109,670), France (n-105,548), Germany (n=83,890) and Spain (n=78,399).

Infact, the highest deaths per one hundred thousand population are noted in Hungary (N=28,045), Czechia (n=29,421), San Marino (n=90), Bosnia and Herzegovina (n=8,713), Montenegro (N=1,516), North Macedonia (n=4,992), Bulgaria (n=16,609), Moldova (n=5,869), Slovakia (n=11,855), and Belgium (n=24,367). The data from WHO and John Hopkin was retrieved on 6th May, 2021.

The bibliometric analysis provides detailed information about the trends, hot spots, contributions of journals, scholars, institutes, and countries in a particular research field. This helps in the evaluation of research trends and may provide further guidelines. It can also analyze the intellectual structure of the scientific field [1, 2]. Several bibliometric studies focused on COVID-19. For example, Anna *et al.* performed the literature analysis in May 2020. Precisely, they analyzed 10,000 papers, which were published

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in 1881 different sources. They reported some nice findings, for example, 92.6 new papers on COVID-19 were indexed every day. The country-level scientific production is also described [3]. Similarly, De Felice and Antonella Polimeni reported a machine learning bibliometric analysis. They used the Scopus database and analyzed 1883 research papers. As expected, China produced a higher number of documents. According to their finding, the higher numbers of documents are published in BMJ [4]. Hassan et al. reported the bibliometric analysis of the top 50 cited papers about COVID-19. A systematic search was performed on Web of Science, Scopus, and Google Scholar was performed. As of May 29th, these (50 documents) received approximately, 63849 citations [5]. In the same vein, Yu *et al.* analyzed 3626 publications about COVID. According to their findings, most of the documents were published in BMJ, while Lancet received the highest citations [6]. Fan, J. *et al.* investigated Publications on COVID-19 from both English and Chinese databases using VOS viewer 1.6.14, and CiteSpace V software and retrieved 143 English and 721 Chinese original research articles and reviews [7]. Similarly, Felice and Polimeni *et al*. reported the most productive, journals, authors, and collaborative associations in COVID-19 papers from December 2019 to April 2020 [8].

Remdesivir, is an inhibitor of the viral RNA-dependent, RNA polymerase with in vitro inhibitory activity against SARS-CoV-1. Remdesivir, ($C_{27}H_{35}N_6O_8P$ with a molar mass of 602.585 g•mol−1) is sold under the brand name Veklury, which is a broad-spectrum antiviral medication developed by Gilead Sciences. It is an American biopharmaceutical company headquartered in Foster City, California. Remdesivir was originally investigated for Ebola virus disease and Marburg virus infections [9]. We will specifically cite a very interesting article from Beigel et al., published in N Engl J Med [10]. The authors performed an adaptive Covid-19 Treatment Trial (ACTT-1), in which they evaluated the efficacy of remdesivir as compared with placebo. The study was performed in February-April 2020. They included 541 subjects in remdesivir group and 521 in the placebo group. The mean age of the patients was 58.9 years, and 64.4% were male. They performed the study in different trial sites like United States (45 sites), Denmark (8), the United Kingdom (5), Greece (4), Germany (3), Korea (2), Mexico (2), Spain (2), Japan (1), and Singapore (1). This helped to cover different continents i.e. 79.8% in North America, 15.3% in Europe, and 4.9% in Asia. The authors concluded that the double-blind, randomized, placebo-controlled trial was beneficial in the treatment of Covid-19. And, on October 22, 2020, the U.S. Food and Drug Administration (FDA) approved Veklury (remdesivir) for use in adults and pediatric patients (12 years of age and older and weighing at least 40 kg) for the treatment of COVID-19. The present project is aimed to perform the bibliometric analysis of Remdesivir.

## 2. MATERIAL AND METHODS

### 2.1 Ethics statement

The study did not involve human or non-human subjects. Therefore, neither approval by the institutional review board nor informed consent was required.

### 2.2 Study design

This was a bibliometric study of a specific topic from a literature database.

### 2.3 Data sources/measurement

The data was retrieved from Scopus, one of the largest databases in the world. In the search field, the following terms were added “Remdesivir”. The term was searched in article titles, abstracts, and keywords i.e., TIT/ABS/KEYWORDS.

### 2.4 Visualization

We used VOSviewer version 1.6.9 for viewing and analyzing the authors, institutes, and countries lists. The software was developed by Van Eck and Waltman (2010) for constructing and visualizing bibliometric networks. For more information, please see http://www.vosviewer.com/.

Bibliometrix and Biblioshiny are open-source packages used from the R language environment. R-studio is an integrated development environment for R programming language (https://rstudio.com). We downloaded the data in ‘.bib’ files and were analyzed by the ‘biblioshiny’ function in the

'bibliometrix' package in R 3.5.1. Biblioshiny is a web interface for bibliometrix r-package (https://www.bibliometrix.org/Biblioshiny.html)

## 3. RESULTS AND DISCUSSION

Based on the Scopus record, 3277 documents have been published on Remdesivir (RDV). The 1st document was published in 2016; six, nineteen and twenty-three documents were published in 2017-19, respectively. In 2020, 2362 and till 5th May, 2021, 866 research documents are indexed in Scopus. They majorly comprised of articles (n=1504), reviews (n=1076), letters (n=276), editorials (n=185), notes (n=182), short surveys (n-32), conference papers (n=8), book chapters (n=7), errata (n=6) and data papers (n=1). For details analysis we focused on articles (n=1496) and reviews (n=1066) published in 2019 (n=21), 2020 (n=1811) and 2021 (n=730).

### 3.1 Authors, Institutes, and Countries

In all publications (n=2562), 13215 authors have contributed. Based on the number of publications, the top five authors are Wang y. (n=20), Zhang y. (n-19), Liu j. (n=17), Wang j. (n=15), Li x. (n=14), Singh s. (n=14) and Wang x. (n=14). However, the highest citations were noted for Lu x. (n=2704), Kim L (n=2387), and twenty-three authors have 2385 citations. Similarly, more than nine thousand (n=9854), different departments have contributed to all publications. It is worthy to note that most of the addresses have spelling variants, typo errors (addition of commas), writing postcodes, etc. However, we did not analyze all institutes for these errors. Based on Vosview analysis, the highest documents are published by the University of Chinese Academy of Sciences, Beijing, 100049, China (n=9), followed by the Department Of Laboratory Medicine, National Taiwan University Hospital, National Taiwan University College Of Medicine, Taipei, Taiwan (n=7) and Department Of Internal Medicine, National Taiwan University Hospital, National Taiwan University College Of Medicine, Taipei, Taiwan (n=6). The highest citations were noted for Providence Regional Medical Center, Everett, Wa, United States (n=2714). In all publications, one hundred and twenty-seven countries (n=127) have contributed.

Continentally, the highest documents are published by Europe (n=1260). From Europe, Italy published the highest documents (n=233) followed by United Kingdom (n=166), Spain (n=120), France (n=112), and Germany (n=110). Based on the number of publications, Asia can be ranked as the 2nd top continent with 1116 publications. Twenty-one contributed to all publications. The highest documents are published by India (n=406), China (n=286), South Korea (n=66), Pakistan (n=58) and Japan (n=48). From North America three countries i.e USA (n=851), Canada (n=95) and Mexico (n=21) countries contributed to all publications (n=967). From the Middle East, thirteen countries collectively contributed to 281 publications. The highest documents are published by Iran (n=109), followed by Saudi Arabia (n=85), United Arab Emirates (n=16), Israel (n=15) and Lebanon (n=15). We also noted the involvement of forty countries from Africa in 178 publications. The highest documents are published by Egypt (n=53), followed by South Africa (n=37), Nigeria (n=23), Ghana (n=6), and Kenya (n=5). From Latin America thirteen and Asia Pacific two countries have contributed to 127 and 76 publications, respectively.

Sixty-seven countries published atleast five documents. Based on the number of publications, the top ten countries are United states (n=854), India (n=405), China (n=286), Italy (n=230), United Kingdom (n-164), Spain (n=119), France (n=112), Germany (n=110), Iran (n=108), and Canada (n=94). While, the highest citations were found for United states (n=27115), China (n=12649), United Kingdom (n=8182), Italy (n=6692), Germany (n=5822), Spain (n=5536), Singapore (N=5284), France (n=5262), Canada (n=4558), and India (n=4184). The publications and citation details of the top 100 authors, institutes and 67 countries are described in supplementary tables 1-3.

### 3.2 Co-Authorship Network

Co-authorship analysis is useful in understanding the collaboration network. It can determine the degree of connectivity between the collaborating authors. It can indicate a strong relationship between authors, institutes, and countries [11, 12]. The co-authorship network for authors, institutes, and countries are depicted in figure 1-3. It is worthy to note that we only described those authors who

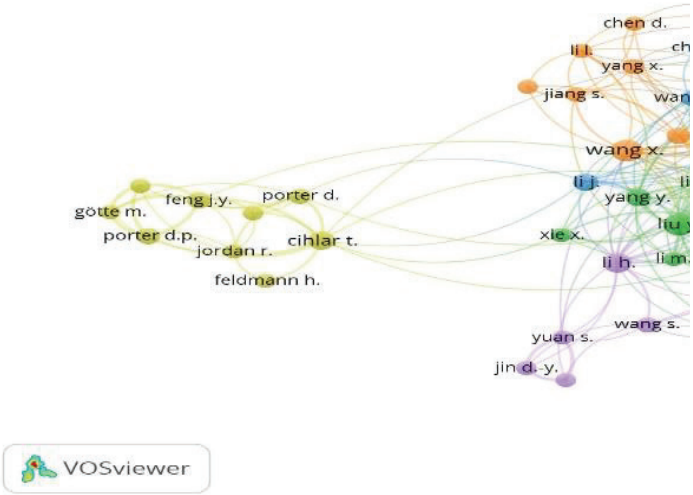


**Fig. 1.** The co-authorship network for authors


**Fig. 2.** The co-authorship network for institutes

have published 5 documents. While those institutes are described with atleast 3 publications. we also presented, those countries (n=66) are presented, which have published atleast 5 documents.

### 3.3 Citations details of all publications and sources

The total citations for all documents were found to be 55366. One document received more than 2000 citations, five documents received 1000 to 1600, twelve documents received 500 to 950, ninety-four documents received 100 to 499, seventy-eight documents received 50 to 99, four hundred and twenty-seven documents received 10 to 49, one thousand one hundred and eighteen documents received 1 to 9, and eight hundred and twenty-seven documents received zero (n=0) citations. The documents are published in 1156 sources. The highest is published in frontiers in pharmacology (n=42), followed by journal of biomolecular structure and dynamics (n=34), European Journal of Pharmacology (n=26), Frontiers in Immunology (n=21), International Journal of Infectious Diseases (n=21), Journal of Medical Virology (n=21), Viruses (n=21), International Journal of Research in Pharmaceutical Sciences (n=20), Frontiers in Medicine (n=19) and International Journal of Molecular Sciences (n=18). While the highest citations were noted for the New England Journal of Medicine (n=7098), International Journal of Antimicrobial Agents (n=2685), JAMA - Journal of the American Medical Association (n=1836), Journal of the American College of Cardiology (n=1626), Journal of Medical Virology (n=1527), the Lancet (n=1509), Military Medical Research (n=1359), Nature Reviews Immunology (n=938), Intensive Care Medicine (n=880) and Nature Communications (N=820). The publications and citations of the top 100 sources are described in supplementary table 4.

### 3.4 The top one hundred cited documents

We also performed bibliometric analysis of the top one hundred (n=100) most cited documents. The list of all documents is given in table 1. It comprised of fifty-six (n=56) articles and forty-four (n=44) reviews. The total citations were found to be 35606 or the average citations per document was 356.1. We also decoded the local and global citations of all 100 documents. The highest global citations were noted for Holshue ML, 2020, New England Journal of Medicine (n=2385), followed by Lai CC, 2020,

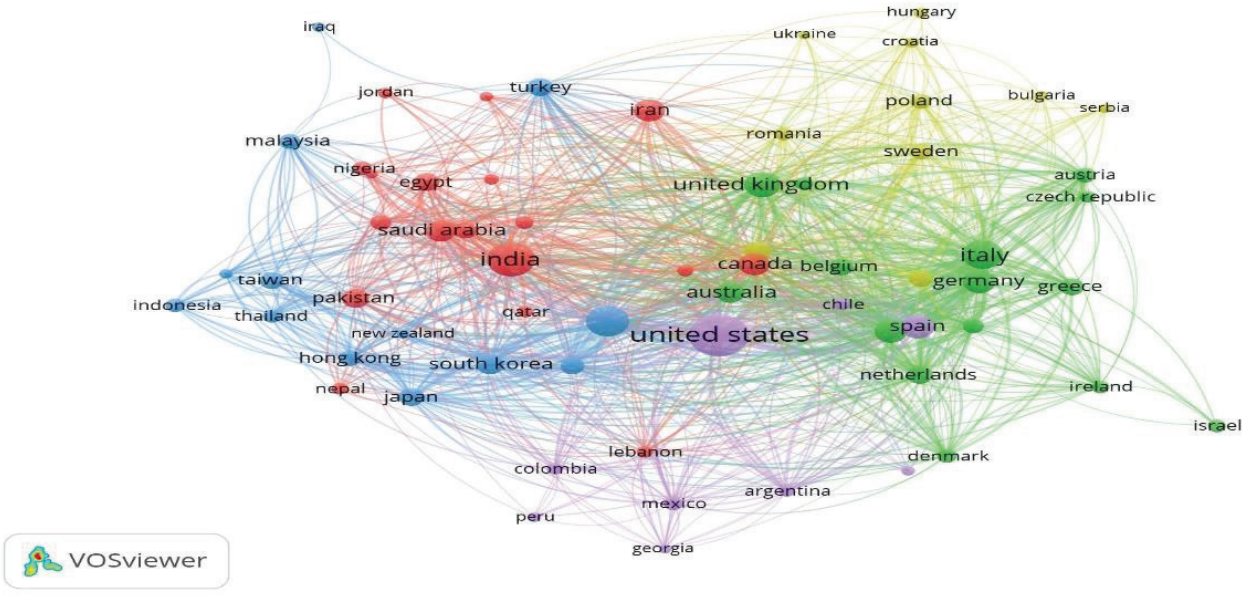


**Fig. 3.** The co-authorship network for countries

**Table 1.** List of top 100 most cited documents with authors, titles, year, source title, volume, issue, page number, and total citations.

| S# | Authors | Title | Year | Source title | Volume | Issue | Page start | Page end | Cited by |
|---|---|---|---|---|---|---|---|---|---|
| 1. | Holshue M.L., DeBolt C., Lindquist S., Lofy K.H., Wiesman J., Bruce H., Spitters C., Ericson K., Wilkerson S., Tural A., Diaz G., Cohn A., Fox L., Patel A., Gerber S.I., Kim L., Tong S., Lu X., Lindstrom S., Pallansch M.A., Weldon W.C., Biggs H.M., Uyeki T.M., Pillai S.K., Washington State 2019-nCoV Case Investigation Team | First case of 2019 novel coronavirus in the United States | 2020 | New England Journal of Medicine | 382 | 10 | 929 | 936 | 2385 |
| 2. | Lai C.-C., Shih T.-P., Ko W.-C., Tang H.-J., Hsueh P.-R. | Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and coronavirus disease-2019 (COVID-19): The epidemic and the challenges | 2020 | International Journal of Antimicrobial Agents | 55 | 3 | | | 1573 |
| 3. | Beigel J.H., Tomashek K.M., Dodd L.E., Mehta A.K., Zingman B.S., Kalil A.C., Hohmann E., Chu H.Y., Luetkemeyer A., Kline S., de Castilla D.L., Finberg R.W., Dierberg K., Tapson V., Hsieh L., Patterson T.F., Paredes R., Sweeney D.A., Short W.R., Touloumi G., Lye D.C., Ohmagari N., Oh M.-D., Ruiz-Palacios G.M., Benfield T., Fätkenheuer G., Kortepeter M.G., Atmar R.L., Creech C.B., Lundgren J., Babiker A.G., Pett S., Neaton J.D., Burgess T.H., Bonnett T., Green M., Makowski M., Osinusi A., Nayak S., Lane H.C., for the ACTT-1 Study Group Members | Remdesivir for the treatment of COVID-19 — Final report | 2020 | New England Journal of Medicine | 383 | 19 | 1813 | 1826 | 1387 |
| 4. | Guo Y.-R., Cao Q.-D., Hong Z.-S., Tan Y.-Y., Chen S.-D., Jin H.-J., Tan K.-S., Wang D.-Y., Yan Y. | The origin, transmission and clinical therapies on coronavirus disease 2019 (COVID-19) outbreak- A n update on the status | 2020 | Military Medical Research | 7 | 1 | | | 1329 |
| 5. | Wang Y., Zhang D., Du G., Du R., Zhao J., Jin Y., Fu S., Gao L., Cheng Z., Lu Q., Hu Y., Luo G., Wang K., Lu Y., Li H., Wang S., Ruan S., Yang C., Mei C., Wang Y., Ding D., Wu F., Tang X., Ye X., Ye Y., Liu B., Yang J., Yin W., Wang A., Fan G., Zhou F., Liu Z., Gu X., Xu J., Shang L., Zhang Y., Cao L., Guo T., Wan Y., Qin H., Jiang Y., Jaki T., Hayden F.G., Horby P.W., Cao B., Wang C. | Remdesivir in adults with severe COVID-19: a randomised, double-blind, placebo-controlled, multicentre trial | 2020 | The Lancet | 395 | 10236 | 1569 | 1578 | 1085 |
| 6. | Grein J., Ohmagari N., Shin D., Diaz G., Asperges E., Castagna A., Feldt T., Green G., Green M.L., Lescure F.-X., Nicastri E., Oda R., Yo K., Quiros-Roldan E., Studemeister A., Redinski J., Ahmed S., Bernett J., Chelliah D., Chen D., Chihara S., Cohen S.H., Cunningham J., D'Arminio Monforte A., Ismail S., Kato H., Lapadula G., L'Her E., Maeno T., Majumder S., Massari M., Mora-Rillo M., Mutoh Y., Nguyen D., Verweij E., Zoufaly A., Osinusi A.O., DeZure A., Zhao Y., Zhong L., Chokkalingam A., Elboudwarej E., Telep L., Timbs L., Henne I., Sellers S., Cao H., Tan S.K., | Compassionate use of remdesivir for patients with severe Covid-19 | 2020 | New England Journal of Medicine | 382 | 24 | 2327 | 2336 | 1082 |

| S# | Authors | Title | Year | Source title | Volume | Issue | Page start | Page end | Cited by |
|---|---|---|---|---|---|---|---|---|---|
| | Winterbourne L., Desai P., Mera R., Gaggar A., Myers R.P., Brainard D.M., Childs R., Flanigan T. | | | | | | | | |
| **7.** | Sanders J.M., Monogue M.L., Jodlowski T.Z., Cutrell J.B. | Pharmacologic Treatments for Coronavirus Disease 2019 (COVID-19): A Review | 2020 | JAMA - Journal of the American Medical Association | 323 | 18 | 1824 | 1836 | 939 |
| **8.** | Tay M.Z., Poh C.M., Rénia L., MacAry P.A., Ng L.F.P. | The trinity of COVID-19: immunity, inflammation and intervention | 2020 | Nature Reviews Immunology | 20 | 6 | 363 | 374 | 935 |
| **9.** | Bikdeli B., Madhavan M.V., Jimenez D., Chuich T., Dreyfus I., Driggin E., Nigoghossian C.D., Ageno W., Madjid M., Guo Y., Tang L.V., Hu Y., Giri J., Cushman M., Quéré I., Dimakakos E.P., Gibson C.M., Lippi G., Favaloro E.J., Fareed J., Caprini J.A., Tafur A.J., Burton J.R., Francese D.P., Wang E.Y., Falanga A., McLintock C., Hunt B.J., Spyropoulos A.C., Barnes G.D., Eikelboom J.W., Weinberg I., Schulman S., Carrier M., Piazza G., Beckman J.A., Steg P.G., Stone G.W., Rosenkranz S., Goldhaber S.Z., Parikh S.A., Monreal M., Krumholz H.M., Konstantinides S.V., Weitz J.I., Lip G.Y.H., Global COVID-19 Thrombosis Collaborative Group, Endorsed by the ISTH, NATF, ESVM, and the IUA, Supported by the ESC Working Group on Pulmonary Circulation and Right Ventricular Function | COVID-19 and Thrombotic or Thromboembolic Disease: Implications for Prevention, Antithrombotic Therapy, and Follow-Up: JACC State-of-the-Art Review | 2020 | Journal of the American College of Cardiology | 75 | 23 | 2950 | 2973 | 923 |
| **10.** | Helms J., Tacquard C., Severac F., Leonard-Lorant I., Ohana M., Delabranche X., Merdji H., Clere-Jehl R., Schenck M., Fagot Gandet F., Fafi-Kremer S., Castelain V., Schneider F., Grunebaum L., Anglés-Cano E., Sattler L., Mertes P.-M., Meziani F., CRICS TRIGGERSEP Group (Clinical Research in Intensive Care and Sepsis Trial Group for Global Evaluation and Research in Sepsis) | High risk of thrombosis in patients with severe SARS-CoV-2 infection: a multicenter prospective cohort study | 2020 | Intensive Care Medicine | 46 | 6 | 1089 | 1098 | 774 |
| **11.** | Sheahan T.P., Sims A.C., Leist S.R., Schäfer A., Won J., Brown A.J., Montgomery S.A., Hogg A., Babusis D., Clarke M.O., Spahn J.E., Bauer L., Sellers S., Porter D., Feng J.Y., Cihlar T., Jordan R., Denison M.R., Baric R.S. | Comparative therapeutic efficacy of remdesivir and combination lopinavir, ritonavir, and interferon beta against MERS-CoV | 2020 | Nature Communications | 11 | 1 | | | 725 |
| **12.** | Magro C., Mulvey J.J., Berlin D., Nuovo G., Salvatore S., Harp J., Baxter-Stoltzfus A., Laurence J. | Complement associated microvascular injury and thrombosis in the pathogenesis of severe COVID-19 infection: A report of five cases | 2020 | Translational Research | 220 | | 1 | 13 | 722 |
| **13.** | Geleris J., Sun Y., Platt J., Zucker J., Baldwin M., Hripcsak G., Labella A., Manson D.K., Kubin C., Barr R.G., Sobieszczyk M.E., Schluger N.W. | Observational study of hydroxychloroquine in hospitalized patients with COVID-19 | 2020 | New England Journal of Medicine | 382 | 25 | 2411 | 2418 | 713 |
| **14.** | Driggin E., Madhavan M.V., Bikdeli B., Chuich T., Laracy J., Biondi-Zoccai G., Brown T.S., Der Nigoghossian C., Zidar D.A., Haythe J., Brodie D., | Cardiovascular Considerations for Patients, Health Care Workers, and Health Systems During the COVID-19 Pandemic | 2020 | Journal of the American College of Cardiology | 75 | 18 | 2352 | 2371 | 672 |

| S# | Authors | Title | Year | Source title | Volume | Issue | Page start | Page end | Cited by |
|---|---|---|---|---|---|---|---|---|---|
| | Beckman J.A., Kirtane A.J., Stone G.W., Krumholz H.M., Parikh S.A. | | | | | | | | |
| **15.** | Wu C., Liu Y., Yang Y., Zhang P., Zhong W., Wang Y., Wang Q., Xu Y., Li M., Li X., Zheng M., Chen L., Li H. | Analysis of therapeutic targets for SARS-CoV-2 and discovery of potential drugs by computational methods | 2020 | Acta Pharmaceutica Sinica B | 10 | 5 | 766 | 788 | 600 |
| **16.** | Madjid M., Safavi-Naeini P., Solomon S.D., Vardeny O. | Potential Effects of Coronaviruses on the Cardiovascular System: A Review | 2020 | JAMA Cardiology | 5 | 7 | 831 | 840 | 548 |
| **17.** | Mulangu S., Dodd L.E., Davey R.T., Jr., Mbaya O.T., Proschan M., Mukadi D., Manzo M.L., Nzolo D., Oloma A.T., Ibanda A., Ali R., Coulibaly S., Levine A.C., Grais R., Diaz J., Clifford Lane H., Muyembe-Tamfum J.-J., Sivahera B., Camara M., Kojan R., Walker R., Dighero-Kemp B., Cao H., Mukumbayi P., Mbala-Kingebeni P., Ahuka S., Albert S., Bonnett T., Crozier I., Duvenhage M., Proffitt C., Teitelbaum M., Moench T., Aboulhab J., Barrett K., Cahill K., Cone K., Eckes R., Hensley L., Herpin B., Higgs E., Ledgerwood J., Pierson J., Smolskis M., Sow Y., Tierney J., Sivapalasingam S., Holman W., Gettinger N., Vallée D., Nordwall J., PALM Writing Group | A randomized, controlled trial of Ebola virus disease therapeutics | 2019 | New England Journal of Medicine | 381 | 24 | 2293 | 2303 | 504 |
| **18.** | Wiersinga W.J., Rhodes A., Cheng A.C., Peacock S.J., Prescott H.C. | Pathophysiology, Transmission, Diagnosis, and Treatment of Coronavirus Disease 2019 (COVID-19): A Review | 2020 | JAMA - Journal of the American Medical Association | 324 | 8 | 782 | 793 | 503 |
| **19.** | Li X., Geng M., Peng Y., Meng L., Lu S. | Molecular immune pathogenesis and diagnosis of COVID-19 | 2020 | Journal of Pharmaceutical Analysis | 10 | 2 | 102 | 108 | 487 |
| **20.** | Lu H. | Drug treatment options for the 2019-new coronavirus (2019-nCoV) | 2020 | BioScience Trends | 14 | 1 | | | 467 |
| **21.** | Zhang L., Liu Y. | Potential interventions for novel coronavirus in China: A systematic review | 2020 | Journal of Medical Virology | 92 | 5 | 479 | 490 | 453 |
| **22.** | Phua J., Weng L., Ling L., Egi M., Lim C.-M., Divatia J.V., Shrestha B.R., Arabi Y.M., Ng J., Gomersall C.D., Nishimura M., Koh Y., Du B., Asian Critical Care Clinical Trials Group | Intensive care management of coronavirus disease 2019 (COVID-19): challenges and recommendations | 2020 | The Lancet Respiratory Medicine | 8 | 5 | 506 | 517 | 428 |
| **23.** | Lescure F.-X., Bouadma L., Nguyen D., Parisey M., Wicky P.-H., Behillil S., Gaymard A., Bouscambert-Duchamp M., Donati F., Le Hingrat Q., Enouf V., Houhou-Fidouh N., Valette M., Mailles A., Lucet J.-C., Mentre F., Duval X., Descamps D., Malvy D., Timsit J.-F., Lina B., van-der-Werf S., Yazdanpanah Y. | Clinical and virological data of the first cases of COVID-19 in Europe: a case series | 2020 | The Lancet Infectious Diseases | 20 | 6 | 697 | 706 | 410 |

| S# | Authors | Title | Year | Source title | Volume | Issue | Page start | Page end | Cited by |
|---|---|---|---|---|---|---|---|---|---|
| **24.** | Jiang F., Deng L., Zhang L., Cai Y., Cheung C.W., Xia Z. | Review of the Clinical Characteristics of Coronavirus Disease 2019 (COVID-19) | 2020 | Journal of General Internal Medicine | 35 | 5 | 1545 | 1549 | 383 |
| **25.** | de Wit E., Feldmann F., Cronin J., Jordan R., Okumura A., Thomas T., Scott D., Cihlar T., Feldmann H. | Prophylactic and therapeutic remdesivir (GS-5734) treatment in the rhesus macaque model of MERS-CoV infection | 2020 | Proceedings of the National Academy of Sciences of the United States of America | 117 | 12 | 6771 | 6776 | 375 |
| **26.** | Mehra M.R., Desai S.S., Ruschitzka F., Patel A.N. | RETRACTED:Hydroxychloroquine or chloroquine with or without a macrolide for treatment of COVID-19: a multinational registry analysis | 2020 | The Lancet | | | | | 358 |
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| **99.** | MacKenzie J.S., Smith D.W. | COVID-19: A novel zoonotic disease caused by a coronavirus from China: What we know and what we don't | 2020 | Microbiology Australia | 41 | 1 | 45 | 50 | 109 |
| **100.** | Agarwal A., Mukherjee A., Kumar G., Chatterjee P., Bhatnagar T., Malhotra P. | Convalescent plasma in the management of moderate covid-19 in adults in India: Open label phase II multicentre randomised controlled trial (PLACID Trial) | 2020 | The BMJ | 371 | | | | 108 |

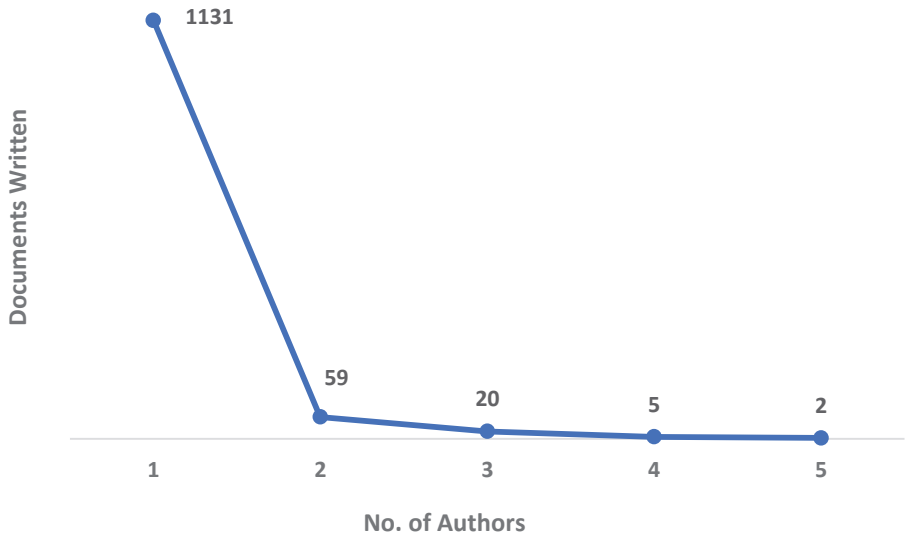


**Fig. 4.** The frequency distribution of authors (Lotka's Law) in top 100 cited publications.

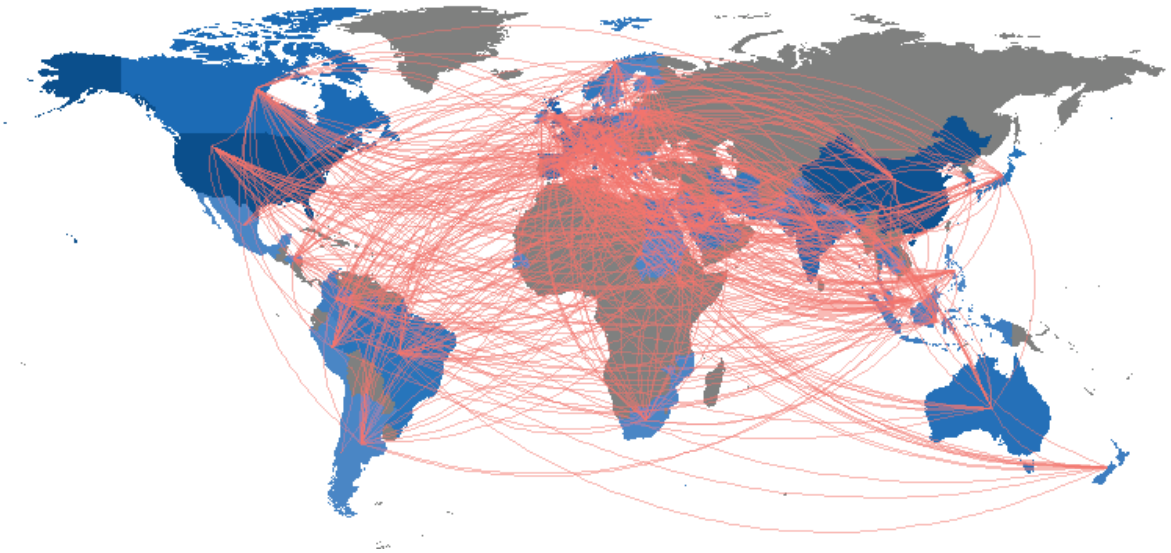

**Fig. 5.** The countries collaboration map in top 100 cited publications.

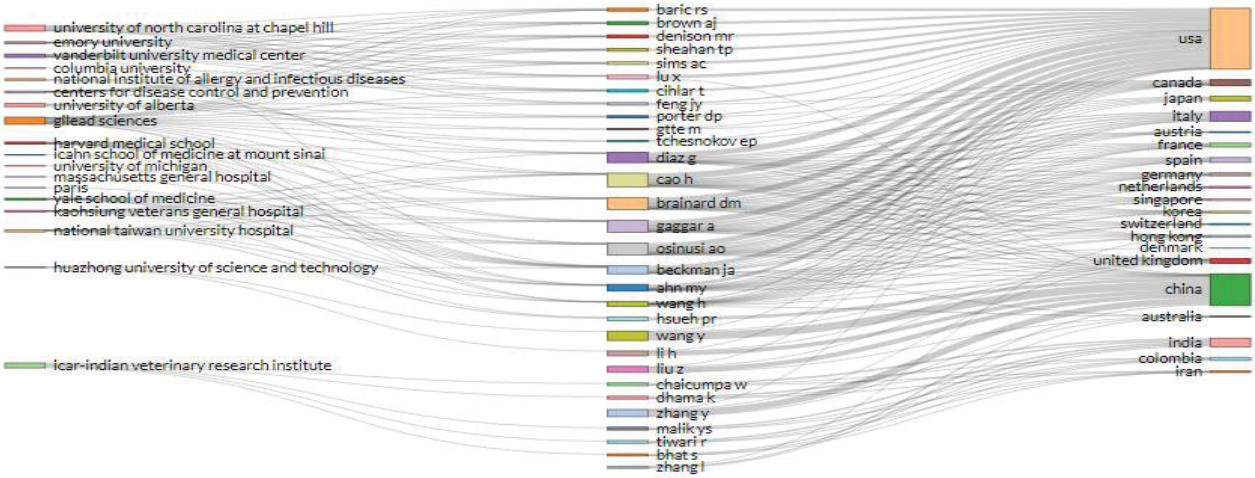


**Fig. 6.** The authors, institutes, and countries collaboration (three fields) map in top 100 cited publications

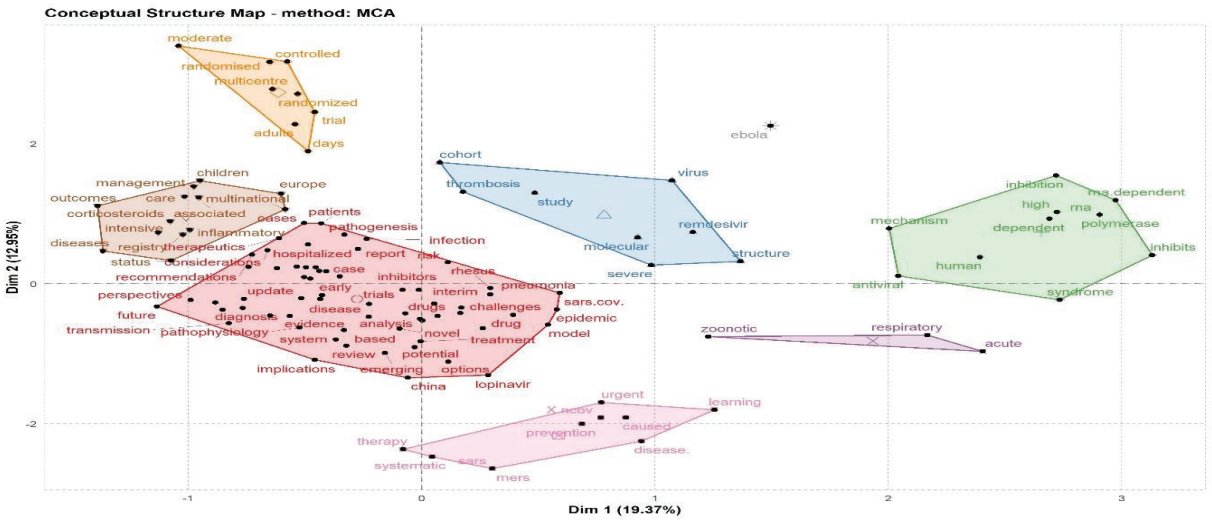


**Fig. 7.** Factorial map of the main words or trends in 100 publications.

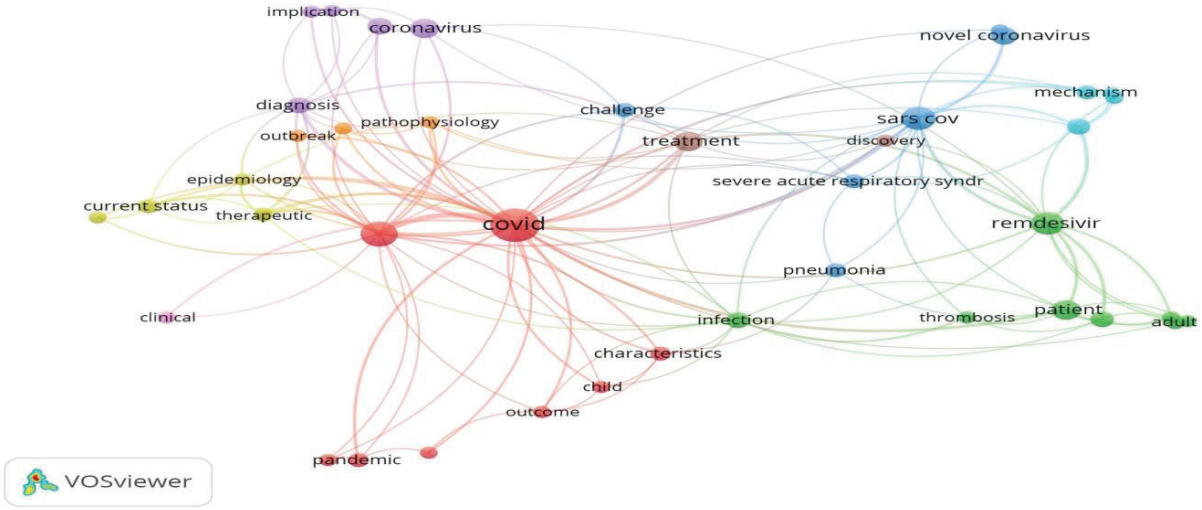


**Fig. 8.** Co-word analysis of the titles of top 100 cited research documents.

For this purpose, we used biblioshiny, the shiny interface for bibliometrix. Institutionally, the highest documents are published by the Department Of Internal Medicine, National Taiwan University Hospital, National Taiwan University College Of Medicine, Taipei, Taiwan (n=4), while Providence Regional Medical Center, Everett, Wa, United States received the highest citations (n=2714). Since there were several writing errors in affiliations, to avoid that we used biblioshiny software to get proper affiliation details. In this context, Icahn School of Medicine at Mount Sinai was involved in the highest publications (n=14), followed by Huazhong University of Science And Technology (n-12), Gilead Sciences (n=11), National Taiwan University Hospital (n=9), and Yale School Of Medicine (n=9). USA published the highest document (n-44) and received the highest citations (n=18536). The contribution and collaborations of all countries are presented in figure 5. We also represented the authors, universities, and countries in a single file as shown in figure 6. The publications and citation details of the top 100 authors, institutes, and countries are described in supplementary tables 5-7.

### 3.5 Authors, Institutions, and Countries

In all publications, 610 authors have contributed. The highest documents are published by Feng J.Y. (n=5), while Lu X. received the highest citations (n=2693). By Lotka's law (determined by biblioshiny), we presented the frequency distribution of the scientific productivity of authors.

Lotka's law, named after Alfred J. Lotka, is one of a variety of special applications of Zipf's law. It describes the frequency of publication by authors in any given field. As apparent from the graph (figure 4), 80-82 % of articles were involved in a single publication.

### 3.6 Sources

The documents are published in 73 sources. The list is provided in table 8. The number of citations is a good indicator of its quality and importance. The h-index was first introduced in 2005 by Jorge E. Hirsch, a physicist at UC San Diego, It can be used to measure the productivity and citation impact of a source. One of its major advantages is that it can rectify the disproportionate weight of highly cited publications or publications with zero citations. For example, h-index of 5 means, that the source had published 5 papers, each of which has been cited at least 5 times. While the g-index is suggested in 2006 by Leo Egghe "The g-index is the unique largest number such that the top g articles received together at least g2 citations". The highest documents are published in the New England Journal of Medicine (n=8), with the highest total citations (n-6752), g-index (n=8), and h_index (n-8). The publications and citations of the top 100 sources are described in supplementary table 8.

### 3.7 Co-words Analysis

Co-word analysis is a significant method of bibliometric analysis that can identify the major research themes, trends, and hot topics in particular research documents. Furthermore, co-words analysis can be employed to reveal patterns in a specific discipline. The co-word analysis can represent the structure of a field in maps [13, 14]. In multiple correspondence analyses (figure 7), we presented the focus of these publications. We also performed a co-words analysis on Vosviewer. In all titles, 272 terms appeared. Some of the characteristic and prominent words are remdesivir (n=15), patient (n-9), treatment (n=10), treatment option (n=6), diagnosis (n=5), infection (n-5), RNA dependent RNA polymerase (n=5), challenge (n=3), characteristics (n=3), current status (n=3), management (n=3), mechanism (n=3), epidemiology (n=2), future perspective (n=2), implication (n=2), inhibition (n=2), thrombosis (n=2), transmission (n=2) and Vaccine (n=2). The co-words are represented in figure 8. This may help in providing a broad picture of the overall focus of these (n-100) publications.

### 3.8 Limitations

We only analyzed the Scopus data. Other databases, for example, Web of Science, Crossref, Dimensions, or PubMed Central were not explored. There were common spelling, grammatical, the addition of postcode, etc.. in institutional addresses. We ignored their detailed analysis.

## 4. CONFLICT OF INTEREST

There is no conflict of interest.

## 5. SUPPLEMENTARY TABLES

The following tables are attached in a supplementary file.

**Set-1**
**This set contains the following table for all documents (n=2562).**

Table 1. The publication and citations details of the top 100 authors.
Table 2. The publication and citations details of the top 100 institutes.
Table 3. The publication and citations details of 67 countries. These countries published atleast 5 documents.
Table 4. The number of documents and citations for the top 100 sources or journals.

**Set-2**
This set contains the following table for all the top 100 most cited documents.
Table 5. The publication and citations details of the top 100 authors.
Table 6: The publication and citations details of the top 100 institutes.
Table 7. The publication and citations details of 47 countries.
Table 8. The number of documents and citations for the 73 sources or journals.

## 6. REFERENCES


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5. E.H. Hassan, A, Salimi, D. Nermin, L. Smith. Bibliometric Analysis of Early COVID-19 Research: The Top 50 Cited Papers. *Infect Dis* 13:13:1178633720962935 (2020).
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7. J. Fan, Y. Gao, N. Zhao, R. Dai, H. Zhang, X. Feng, G. Shi, J. Tian, C. Chen, B.D. Hambly, and S. Bao. Bibliometric Analysis on COVID-19: A Comparison of Research Between English and Chinese Studies. *Frontiers In Public Health* 8: 477 (2020)
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9. T.K. Warren, R. Jordan, M.K. Lo, A.S. Ray, R.L. Mackman, V. Soloveva. et al. Therapeutic efficacy of the small molecule GS-5734 against Ebola virus in rhesus monkeys. *Nature.* 531 (7594): 381–5 (2016).
10. J. H. Beigel, K. M. Tomashek, L. E. Dodd, A. K. Mehta, B. S. Zingman, A. C. Kalil, E. Hohmann, H. Y. Chu, A. Luetkemeyer, S. Kline, D. L. Castilla and R. W. Finberg et al. Remdesivir for the Treatment of Covid-19 — Final Report. *N Engl J Med* 383:1813-1826 (2020).
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## Supplementary Tables

### Set #1

**Table 1.** The publication and citations details of the top 100 authors.

| S# | Author | Documents | Citations | S# | Author | Documents | Citations |
|---|---|---|---|---|---|---|---|
| 1. | WANG Y. | 20 | 1243 | 51 | PORTER D. | 6 | 757 |
| 2. | ZHANG Y. | 19 | 667 | 52 | SHARMA S. | 6 | 52 |
| 3. | LIU J. | 17 | 250 | 53 | SINGH A. | 6 | 141 |
| 4. | WANG J. | 15 | 65 | 54 | SPANDIDOS D.A. | 6 | 123 |
| 5. | LI X. | 14 | 1220 | 55 | TIWARI R. | 6 | 560 |
| 6. | SINGH S. | 14 | 46 | 56 | WANG B. | 6 | 61 |
| 7. | WANG X. | 14 | 307 | 57 | WANG C. | 6 | 35 |
| 8. | KUMAR S. | 13 | 121 | 58 | WANG H. | 6 | 327 |
| 9. | LIU Y. | 13 | 1114 | 59 | WANG K. | 6 | 64 |
| 10. | ZHANG L. | 13 | 891 | 60 | WANG M. | 6 | 14 |
| 11. | LI Y. | 11 | 305 | 61 | WANG S. | 6 | 25 |
| 12. | SHI Y. | 11 | 304 | 62 | YANG X. | 6 | 60 |
| 13. | JR. | 10 | 221 | 63 | ZHANG M. | 6 | 44 |
| 14. | LI H. | 10 | 949 | 64 | ZHENG W. | 6 | 25 |
| 15. | SHARMA A. | 10 | 61 | 65 | BARIC R.S. | 5 | 946 |
| 16. | CIHLAR T. | 9 | 1487 | 66 | CHEN D. | 5 | 332 |
| 17. | KUMAR P. | 9 | 60 | 67 | CHEN L. | 5 | 668 |
| 18. | LEE J. | 9 | 18 | 68 | CHEN Y. | 5 | 53 |
| 19. | WANG Z. | 9 | 42 | 69 | CRINER G.J. | 5 | 84 |
| 20. | ZHANG X. | 9 | 197 | 70 | DAS A. | 5 | 30 |
| 21. | HSUEH P.-R. | 8 | 2227 | 71 | ELFIKY A.A. | 5 | 610 |
| 22. | KHAN S. | 8 | 241 | 72 | FELDMANN H. | 5 | 494 |
| 23. | KUMAR M. | 8 | 51 | 73 | GUPTA A. | 5 | 21 |
| 24. | LI J. | 8 | 10 | 74 | GUPTA S. | 5 | 32 |
| 25. | LIU H. | 8 | 14 | 75 | GUPTA V. | 5 | 23 |
| 26. | SHAH S. | 8 | 87 | 76 | GÖTTE M. | 5 | 764 |
| 27. | WANG L. | 8 | 481 | 77 | JAIN A. | 5 | 49 |
| 28. | YANG L. | 8 | 81 | 78 | JAIN S. | 5 | 21 |
| 29. | YANG Y. | 8 | 637 | 79 | JIANG S. | 5 | 18 |
| 30. | ZHANG J. | 8 | 120 | 80 | JIN D.-Y. | 5 | 250 |
| 31. | DHAMA K. | 7 | 582 | 81 | JORDAN R. | 5 | 1173 |
| 32. | FENG J.Y. | 7 | 1661 | 82 | LESCURE F.-X. | 5 | 472 |
| 33. | GHOSH A. | 7 | 194 | 83 | LI C. | 5 | 36 |
| 34. | GUPTA N. | 7 | 77 | 84 | LI L. | 5 | 55 |
| 35. | HU Y. | 7 | 34 | 85 | LI M. | 5 | 615 |
| 36. | HUANG J. | 7 | 70 | 86 | LIU S. | 5 | 60 |
| 37. | PORTER D.P. | 7 | 889 | 87 | LIU X. | 5 | 188 |
| 38. | SINGH R. | 7 | 67 | 88 | LU X. | 5 | 2704 |
| 39. | SINGH V. | 7 | 11 | 89 | LU Y. | 5 | 57 |

| S# | Author | Documents | Citations | S# | Author | Documents | Citations |
|---|---|---|---|---|---|---|---|
| 40. | WANG Q. | 7 | 658 | 90 | MALIK Y.S. | 5 | 540 |
| 41. | XU Y. | 7 | 848 | 91 | SAHU K.K. | 5 | 48 |
| 42. | ALI A. | 6 | 105 | 92 | SHARMA M. | 5 | 28 |
| 43. | CHEN J. | 6 | 40 | 93 | TCHESNOKOV E.P. | 5 | 764 |
| 44. | CHEN S. | 6 | 18 | 94 | TIAN G. | 5 | 236 |
| 45. | KIM S. | 6 | 26 | 95 | WU J. | 5 | 45 |
| 46. | KUMAR A. | 6 | 17 | 96 | XIE X. | 5 | 36 |
| 47. | KUMAR R. | 6 | 25 | 97 | XIE Y. | 5 | 27 |
| 48. | KUMAR V. | 6 | 8 | 98 | YANG J. | 5 | 0 |
| 49. | LI F. | 6 | 9 | 99 | YE Z.-W. | 5 | 250 |
| 50. | LI Z. | 6 | 15 | 100 | YUAN S. | 5 | 39 |

**Table 2.** The publication and citations details of the top 100 institutes.

| S# | Organization | Documents | Citations |
|---|---|---|---|
| **1.** | UNIVERSITY OF CHINESE ACADEMY OF SCIENCES, BEIJING, 100049, CHINA | 9 | 355 |
| **2.** | DEPARTMENT OF LABORATORY MEDICINE, NATIONAL TAIWAN UNIVERSITY HOSPITAL, NATIONAL TAIWAN UNIVERSITY COLLEGE OF MEDICINE, TAIPEI, TAIWAN | 7 | 2226 |
| **3.** | DEPARTMENT OF INTERNAL MEDICINE, NATIONAL TAIWAN UNIVERSITY HOSPITAL, NATIONAL TAIWAN UNIVERSITY COLLEGE OF MEDICINE, TAIPEI, TAIWAN | 6 | 2215 |
| **4.** | GILEAD SCIENCES, INC., FOSTER CITY, CA, UNITED STATES | 5 | 244 |
| **5.** | HARVARD MEDICAL SCHOOL, BOSTON, MA, UNITED STATES | 5 | 44 |
| **6.** | DEPARTMENT OF CLINICAL PHARMACY, FACULTY OF PHARMACY, TABRIZ UNIVERSITY OF MEDICAL SCIENCES, TABRIZ, IRAN | 4 | 2 |
| **7.** | DEPARTMENT OF CLINICAL PHARMACY, UNIVERSITY OF MICHIGAN COLLEGE OF PHARMACY, ANN ARBOR, MI, UNITED STATES | 4 | 146 |
| **8.** | DEPARTMENT OF MEDICINE, ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI, NEW YORK, NY, UNITED STATES | 4 | 172 |
| **9.** | DEPARTMENT OF MEDICINE, UNIVERSITY OF WASHINGTON, SEATTLE, WA, UNITED STATES | 4 | 107 |
| **10.** | DEPARTMENT OF MICROBIOLOGY, ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI, NEW YORK, NY, UNITED STATES | 4 | 129 |
| **11.** | GILEAD SCIENCES, FOSTER CITY, CA, UNITED STATES | 4 | 670 |
| **12.** | IRSICAIXA, HOSPITAL UNIVERSITARI GERMANS TRIAS I PUJOL, UNIVERSITAT AUTÒNOMA DE BARCELONA (UAB), BADALONA, SPAIN | 4 | 206 |
| **13.** | NOVEL GLOBAL COMMUNITY EDUCATIONAL FOUNDATION, AUSTRALIA | 4 | 6 |
| **14.** | SHANGHAI INSTITUTE OF MATERIA MEDICA, CHINESE ACADEMY OF SCIENCES, SHANGHAI, 201203, CHINA | 4 | 1 |
| **15.** | TEXAS BIOMEDICAL RESEARCH INSTITUTE, SAN ANTONIO, TX, UNITED STATES | 4 | 123 |
| **16.** | UNIVERSITY OF NEBRASKA MEDICAL CENTER, OMAHA, NE, UNITED STATES | 4 | 5 |
| **17.** | APPLIED BIOTECHNOLOGY RESEARCH CENTER, BAQIYATALLAH UNIVERSITY OF MEDICAL SCIENCES, TEHRAN, IRAN | 3 | 5 |
| **18.** | BRIGHAM AND WOMEN'S HOSPITAL, HARVARD MEDICAL SCHOOL, BOSTON, MA, UNITED STATES | 3 | 738 |
| **19.** | CARDIOVASCULAR RESEARCH CENTER, TABRIZ UNIVERSITY OF MEDICAL SCIENCES, TABRIZ, IRAN | 3 | 1 |
| **20.** | CENTER FOR CONVERGENT RESEARCH OF EMERGING VIRUS INFECTION, KOREA RESEARCH INSTITUTE OF CHEMICAL TECHNOLOGY, DAEJEON, 34114, SOUTH KOREA | 3 | 264 |
| **21.** | CENTER OF RESEARCH EXCELLENCE ON THERAPEUTIC PROTEINS AND ANTIBODY ENGINEERING, DEPARTMENT OF PARASITOLOGY, FACULTY OF MEDICINE SIRIRAJ HOSPITAL, MAHIDOL UNIVERSITY, BANGKOK, THAILAND | 3 | 485 |
| **22.** | CENTRE FOR INTERDISCIPLINARY RESEARCH IN BASIC SCIENCES, JAMIA MILLIA ISLAMIA, JAMIA NAGAR, NEW DELHI, 110025, INDIA | 3 | 92 |
| **23.** | CLINICAL VIROLOGY, LABORATORY MEDICINE, UNIVERSITY HOSPITAL BASEL, BASEL, SWITZERLAND | 3 | 31 |
| **24.** | DEPARTMENT I OF INTERNAL MEDICINE, DIVISION OF INFECTIOUS DISEASES, UNIVERSITY OF COLOGNE, COLOGNE, GERMANY | 3 | 16 |
| **25.** | DEPARTMENT OF BIOLOGY, COLLEGE OF SCIENCE, PRINCESS NOURAH BINT ABDULRAHMAN UNIVERSITY, RIYADH, SAUDI ARABIA | 3 | 26 |
| **26.** | DEPARTMENT OF BIOTECHNOLOGY, MAHARISHI MARKANDESHWAR (DEEMED TO BE UNIVERSITY), MULLANA, AMBALA, 133207, INDIA | 3 | 12 |
| **27.** | DEPARTMENT OF BIOTECHNOLOGY, SOUTHERN TAIWAN UNIVERSITY OF SCIENCE AND TECHNOLOGY, TAINAN, TAIWAN | 3 | 8 |
| **28.** | DEPARTMENT OF CEREBROVASCULAR DISEASES, THE SECOND AFFILIATED HOSPITAL OF ZHENGZHOU UNIVERSITY, ZHENGZHOU, CHINA | 3 | 6 |
| **29.** | DEPARTMENT OF CLINICAL MICROBIOLOGY AND INFECTION CONTROL, THE UNIVERSITY OF HONG KONG-SHENZHEN HOSPITAL, SHENZHEN, GUANGDONG PROVINCE, CHINA | 3 | 25 |
| **30.** | DEPARTMENT OF EMERGENCY MEDICINE, DEPARTMENT OF EMERGENCY AND CRITICAL CARE MEDICINE, WAN FANG HOSPITAL, TAIPEI MEDICAL | 3 | 202 |

| S# | Organization | Documents | Citations |
|---|---|---|---|
| | UNIVERSITY, TAIPEI, TAIWAN | | |
| **31.** | DEPARTMENT OF EMERGENCY, SCHOOL OF MEDICINE, COLLEGE OF MEDICINE, TAIPEI MEDICAL UNIVERSITY, TAIPEI, TAIWAN | 3 | 202 |
| **32.** | DEPARTMENT OF EPIDEMIOLOGY, UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL, CHAPEL HILL, NC 27599, UNITED STATES | 3 | 276 |
| **33.** | DEPARTMENT OF EPIDEMIOLOGY, UNIVERSITY OF WASHINGTON, SEATTLE, WA, UNITED STATES | 3 | 26 |
| **34.** | DEPARTMENT OF FORENSIC SCIENCES AND TOXICOLOGY, FACULTY OF MEDICINE, UNIVERSITY OF CRETE, HERAKLION, 71003, GREECE | 3 | 113 |
| **35.** | DEPARTMENT OF HEALTH RESEARCH METHODS, EVIDENCE, AND IMPACT, MCMASTER UNIVERSITY, HAMILTON, ON, CANADA | 3 | 31 |
| **36.** | DEPARTMENT OF INTERNAL MEDICINE, HENRY FORD HOSPITAL, DETROIT, MI, UNITED STATES | 3 | 5 |
| **37.** | DEPARTMENT OF INTERNAL MEDICINE, KAOHSIUNG VETERANS GENERAL HOSPITAL, TAINAN BRANCH, TAINAN, TAIWAN | 3 | 1952 |
| **38.** | DEPARTMENT OF INTERNAL MEDICINE, SEOUL NATIONAL UNIVERSITY COLLEGE OF MEDICINE, SEOUL, SOUTH KOREA | 3 | 6 |
| **39.** | DEPARTMENT OF MEDICAL MICROBIOLOGY AND IMMUNOLOGY, UNIVERSITY OF ALBERTA, EDMONTON, AB T6G 2E1, CANADA | 3 | 524 |
| **40.** | DEPARTMENT OF MEDICINE, COLLEGE OF MEDICINE, NATIONAL CHENG KUNG UNIVERSITY, TAINAN, TAIWAN | 3 | 1952 |
| **41.** | DEPARTMENT OF MEDICINE, DIVISION OF INFECTIOUS DISEASES, ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI, NEW YORK, NY, UNITED STATES | 3 | 109 |
| **42.** | DEPARTMENT OF MEDICINE, WEILL CORNELL MEDICINE, NEW YORK, NY, UNITED STATES | 3 | 27 |
| **43.** | DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY, UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL, CHAPEL HILL, NC 27599, UNITED STATES | 3 | 276 |
| **44.** | DEPARTMENT OF PHARMACY, SOUTHEAST UNIVERSITY, DHAKA, BANGLADESH | 3 | 26 |
| **45.** | DEPARTMENT OF ZOOLOGY, COLLEGE OF SCIENCE, KING SAUD UNIVERSITY, RIYADH, SAUDI ARABIA | 3 | 26 |
| **46.** | DIABETES FOUNDATION (INDIA), NEW DELHI, INDIA | 3 | 190 |
| **47.** | DIVISION OF PATHOLOGY, ICAR-INDIAN VETERINARY RESEARCH INSTITUTE, IZATNAGAR, BAREILLY, UTTAR PRADESH 243122, INDIA | 3 | 75 |
| **48.** | DIVISION OF PULMONARY AND CRITICAL CARE MEDICINE, MAYO CLINIC, ROCHESTER, MN, UNITED STATES | 3 | 42 |
| **49.** | FACULTY OF MEDICINE, CENTER FOR MOLECULAR MEDICINE COLOGNE (CMMC), UNIVERSITY OF COLOGNE, COLOGNE, GERMANY | 3 | 16 |
| **50.** | GERMAN CENTER FOR INFECTION RESEARCH (DZIF), PARTNER SITE BONN-COLOGNE, COLOGNE, GERMANY | 3 | 16 |
| **51.** | GILEAD SCIENCES, INC., FOSTER CITY, CA 94404, UNITED STATES | 3 | 604 |
| **52.** | HENAN MEDICAL KEY LABORATORY OF TRANSLATIONAL CEREBROVASCULAR DISEASES, ZHENGZHOU, CHINA | 3 | 95 |
| **53.** | ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI, NEW YORK, NY, UNITED STATES | 3 | 20 |
| **54.** | IMMUNOLOGY RESEARCH CENTER, TABRIZ UNIVERSITY OF MEDICAL SCIENCES, TABRIZ, IRAN | 3 | 11 |
| **55.** | INFECTIOUS DISEASES & HOSPITAL EPIDEMIOLOGY, UNIVERSITY HOSPITAL BASEL, BASEL, SWITZERLAND | 3 | 31 |
| **56.** | INSTITUTO DE INVESTIGACIÓN SANITARIA GREGORIO MARAÑÓN, MADRID, SPAIN | 3 | 11 |
| **57.** | LABORATORY OF CLINICAL VIROLOGY, SCHOOL OF MEDICINE, UNIVERSITY OF CRETE, HERAKLION, 71003, GREECE | 3 | 99 |
| **58.** | LEWIS KATZ SCHOOL OF MEDICINE, TEMPLE UNIVERSITY, PHILADELPHIA, PA, UNITED STATES | 3 | 207 |
| **59.** | LI KA SHING INSTITUTE OF VIROLOGY, UNIVERSITY OF ALBERTA, EDMONTON, AB T6G 2E1, CANADA | 3 | 348 |
| **60.** | MASSACHUSETTS GENERAL HOSPITAL, BOSTON, MA, UNITED STATES | 3 | 792 |
| **61.** | NATIONAL DIABETES, OBESITY AND CHOLESTEROL FOUNDATION, NEW DELHI, INDIA | 3 | 190 |
| **62.** | NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES, NATIONAL | 3 | 580 |

| S# | Organization | Documents | Citations |
|---|---|---|---|
| | INSTITUTES OF HEALTH, BETHESDA, MD, UNITED STATES | | |
| **63.** | PHARMACOLOGY DEPARTMENT, FACULTY OF VETERINARY MEDICINE, SUEZ CANAL UNIVERSITY, ISMAILIA, EGYPT | 3 | 26 |
| **64.** | PHARMAKON NEUROSCIENCE RESEARCH NETWORK, DHAKA, BANGLADESH | 3 | 26 |
| **65.** | RAZI VACCINE AND SERUM RESEARCH INSTITUTE, AGRICULTURAL RESEARCH, EDUCATION AND EXTENSION ORGANIZATION (AREEO), KARAJ, IRAN | 3 | 433 |
| **66.** | SCHOOL OF LIFE SCIENCES, TIANJIN UNIVERSITY, TIANJIN, CHINA | 3 | 424 |
| **67.** | TISCH CANCER INSTITUTE, ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI, NEW YORK, NY, UNITED STATES | 3 | 187 |
| **68.** | UNIVERSITY OF CHINESE ACADEMY OF SCIENCES, BEIJING, CHINA | 3 | 1 |
| **69.** | UNIVERSITY OF MILAN, DEPARTMENT OF PATHOPHYSIOLOGY AND TRANSPLANTATION, MILAN, ITALY | 3 | 43 |
| **70.** | UNIVERSITÉ DE PARIS, PARIS, FRANCE | 3 | 27 |
| **71.** | YONG LOO LIN SCHOOL OF MEDICINE, NATIONAL UNIVERSITY OF SINGAPORE, SINGAPORE | 3 | 282 |
| **72.** | ACADEMY OF SCIENTIFIC AND INNOVATIVE RESEARCH (ACSIR), GHAZIABAD, 201002, INDIA | 2 | 5 |
| **73.** | ANTI-INFECTIVE RESEARCH LABORATORY, DEPARTMENT OF PHARMACY PRACTICE, EUGENE APPLEBAUM COLLEGE OF PHARMACY AND HEALTH SCIENCES, WAYNE STATE UNIVERSITY, DETROIT, MI, UNITED STATES | 2 | 42 |
| **74.** | APPLIED BIOLOGY, CSIR-INDIAN INSTITUTE OF TECHNOLOGY, UPPAL ROAD, TARNAKA, HYDERABAD, TELANGANA 500007, INDIA | 2 | 30 |
| **75.** | BIOMEDICAL INFORMATICS RESEARCH LAB, SCHOOL OF BASIC MEDICINE AND CLINICAL PHARMACY, CHINA PHARMACEUTICAL UNIVERSITY, NANJING, CHINA | 2 | 10 |
| **76.** | BIOMEDICAL TECHNOLOGY AND DEVICE RESEARCH LABORATORIES, INDUSTRIAL TECHNOLOGY RESEARCH INSTITUTE, HSINCHU, 310401, TAIWAN | 2 | 2 |
| **77.** | BIOPHYSICS DEPARTMENT, FACULTY OF SCIENCES, CAIRO UNIVERSITY, GIZA, EGYPT | 2 | 506 |
| **78.** | CARDIOVASCULAR RESEARCH CENTER, SHAHID BEHESHTI UNIVERSITY OF MEDICAL SCIENCES, TEHRAN, IRAN | 2 | 0 |
| **79.** | CAS KEY LABORATORY OF PATHOGENIC MICROBIOLOGY AND IMMUNOLOGY, INSTITUTE OF MICROBIOLOGY, CHINESE ACADEMY OF SCIENCES, BEIJING, CHINA | 2 | 1 |
| **80.** | CATALAN INSTITUTION FOR RESEARCH AND ADVANCED STUDIES (ICREA), BARCELONA, SPAIN | 2 | 3 |
| **81.** | CENTER AND NETWORK FOR TARGETED ONCOLOGY, MUEHLACKERWEG 8, HEIDELBERG, D-69239, GERMANY | 2 | 162 |
| **82.** | CENTER FOR GENOME TECHNOLOGY AND BIOMOLECULAR ENGINEERING, COLUMBIA UNIVERSITY, NEW YORK, NY 10027, UNITED STATES | 2 | 27 |
| **83.** | CENTER FOR INFECTIOUS DISEASE RESEARCH, FACULTY OF MEDICINE, AMERICAN UNIVERSITY OF BEIRUT, BEIRUT, LEBANON | 2 | 20 |
| **84.** | CENTER FOR INFECTIOUS DISEASES RESEARCH, KOREA NATIONAL INSTITUTE OF HEALTH, KOREA CENTERS FOR DISEASE CONTROL AND PREVENTION, CHEONGJU, SOUTH KOREA | 2 | 12 |
| **85.** | CENTER FOR TARGETED DRUG DELIVERY, DEPARTMENT OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES, CHAPMAN UNIVERSITY SCHOOL OF PHARMACY, HARRY AND DIANE RINKER HEALTH SCIENCE CAMPUS, IRVINE, CA 92618, UNITED STATES | 2 | 11 |
| **86.** | CENTRE FOR EVIDENCE-BASED CHINESE MEDICINE, BEIJING UNIVERSITY OF CHINESE MEDICINE, BEIJING, CHINA | 2 | 18 |
| **87.** | CENTRE FOR TROPICAL MEDICINE AND GLOBAL HEALTH, NUFFIELD DEPARTMENT OF MEDICINE, UNIVERSITY OF OXFORD, OXFORD, UNITED KINGDOM | 2 | 115 |
| **88.** | CHILDREN'S HEALTHCARE OF ATLANTA, ATLANTA, GA, UNITED STATES | 2 | 248 |
| **89.** | CHINA MEDICAL UNIVERSITY CHILDREN'S HOSPITAL, CHINA MEDICAL UNIVERSITY, TAICHUNG, 40402, TAIWAN | 2 | 2 |
| **90.** | CHITKARA COLLEGE OF PHARMACY, CHITKARA UNIVERSITYPUNJAB, INDIA | 2 | 2 |
| **91.** | CHRONO-ENVIRONNEMENT LABORATORY, UMR CNRS 6249, BOURGOGNE FRANCHE-COMTÉ UNIVERSITY, BESANÇON, FRANCE | 2 | 23 |

| S# | Organization | Documents | Citations |
|---|---|---|---|
| **92.** | CLINICAL PHARMACOKINETIC LABORATORY, SHUGUANG HOSPITAL AFFILIATED TO SHANGHAI UNIVERSITY OF TRADITIONAL CHINESE MEDICINE, SHANGHAI, 201203, CHINA | 2 | 1 |
| **93.** | CLINICAL PHARMACOLOGY, SCHOOL OF TROPICAL MEDICINE, KOLKATA, 700073, INDIA | 2 | 0 |
| **94.** | CLINICAL RESEARCH CENTER, DEPARTMENT OF INTERNAL MEDICINE, NORTH KHORASAN UNIVERSITY OF MEDICAL SCIENCES, BOJNURD, IRAN | 2 | 6 |
| **95.** | CLINICAL RESEARCH DIVISION, FRED HUTCHINSON CANCER RESEARCH CENTER, SEATTLE, WA, UNITED STATES | 2 | 11 |
| **96.** | CLINICAL TUBERCULOSIS AND EPIDEMIOLOGY RESEARCH CENTER, NATIONAL RESEARCH INSTITUTE OF TUBERCULOSIS AND LUNG DISEASES, SHAHID BEHESHTI UNIVERSITY OF MEDICAL SCIENCES, TEHRAN, IRAN | 2 | 3 |
| **97.** | CLINICAL, RESEARCH AND DEVELOPMENT, NHS BLOOD AND TRANSPLANT, OXFORD, UNITED KINGDOM | 2 | 80 |
| **98.** | COALITION FOR GLOBAL HEPATITIS ELIMINATION, TASK FORCE FOR GLOBAL HEALTH, DECATUR, GA, UNITED STATES | 2 | 6 |
| **99.** | COCHRANE CANCER, DEPARTMENT I OF INTERNAL MEDICINE, CENTER FOR INTEGRATED ONCOLOGY AACHEN BONN COLOGNE DUESSELDORF, FACULTY OF MEDICINE AND UNIVERSITY HOSPITAL COLOGNE, UNIVERSITY OF COLOGNE, COLOGNE, GERMANY | 2 | 80 |
| **100.** | COCHRANE HAEMATOLOGY, DEPARTMENT I OF INTERNAL MEDICINE, CENTER FOR INTEGRATED ONCOLOGY AACHEN BONN COLOGNE DUESSELDORF, FACULTY OF MEDICINE AND UNIVERSITY HOSPITAL COLOGNE, UNIVERSITY OF COLOGNE, COLOGNE, GERMANY | 2 | 80 |

**Table 3.** The publication and citations details of 67 countries. These countries published atleast 5 Documents.

| S# | Country | Documents | Citations | S# | Country | Documents | Citations |
|---|---|---|---|---|---|---|---|
| 1. | UNITED STATES | 854 | 27115 | 35 | DENMARK | 20 | 2495 |
| 2. | INDIA | 405 | 4184 | 36 | INDONESIA | 19 | 392 |
| 3. | CHINA | 286 | 12649 | 37 | ROMANIA | 18 | 206 |
| 4. | ITALY | 230 | 6692 | 38 | IRELAND | 17 | 78 |
| 5. | UNITED KINGDOM | 164 | 8182 | 39 | RUSSIAN FEDERATION | 16 | 1057 |
| 6. | SPAIN | 119 | 5536 | 40 | THAILAND | 16 | 693 |
| 7. | FRANCE | 112 | 5262 | 41 | UAE | 16 | 187 |
| 8. | GERMANY | 110 | 5822 | 42 | ISRAEL | 15 | 110 |
| 9. | IRAN | 108 | 955 | 43 | COLOMBIA | 14 | 321 |
| 10. | CANADA | 94 | 4558 | 44 | LEBANON | 14 | 113 |
| 11. | SAUDI ARABIA | 83 | 1493 | 45 | NEPAL | 13 | 550 |
| 12. | AUSTRALIA | 70 | 3271 | 46 | NORWAY | 12 | 621 |
| 13. | SOUTH KOREA | 66 | 3465 | 47 | CHILE | 12 | 396 |
| 14. | BRAZIL | 61 | 925 | 48 | ARGENTINA | 11 | 188 |
| 15. | PAKISTAN | 57 | 645 | 49 | CZECH REPUBLIC | 11 | 89 |
| 16. | NETHERLANDS | 54 | 2707 | 50 | QATAR | 11 | 82 |
| 17. | EGYPT | 51 | 931 | 51 | CROATIA | 9 | 238 |
| 18. | TURKEY | 50 | 410 | 52 | JORDAN | 9 | 261 |
| 19. | JAPAN | 48 | 3492 | 53 | VIET NAM | 8 | 57 |
| 20. | BELGIUM | 43 | 1009 | 54 | HUNGARY | 8 | 37 |
| 21. | TAIWAN | 43 | 3467 | 55 | IRAQ | 7 | 55 |
| 22. | SWITZERLAND | 42 | 1785 | 56 | PERU | 7 | 73 |
| 23. | SINGAPORE | 40 | 5284 | 57 | SERBIA | 7 | 70 |
| 24. | GREECE | 38 | 2686 | 58 | BULGARIA | 7 | 218 |
| 25. | SWEDEN | 36 | 394 | 59 | MOROCCO | 7 | 9 |
| 26. | SOUTH AFRICA | 34 | 323 | 60 | FINLAND | 6 | 16 |
| 27. | HONG KONG | 31 | 2256 | 61 | PHILIPPINES | 6 | 95 |
| 28. | POLAND | 30 | 740 | 62 | ECUADOR | 6 | 158 |
| 29. | MALAYSIA | 29 | 266 | 63 | GHANA | 5 | 39 |
| 30. | AUSTRIA | 28 | 1773 | 64 | NEW ZEALAND | 5 | 1131 |
| 31. | BANGLADESH | 26 | 335 | 65 | UKRAINE | 5 | 116 |
| 32. | PORTUGAL | 25 | 271 | 66 | KENYA | 4 | 90 |
| 33. | NIGERIA | 22 | 71 | 67 | UGANDA | 4 | 43 |
| 34. | MEXICO | 21 | 1638 | 68 | | | |

**Table 4.** The number of documents and citations for the top 100 sources or journals.

| S# | Source | Documents | Citations |
|---|---|---|---|
| 1. | FRONTIERS IN PHARMACOLOGY | 42 | 184 |
| 2. | JOURNAL OF BIOMOLECULAR STRUCTURE AND DYNAMICS | 34 | 716 |
| 3. | EUROPEAN JOURNAL OF PHARMACOLOGY | 26 | 137 |
| 4. | FRONTIERS IN IMMUNOLOGY | 21 | 218 |
| 5. | INTERNATIONAL JOURNAL OF INFECTIOUS DISEASES | 21 | 243 |
| 6. | JOURNAL OF MEDICAL VIROLOGY | 21 | 1527 |
| 7. | VIRUSES | 21 | 365 |
| 8. | INTERNATIONAL JOURNAL OF RESEARCH IN PHARMACEUTICAL SCIENCES | 20 | 26 |
| 9. | FRONTIERS IN MEDICINE | 19 | 68 |
| 10. | INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES | 18 | 309 |
| 11. | NEW ENGLAND JOURNAL OF MEDICINE | 18 | 7098 |
| 12. | LIFE SCIENCES | 17 | 773 |
| 13. | ANTIVIRAL RESEARCH | 16 | 660 |
| 14. | EUROPEAN REVIEW FOR MEDICAL AND PHARMACOLOGICAL SCIENCES | 15 | 139 |
| 15. | INTERNATIONAL JOURNAL OF ANTIMICROBIAL AGENTS | 15 | 2685 |
| 16. | ANTIMICROBIAL AGENTS AND CHEMOTHERAPY | 13 | 237 |
| 17. | BIOMEDICINE AND PHARMACOTHERAPY | 13 | 68 |
| 18. | INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH | 12 | 285 |
| 19. | JOURNAL OF INFECTION AND PUBLIC HEALTH | 12 | 452 |
| 20. | OPEN FORUM INFECTIOUS DISEASES | 11 | 158 |
| 21. | PLOS ONE | 11 | 39 |
| 22. | AMERICAN JOURNAL OF TRANSPLANTATION | 9 | 429 |
| 23. | CLINICAL MICROBIOLOGY AND INFECTION | 9 | 139 |
| 24. | INTERNATIONAL IMMUNOPHARMACOLOGY | 9 | 61 |
| 25. | INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES | 9 | 39 |
| 26. | INTERNATIONAL JOURNAL OF PHARMACEUTICAL RESEARCH | 9 | 0 |
| 27. | JAMA - JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION | 9 | 1836 |
| 28. | JOURNAL OF PEDIATRICS | 9 | 202 |
| 29. | NATURE COMMUNICATIONS | 9 | 820 |
| 30. | PATHOGENS | 9 | 324 |
| 31. | PHARMACOLOGICAL RESEARCH | 9 | 524 |
| 32. | ACTA BIOMEDICA | 8 | 30 |
| 33. | ANNALS OF INTENSIVE CARE | 8 | 63 |
| 34. | BMJ (CLINICAL RESEARCH ED.) | 8 | 53 |
| 35. | BMJ CASE REPORTS | 8 | 16 |
| 36. | BRITISH JOURNAL OF PHARMACOLOGY | 8 | 140 |
| 37. | CRITICAL CARE | 8 | 37 |

| S# | Source | Documents | Citations |
|---|---|---|---|
| 78. | PEDIATRICS | 6 | 49 |
| 79. | PHARMACEUTICALS | 6 | 42 |
| 80. | RADIOLOGY CASE REPORTS | 6 | 16 |
| 81. | SCIENCE | 6 | 630 |
| 82. | 3 BIOTECH | 5 | 3 |
| 83. | AMERICAN JOURNAL OF EMERGENCY MEDICINE | 5 | 291 |
| 84. | AMERICAN JOURNAL OF HEALTH-SYSTEM PHARMACY | 5 | 0 |
| 85. | BIOCHEMICAL PHARMACOLOGY | 5 | 50 |
| 86. | BIOINTERFACE RESEARCH IN APPLIED CHEMISTRY | 5 | 6 |
| 87. | CLINICAL IMMUNOLOGY | 5 | 317 |
| 88. | CLINICAL LIVER DISEASE | 5 | 20 |
| 89. | CURRENT TOPICS IN MEDICINAL CHEMISTRY | 5 | 15 |
| 90. | DRUG DESIGN, DEVELOPMENT AND THERAPY | 5 | 21 |
| 91. | ECLINICALMEDICINE | 5 | 105 |
| 92. | EMERGING MICROBES AND INFECTIONS | 5 | 16 |
| 93. | EXPERT OPINION ON INVESTIGATIONAL DRUGS | 5 | 5 |
| 94. | FARMACIA | 5 | 17 |
| 95. | INDIAN JOURNAL OF FORENSIC MEDICINE AND TOXICOLOGY | 5 | 0 |
| 96. | INFEZIONI IN MEDICINA | 5 | 63 |
| 97. | INTENSIVE CARE MEDICINE | 5 | 880 |
| 98. | INTERNATIONAL JOURNAL OF CLINICAL PRACTICE | 5 | 33 |
| 99. | JAMA NETWORK OPEN | 5 | 28 |
| 100. | JOURNAL OF MEDICAL INTERNET RESEARCH | 5 | 13 |

**Set #2** This set contains the following table for all the top 100 most cited documents.

**Table 5.** The publication and citations details of the top 100 authors.

| S# | Author | Documents | Citations | S# | Author | Documents | Citations |
|---|---|---|---|---|---|---|---|
| 1. | FENG J.Y. | 5 | 1649 | 51 | LINDQUIST S. | 1 | 2385 |
| 2. | HSUEH P.-R. | 4 | 2167 | 52 | LINDSTROM S. | 1 | 2385 |
| 3. | CIHLAR T. | 4 | 1407 | 53 | LOFY K.H. | 1 | 2385 |
| 4. | PORTER D.P. | 4 | 875 | 54 | PALLANSCH M.A. | 1 | 2385 |
| 5. | WANG Y. | 3 | 1122 | 55 | PATEL A. | 1 | 2385 |
| 6. | GÖTTE M. | 3 | 746 | 56 | PILLAI S.K. | 1 | 2385 |
| 7. | TCHESNOKOV E.P. | 3 | 746 | 57 | SPITTERS C. | 1 | 2385 |
| 8. | CHAICUMPA W. | 3 | 485 | 58 | TONG S. | 1 | 2385 |
| 9. | DHAMA K. | 3 | 485 | 59 | TURAL A. | 1 | 2385 |
| 10. | MALIK Y.S. | 3 | 485 | 60 | UYEKI T.M. | 1 | 2385 |
| 11. | TIWARI R. | 3 | 485 | 61 | WASHINGTON | 1 | 2385 |
| 12. | LU X. | 2 | 2693 | 62 | WELDON W.C. | 1 | 2385 |
| 13. | KO W.-C. | 2 | 1905 | 63 | WIESMAN J. | 1 | 2385 |
| 14. | LAI C.-C. | 2 | 1905 | 64 | WILKERSON S. | 1 | 2385 |
| 15. | JORDAN R. | 2 | 1100 | 65 | SHIH T.-P. | 1 | 1573 |
| 16. | LI X. | 2 | 1087 | 66 | TANG H.-J. | 1 | 1573 |
| 17. | LIU Y. | 2 | 1053 | 67 | CAO Q.-D. | 1 | 1329 |
| 18. | BARIC R.S. | 2 | 903 | 68 | CHEN S.-D. | 1 | 1329 |
| 19. | BROWN A.J. | 2 | 903 | 69 | GUO Y.-R. | 1 | 1329 |
| 20. | DENISON M.R. | 2 | 903 | 70 | HONG Z.-S. | 1 | 1329 |
| 21. | SHEAHAN T.P. | 2 | 903 | 71 | JIN H.-J. | 1 | 1329 |
| 22. | LI H. | 2 | 877 | 72 | TAN K.-S. | 1 | 1329 |
| 23. | XU Y. | 2 | 836 | 73 | TAN Y.-Y. | 1 | 1329 |
| 24. | ZHANG L. | 2 | 836 | 74 | WANG D.-Y. | 1 | 1329 |
| 25. | DENG L. | 2 | 705 | 75 | YAN Y. | 1 | 1329 |
| 26. | ZHANG Y. | 2 | 558 | 76 | CUTRELL J.B. | 1 | 939 |
| 27. | GORDON C.J. | 2 | 534 | 77 | JODLOWSKI T.Z. | 1 | 939 |
| 28. | MA Z. | 2 | 515 | 78 | MONOGUE M.L. | 1 | 939 |
| 29. | ELFIKY A.A. | 2 | 506 | 79 | SANDERS J.M. | 1 | 939 |
| 30. | DE WIT E. | 2 | 504 | 80 | MACARY P.A. | 1 | 935 |
| 31. | FELDMANN F. | 2 | 504 | 81 | NG L.F.P. | 1 | 935 |
| 32. | OKUMURA A. | 2 | 504 | 82 | POH C.M. | 1 | 935 |
| 33. | WANG L. | 2 | 470 | 83 | RÉNIA L. | 1 | 935 |
| 34. | LI S. | 2 | 429 | 84 | TAY M.Z. | 1 | 935 |
| 35. | DADAR M. | 2 | 344 | 85 | ANGLÉS-CANO E. | 1 | 774 |
| 36. | SHARUN K. | 2 | 344 | 86 | CASTELAIN V. | 1 | 774 |
| 37. | SINGH K.P. | 2 | 318 | 87 | CLERE-JEHL R. | 1 | 774 |
| 38. | BHAT S. | 2 | 308 | 88 | CRICS | 1 | 774 |
| 39. | SIRCAR S. | 2 | 308 | 89 | DELABRANCHE X. | 1 | 774 |

| S# | Author | Documents | Citations | S# | Author | Documents | Citations |
|---|---|---|---|---|---|---|---|
| 40. | LEE P.-I. | 2 | 262 | 90 | FAFI-KREMER S. | 1 | 774 |
| 41. | BIGGS H.M. | 1 | 2385 | 91 | FAGOT GANDET F. | 1 | 774 |
| 42. | BRUCE H. | 1 | 2385 | 92 | GRUNEBAUM L. | 1 | 774 |
| 43. | COHN A. | 1 | 2385 | 93 | HELMS J. | 1 | 774 |
| 44. | DEBOLT C. | 1 | 2385 | 94 | LEONARD-LORANT I. | 1 | 774 |
| 45. | DIAZ G. | 1 | 2385 | 95 | MERDJI H. | 1 | 774 |
| 46. | ERICSON K. | 1 | 2385 | 96 | MERTES P.-M. | 1 | 774 |
| 47. | FOX L. | 1 | 2385 | 97 | MEZIANI F. | 1 | 774 |
| 48. | GERBER S.I. | 1 | 2385 | 98 | OHANA M. | 1 | 774 |
| 49. | HOLSHUE M.L. | 1 | 2385 | 99 | SATTLER L. | 1 | 774 |
| 50. | KIM L. | 1 | 2385 | 100 | SCHENCK M. | 1 | 774 |

**Table 6**. The publication and citations details of the top 100 institutes.

| S# | Organization | Documents | Citations |
|---|---|---|---|
| 1. | PROVIDENCE REGIONAL MEDICAL CENTER, EVERETT, WA, UNITED STATES | 2 | 2714 |
| 2. | DEPARTMENT OF MEDICINE, UNIVERSITY OF WASHINGTON, SCHOOL OF MEDICINE, SEATTLE, WA, UNITED STATES | 1 | 2385 |
| 3. | DIVISION OF PREPAREDNESS AND EMERGING INFECTIONS CENTERS FOR DISEASE CONTROL AND PREVENTION, ATLANTA, WA, UNITED STATES | 1 | 2385 |
| 4. | DIVISION OF VIRAL DISEASES, CENTERS FOR DISEASE CONTROL AND PREVENTION, ATLANTA, WA, UNITED STATES | 1 | 2385 |
| 5. | EPIDEMIC INTELLIGENCE SERVICE, CENTERS FOR DISEASE CONTROL AND PREVENTION, ATLANTA, WA, UNITED STATES | 1 | 2385 |
| 6. | INFLUENZA DIVISION, CENTERS FOR DISEASE CONTROL AND PREVENTION, ATLANTA, WA, UNITED STATES | 1 | 2385 |
| 7. | NATIONAL CENTER FOR IMMUNIZATIONS AND RESPIRATORY DISEASES, CENTERS FOR DISEASE CONTROL AND PREVENTION, ATLANTA, WA, UNITED STATES | 1 | 2385 |
| 8. | PROVIDENCE MEDICAL GROUP, EVERETT, WA, UNITED STATES | 1 | 2385 |
| 9. | SNOHOMISH HEALTH DISTRICT, EVERETT, WA, UNITED STATES | 1 | 2385 |
| 10. | WASHINGTON STATE DEPARTMENT OF HEALTH, SHORELINE, WA, UNITED STATES | 1 | 2385 |
| 11. | DEPARTMENT OF INTERNAL MEDICINE, NATIONAL TAIWAN UNIVERSITY HOSPITAL, NATIONAL TAIWAN UNIVERSITY COLLEGE OF MEDICINE, TAIPEI, TAIWAN | 4 | 2167 |
| 12. | DEPARTMENT OF LABORATORY MEDICINE, NATIONAL TAIWAN UNIVERSITY HOSPITAL, NATIONAL TAIWAN UNIVERSITY COLLEGE OF MEDICINE, TAIPEI, TAIWAN | 4 | 2167 |
| 13. | DEPARTMENT OF INTERNAL MEDICINE, KAOHSIUNG VETERANS GENERAL HOSPITAL, TAINAN BRANCH, TAINAN, TAIWAN | 2 | 1905 |
| 14. | DEPARTMENT OF MEDICINE, COLLEGE OF MEDICINE, NATIONAL CHENG KUNG UNIVERSITY, TAINAN, TAIWAN | 2 | 1905 |
| 15. | DEPARTMENT OF FAMILY MEDICINE, KAOHSIUNG VETERANS GENERAL HOSPITAL, TAINAN BRANCH, TAINAN, TAIWAN | 1 | 1573 |
| 16. | DEPARTMENT OF MEDICINE, CHI MEI MEDICAL CENTER, 71004, TAINAN, TAIWAN | 1 | 1573 |
| 17. | CENTER FOR INTERVENTIONAL MEDICINE, FIFTH AFFILIATED HOSPITAL, SUN YAT-SEN UNIVERSITY, ZHUHAI, GUANGDONG, 519000, CHINA | 1 | 1329 |
| 18. | CENTER OF INFECTIOUS DISEASE, FIFTH AFFILIATED HOSPITAL, SUN YAT-SEN UNIVERSITY, ZHUHAI, GUANGDONG, 519000, CHINA | 1 | 1329 |
| 19. | DEPARTMENT OF CARDIOTHORACIC SURGERY, FIFTH AFFILIATED HOSPITAL, SUN YAT-SEN UNIVERSITY, ZHUHAI, GUANGDONG, 519000, CHINA | 1 | 1329 |
| 20. | DEPARTMENT OF OTOLARYNGOLOGY, YONG LOO LIN SCHOOL OF MEDICINE, NATIONAL UNIVERSITY OF SINGAPORE, NATIONAL UNIVERSITY HEALTH SYSTEM, SINGAPORE, 119228, SINGAPORE | 1 | 1329 |
| 21. | GUANGDONG PROVINCIAL KEY LABORATORY OF BIOMEDICAL IMAGING, GUANGDONG PROVINCIAL ENGINEERING RESEARCH CENTER OF MOLECULAR IMAGING, ZHUHAI, GUANGDONG, 519000, CHINA | 1 | 1329 |
| 22. | DEPARTMENT OF PHARMACY, UNIVERSITY OF TEXAS SOUTHWESTERN MEDICAL CENTER, DALLAS, UNITED STATES | 1 | 939 |
| 23. | DIVISION OF INFECTIOUS DISEASES AND GEOGRAPHIC MEDICINE, DEPARTMENT OF MEDICINE, UNIVERSITY OF TEXAS | 1 | 939 |

| S# | Organization | Documents | Citations |
|---|---|---|---|
| | SOUTHWESTERN MEDICAL CENTER, 5323 HARRY HINES BLVD, DALLAS, TX 75390-9113, UNITED STATES | | |
| 24. | PHARMACY SERVICE, VA NORTH TEXAS HEALTH CARE SYSTEM, DALLAS, UNITED STATES | 1 | 939 |
| 25. | DEPARTMENT OF BIOCHEMISTRY, YONG LOO LIN SCHOOL OF MEDICINE, NATIONAL UNIVERSITY OF SINGAPORE, SINGAPORE, SINGAPORE | 1 | 935 |
| 26. | DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY, YONG LOO LIN SCHOOL OF MEDICINE, NATIONAL UNIVERSITY OF SINGAPORE, SINGAPORE, SINGAPORE | 1 | 935 |
| 27. | INSTITUTE OF INFECTION, VETERINARY & ECOLOGICAL SCIENCES, UNIVERSITY OF LIVERPOOL, LIVERPOOL, UNITED KINGDOM | 1 | 935 |
| 28. | SINGAPORE IMMUNOLOGY NETWORK (SIGN), AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH (A*STAR), BIOPOLIS, SINGAPORE, SINGAPORE | 1 | 935 |
| 29. | DEPARTMENT OF EPIDEMIOLOGY, UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL, CHAPEL HILL, NC, UNITED STATES | 2 | 903 |
| 30. | DEPARTMENT OF PEDIATRICS-INFECTIOUS DISEASES, DEPARTMENT OF PATHOLOGY, MICROBIOLOGY AND IMMUNOLOGY, VANDERBILT UNIVERSITY MEDICAL CENTER, NASHVILLE, TN, UNITED STATES | 2 | 903 |
| 31. | MASSACHUSETTS GENERAL HOSPITAL, BOSTON, MA, UNITED STATES | 2 | 792 |
| 32. | GROUPE MÉTHODES EN RECHERCHE CLINIQUE (GMRC), HÔPITAL CIVIL, HÔPITAUX UNIVERSITAIRES DE STRASBOURG, STRASBOURG, FRANCE | 1 | 774 |
| 33. | IMMUNORHUMATOLOGIE MOLÉCULAIRE, INSERM UMR_S1109, LABEX TRANSPLANTEX, CENTRE DE RECHERCHE D'IMMUNOLOGIE ET D'HÉMATOLOGIE, FACULTÉ DE MÉDECINE, FÉDÉRATION HOSPITALO-UNIVERSITAIRE (FHU) OMICARE, FÉDÉRATION DE MÉDECINE TRANSLATIONNELLE DE STRASBOURG (FMTS), UNIVERSITÉ DE STRASBOURG (UNISTRA), STRASBOURG, FRANCE | 1 | 774 |
| 34. | INNOVATIVE THERAPIES IN HAEMOSTASIS, INSERM UMR_S 1140, UNIVERSITÉ DE PARIS, PARIS, 75006, FRANCE | 1 | 774 |
| 35. | LABORATOIRE DE D'HÉMATOLOGIE, HAUTEPIERRE, HÔPITAUX UNIVERSITAIRES DE STRASBOURG, STRASBOURG, FRANCE | 1 | 774 |
| 36. | LABORATOIRE DE VIROLOGIE MÉDICALE, HÔPITAUX UNIVERSITAIRES DE STRASBOURG, STRASBOURG, FRANCE | 1 | 774 |
| 37. | RADIOLOGY DEPARTMENT, NOUVEL HÔPITAL CIVIL, STRASBOURG UNIVERSITY HOSPITAL, STRASBOURG, FRANCE | 1 | 774 |
| 38. | SERVICE DE MÉDECINE INTENSIVE RÉANIMATION, HAUTEPIERRE, HÔPITAUX UNIVERSITAIRES DE STRASBOURG, STRASBOURG, FRANCE | 1 | 774 |
| 39. | SERVICE DE MÉDECINE INTENSIVE RÉANIMATION, NOUVEL HÔPITAL CIVIL, HÔPITAUX UNIVERSITAIRES DE STRASBOURG, 1, PLACE DE L'HÔPITAL, STRASBOURG CEDEX, 67091, FRANCE | 1 | 774 |
| 40. | SERVICE D'ANESTHÉSIE-RÉANIMATION, NOUVEL HÔPITAL CIVIL, HÔPITAUX UNIVERSITAIRES DE STRASBOURG, STRASBOURG, FRANCE | 1 | 774 |
| 41. | UMR 1260, REGENERATIVE NANOMEDICINE (RNM), FMTS, INSERM (FRENCH NATIONAL INSTITUTE OF HEALTH AND MEDICAL RESEARCH), STRASBOURG, FRANCE | 1 | 774 |
| 42. | BRIGHAM AND WOMEN'S HOSPITAL, HARVARD MEDICAL SCHOOL, BOSTON, MA, UNITED STATES | 2 | 738 |
| 43. | DEPARTMENT OF PATHOLOGY & LABORATORY MEDICINE, UNIVERSITY OF NORTH CAROLINA, CHAPEL HILL, NC, UNITED | 1 | 725 |

| S# | Organization | Documents | Citations |
|---|---|---|---|
| | STATES | | |
| 44. | GILEAD SCIENCES, INC, FOSTER CITY, CA, UNITED STATES | 1 | 725 |
| 45. | DEPARTMENT OF DERMATOLOGY, WEILL CORNELL MEDICINE, UNITED STATES | 1 | 722 |
| 46. | DEPARTMENT OF LABORATORY MEDICINE, MEMORIAL SLOAN-KETTERING CANCER CENTER, NEW YORK, NY, UNITED STATES | 1 | 722 |
| 47. | DEPARTMENT OF MEDICINE, DIVISION OF HEMATOLOGY AND MEDICAL ONCOLOGY, WEILL CORNELL MEDICINE, NEW YORK, NY, UNITED STATES | 1 | 722 |
| 48. | DEPARTMENT OF MEDICINE, DIVISION OF PULMONARY AND CRITICAL CARE MEDICINE, WEILL CORNELL MEDICINE, NEW YORK, NY, UNITED STATES | 1 | 722 |
| 49. | DEPARTMENT OF PATHOLOGY AND LABORATORY MEDICINE, WEILL CORNELL MEDICINE, NEW YORK, NY, UNITED STATES | 1 | 722 |
| 50. | THE OHIO STATE UNIVERSITY COMPREHENSIVE CANCER CENTER, COLUMBUS OHIO AND DISCOVERY LIFE SCIENCES, POWELL, OH, UNITED STATES | 1 | 722 |
| 51. | DEPARTMENT OF BIOMEDICAL INFORMATICS, VAGELOS COLLEGE OF PHYSICIANS AND SURGEONS, COLUMBIA UNIVERSITY, NEW YORK, UNITED STATES | 1 | 713 |
| 52. | DEPARTMENT OF BIOSTATISTICS, MAILMAN SCHOOL OF PUBLIC HEALTH, NEW YORK, UNITED STATES | 1 | 713 |
| 53. | DEPARTMENT OF EPIDEMIOLOGY, MAILMAN SCHOOL OF PUBLIC HEALTH, NEW YORK, UNITED STATES | 1 | 713 |
| 54. | DIVISIONS OF GENERAL MEDICINE, INFECTIOUS DISEASES, AND PULMONARY, ALLERGY, AND CRITICAL CARE MEDICINE, DEPARTMENT OF MEDICINE, NEW YORK, UNITED STATES | 1 | 713 |
| 55. | YORK–PRESBYTERIAN HOSPITAL, COLUMBIA UNIVERSITY IRVING MEDICAL CENTER, NEW YORK, UNITED STATES | 1 | 713 |
| 56. | CASE WESTERN RESERVE SCHOOL OF MEDICINE, LOUIS STOKES CLEVELAND VETERANS AFFAIRS MEDICAL CENTER, CLEVELAND, OH, UNITED STATES | 1 | 672 |
| 57. | CENTER FOR OUTCOMES RESEARCH AND EVALUATION, YALE SCHOOL OF MEDICINE, NEW HAVEN, CT, UNITED STATES | 1 | 672 |
| 58. | CLINICAL TRIALS CENTER, CARDIOVASCULAR RESEARCH FOUNDATION, NEW YORK, NY, UNITED STATES | 1 | 672 |
| 59. | DEPARTMENT OF HEALTH POLICY AND ADMINISTRATION, YALE SCHOOL OF PUBLIC HEALTH, NEW HAVEN, CT, UNITED STATES | 1 | 672 |
| 60. | DEPARTMENT OF MEDICAL-SURGICAL SCIENCES AND BIOTECHNOLOGIES, SAPIENZA UNIVERSITY OF ROME, LATINA, ITALY | 1 | 672 |
| 61. | ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI, NEW YORK, NEW YORK | 1 | 672 |
| 62. | MEDITERRANEA CARDIOCENTRO, NAPOLI, ITALY | 1 | 672 |
| 63. | NEW YORK–PRESBYTERIAN HOSPITAL/COLUMBIA UNIVERSITY IRVING MEDICAL CENTER, NEW YORK, NY, UNITED STATES | 1 | 672 |
| 64. | SECTION OF CARDIOVASCULAR MEDICINE, DEPARTMENT OF INTERNAL MEDICINE, YALE SCHOOL OF MEDICINE, NEW HAVEN, CT, UNITED STATES | 1 | 672 |
| 65. | VANDERBILT UNIVERSITY MEDICAL CENTER, NASHVILLE, TN, UNITED STATES | 1 | 672 |
| 66. | GILEAD SCIENCES, FOSTER CITY, CA, UNITED STATES | 3 | 648 |
| 67. | HUBEI KEY LABORATORY OF NATURAL MEDICINAL CHEMISTRY AND RESOURCE EVALUATION, SCHOOL OF PHARMACY, TONGJI MEDICAL COLLEGE, HUAZHONG UNIVERSITY OF SCIENCE AND | 1 | 600 |

| S# | Organization | Documents | Citations |
|---|---|---|---|
| | TECHNOLOGY, WUHAN, 430030, CHINA | | |
| 68. | NATIONAL ENGINEERING RESEARCH CENTER FOR THE EMERGENCY DRUG, BEIJING INSTITUTE OF PHARMACOLOGY AND TOXICOLOGY, BEIJING, 100850, CHINA | 1 | 600 |
| 69. | WUYA COLLEGE OF INNOVATION, KEY LABORATORY OF STRUCTURE-BASED DRUG DESIGN & DISCOVERY, MINISTRY OF EDUCATION, SHENYANG PHARMACEUTICAL UNIVERSITY, SHENYANG, 110016, CHINA | 1 | 600 |
| 70. | MCGOVERN MEDICAL SCHOOL, DEPARTMENT OF MEDICINE, UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT HOUSTON, HOUSTON, UNITED STATES | 1 | 548 |
| 71. | TEXAS HEART INSTITUTE, HOUSTON, UNITED STATES | 1 | 548 |
| 72. | UNIVERSITY OF MINNESOTA, MINNEAPOLIS, UNITED STATES | 1 | 548 |
| 73. | GILEAD SCIENCES, INC., FOSTER CITY, CA 94404, UNITED STATES | 2 | 534 |
| 74. | SEOUL MEDICAL CENTER, SEOUL, SOUTH KOREA | 2 | 519 |
| 75. | TECHNICAL UNIVERSITY OF MUNICH, SCHOOL OF MEDICINE, UNIVERSITY HOSPITAL RECHTS DER ISAR, MUNICH, GERMANY | 2 | 519 |
| 76. | DEPARTMENT OF MEDICAL MICROBIOLOGY AND IMMUNOLOGY, UNIVERSITY OF ALBERTA, EDMONTON, AB T6G 2E1, CANADA | 2 | 516 |
| 77. | BIOPHYSICS DEPARTMENT, FACULTY OF SCIENCES, CAIRO UNIVERSITY, GIZA, EGYPT | 2 | 506 |
| 78. | ALLIANCE FOR INTERNATIONAL MEDICAL ACTION, DAKAR, SENEGAL | 1 | 504 |
| 79. | BATTELLE, UNITED STATES | 1 | 504 |
| 80. | BIOMEDICAL ADVANCED RESEARCH AND DEVELOPMENT AUTHORITY | 1 | 504 |
| 81. | EPICENTRE, MÉDECINS SANS FRONTIÈRES, PARIS, FRANCE | 1 | 504 |
| 82. | GILEAD, UNITED STATES | 1 | 504 |
| 83. | INSTITUT NATIONAL DE RECHERCHE BIOMÉDICALE, CONGO | 1 | 504 |
| 84. | INTERNATIONAL MEDICAL CORPS, LOS ANGE-LES, UNITED STATES | 1 | 504 |
| 85. | LEIDOS, UNITED STATES | 1 | 504 |
| 86. | MAPP BIOPHARMACEUTICAL, UNITED STATES | 1 | 504 |
| 87. | MITCHELL GROUP, CANADA | 1 | 504 |
| 88. | NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES, NATIONAL INSTITUTES OF HEALTH, BETHESDA, MD, UNITED STATES | 1 | 504 |
| 89. | REGENERON, UNITED STATES | 1 | 504 |
| 90. | RIDGEBACK BIOTHERAPEUTICS | 1 | 504 |
| 91. | UNIVERSITY OF MINNESOTA, UNITED STATES | 1 | 504 |
| 92. | WORLD HEALTH ORGANIZATION, GENEVA, SWITZERLAND | 1 | 504 |
| 93. | CENTER FOR EXPERIMENTAL AND MOLECULAR MEDICINE (CEMM), AMSTERDAM UMC, LOCATION AMC, UNIVERSITY OF AMSTERDAM, AMSTERDAM, NETHERLANDS | 1 | 503 |
| 94. | DEPARTMENT OF INTENSIVE CARE MEDICINE, ST GEORGE'S UNIVERSITY HOSPITALS FOUNDATION TRUST, LONDON, UNITED KINGDOM | 1 | 503 |
| 95. | DEPARTMENT OF MEDICINE, UNIVERSITY OF CAMBRIDGE, ADDENBROOKE'S HOSPITAL, CAMBRIDGE, UNITED KINGDOM | 1 | 503 |
| 96. | DIVISION OF INFECTIOUS DISEASES, DEPARTMENT OF MEDICINE, AMSTERDAM UMC, LOCATION AMC, UNIVERSITY OF AMSTERDAM, MEIBERGDREEF 9, AMSTERDAM, 1105 AZ, NETHERLANDS | 1 | 503 |

| S# | Organization | Documents | Citations |
|---|---|---|---|
| 97. | DIVISION OF PULMONARY AND CRITICAL CARE MEDICINE, UNIVERSITY OF MICHIGAN, ANN ARBOR, UNITED STATES | 1 | 503 |
| 98. | INFECTION PREVENTION AND HEALTHCARE EPIDEMIOLOGY UNIT, ALFRED HEALTH, MELBOURNE, AUSTRALIA | 1 | 503 |
| 99. | NATIONAL INFECTION SERVICE, PUBLIC HEALTH ENGLAND, LONDON, UNITED KINGDOM | 1 | 503 |
| 100. | SCHOOL OF PUBLIC HEALTH AND PREVENTIVE MEDICINE, MONASH UNIVERSITY, MONASH UNIVERSITY, MELBOURNE, AUSTRALIA | 1 | 503 |
| 101. | VA CENTER FOR CLINICAL MANAGEMENT RESEARCH, ANN ARBOR, MI, UNITED STATES | 1 | 503 |

**Table 7.** The publication and citations details of 47 countries

| S# | Country | Documents | Citations | S# | Country | Documents | Citations |
|---|---|---|---|---|---|---|---|
| 1. | UNITED STATES | 44 | 18536 | 25 | IRAN | 2 | 344 |
| 2. | CHINA | 27 | 10234 | 26 | NEW ZEALAND | 2 | 1081 |
| 3. | UNITED KINGDOM | 13 | 6470 | 27 | NORWAY | 2 | 307 |
| 4. | INDIA | 10 | 1904 | 28 | POLAND | 2 | 503 |
| 5. | GERMANY | 9 | 4778 | 29 | SAUDI ARABIA | 2 | 684 |
| 6. | ITALY | 8 | 3874 | 30 | BANGLADESH | 1 | 191 |
| 7. | TAIWAN | 8 | 3210 | 31 | BULGARIA | 1 | 200 |
| 8. | CANADA | 7 | 3413 | 32 | CAMBODIA | 1 | 289 |
| 9. | FRANCE | 7 | 4041 | 33 | CHILE | 1 | 157 |
| 10. | HONG KONG | 7 | 1944 | 34 | COLOMBIA | 1 | 141 |
| 11. | SINGAPORE | 7 | 4874 | 35 | CONGO | 1 | 504 |
| 12. | SOUTH KOREA | 7 | 2912 | 36 | CROATIA | 1 | 200 |
| 13. | SPAIN | 7 | 4308 | 37 | INDONESIA | 1 | 289 |
| 14. | AUSTRALIA | 6 | 2374 | 38 | JORDAN | 1 | 175 |
| 15. | JAPAN | 4 | 3186 | 39 | MEXICO | 1 | 1387 |
| 16. | NETHERLANDS | 4 | 1943 | 40 | MOZAMBIQUE | 1 | 132 |
| 17. | SWITZERLAND | 4 | 1252 | 41 | NEPAL | 1 | 428 |
| 18. | AUSTRIA | 3 | 1440 | 42 | PAKISTAN | 1 | 145 |
| 19. | BELGIUM | 3 | 549 | 43 | RUSSIAN FEDERATION | 1 | 923 |
| 20. | BRAZIL | 3 | 497 | 44 | SENEGAL | 1 | 504 |
| 21. | THAILAND | 3 | 485 | 45 | SLOVENIA | 1 | 200 |
| 22. | DENMARK | 2 | 2310 | 46 | SUDAN | 1 | 132 |
| 23. | EGYPT | 2 | 506 | 47 | SWEDEN | 1 | 116 |
| 24. | GREECE | 2 | 2310 | | | | |

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**Table 8.** The number of documents and citations for the top 73 sources or journals.

| S# | Source | h_index | g_index | m_index | TC | NP |
|---|---|---|---|---|---|---|
| **1.** | NEW ENGLAND JOURNAL OF MEDICINE | 8 | 8 | 2.67 | 6752 | 8 |
| 2. | JOURNAL OF MEDICAL VIROLOGY | 5 | 5 | 2.50 | 1355 | 5 |
| 3. | INTERNATIONAL JOURNAL OF ANTIMICROBIAL AGENTS | 4 | 4 | 2.00 | 2437 | 4 |
| 4. | JAMA - JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION | 3 | 3 | 1.50 | 1632 | 3 |
| 5. | JOURNAL OF MICROBIOLOGY, IMMUNOLOGY AND INFECTION | 3 | 3 | 1.50 | 594 | 3 |
| 6. | ANTIVIRAL RESEARCH | 2 | 2 | 0.67 | 452 | 2 |
| 7. | JOURNAL OF BIOLOGICAL CHEMISTRY | 2 | 2 | 1.00 | 534 | 2 |
| 8. | JOURNAL OF BIOMOLECULAR STRUCTURE AND DYNAMICS | 2 | 2 | 1.00 | 302 | 2 |
| 9. | JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY | 2 | 2 | 1.00 | 1595 | 2 |
| 10. | LIFE SCIENCES | 2 | 2 | 1.00 | 506 | 2 |
| 11. | NATURE MEDICINE | 2 | 2 | 1.00 | 284 | 2 |
| 12. | PHARMACOLOGICAL RESEARCH | 2 | 2 | 1.00 | 325 | 2 |
| 13. | SCIENCE | 2 | 2 | 1.00 | 586 | 2 |
| 14. | THE LANCET | 2 | 2 | 1.00 | 1443 | 2 |
| 15. | ACS CENTRAL SCIENCE | 1 | 1 | 0.50 | 141 | 1 |
| 16. | ACTA OBSTETRICIA ET GYNECOLOGICA SCANDINAVICA | 1 | 1 | 0.50 | 116 | 1 |
| 17. | ACTA PHARMACEUTICA SINICA B | 1 | 1 | 0.50 | 600 | 1 |
| 18. | AMERICAN JOURNAL OF CHINESE MEDICINE | 1 | 1 | 0.50 | 129 | 1 |
| 19. | AMERICAN JOURNAL OF EMERGENCY MEDICINE | 1 | 1 | 0.50 | 182 | 1 |
| 20. | AMERICAN JOURNAL OF OBSTETRICS AND GYNECOLOGY | 1 | 1 | 0.50 | 276 | 1 |
| 21. | AMERICAN JOURNAL OF TRANSPLANTATION | 1 | 1 | 0.50 | 259 | 1 |
| 22. | ANTIMICROBIAL AGENTS AND CHEMOTHERAPY | 1 | 1 | 0.50 | 197 | 1 |
| 23. | BIOSCIENCE TRENDS | 1 | 1 | 0.50 | 467 | 1 |
| 24. | CARDIOVASCULAR RESEARCH | 1 | 1 | 0.50 | 346 | 1 |
| 25. | CELL AND BIOSCIENCE | 1 | 1 | 0.50 | 211 | 1 |
| 26. | CHEMBIOCHEM | 1 | 1 | 0.50 | 279 | 1 |
| 27. | CLINICAL IMMUNOLOGY | 1 | 1 | 0.50 | 196 | 1 |
| 28. | CLINICAL INFECTIOUS DISEASES | 1 | 1 | 0.50 | 112 | 1 |
| 29. | CLINICAL MEDICINE, JOURNAL OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON | 1 | 1 | 0.50 | 236 | 1 |
| 30. | CLINICAL MICROBIOLOGY REVIEWS | 1 | 1 | 0.50 | 141 | 1 |
| 31. | COMPUTATIONAL AND STRUCTURAL BIOTECHNOLOGY JOURNAL | 1 | 1 | 0.50 | 138 | 1 |
| 32. | CURRENT PHARMACOLOGY REPORTS | 1 | 1 | 0.50 | 153 | 1 |
| 33. | DIABETES AND METABOLIC SYNDROME: CLINICAL RESEARCH AND REVIEWS | 1 | 1 | 0.50 | 183 | 1 |
| 34. | DIABETES RESEARCH AND CLINICAL PRACTICE | 1 | 1 | 0.50 | 191 | 1 |
| 35. | GASTROENTEROLOGY | 1 | 1 | 0.50 | 158 | 1 |

| S# | Source | h_index | g_index | m_index | TC | NP |
|---|---|---|---|---|---|---|
| 36. | HEPATOLOGY | 1 | 1 | 0.50 | 120 | 1 |
| 37. | HUMAN VACCINES AND IMMUNOTHERAPEUTICS | 1 | 1 | 0.50 | 177 | 1 |
| 38. | INTENSIVE CARE MEDICINE | 1 | 1 | 0.50 | 774 | 1 |
| 39. | INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH | 1 | 1 | 0.50 | 132 | 1 |
| 40. | INTERNATIONAL JOURNAL OF INFECTIOUS DISEASES | 1 | 1 | 0.50 | 144 | 1 |
| 41. | INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES | 1 | 1 | 0.50 | 227 | 1 |
| 42. | JAMA CARDIOLOGY | 1 | 1 | 0.50 | 548 | 1 |
| 43. | JAMA NEUROLOGY | 1 | 1 | 0.50 | 168 | 1 |
| 44. | JAMA PEDIATRICS | 1 | 1 | 0.50 | 245 | 1 |
| 45. | JOURNAL OF GENERAL INTERNAL MEDICINE | 1 | 1 | 0.50 | 383 | 1 |
| 46. | JOURNAL OF INFECTION AND PUBLIC HEALTH | 1 | 1 | 0.50 | 289 | 1 |
| 47. | JOURNAL OF INFECTIOUS DISEASES | 1 | 1 | 0.50 | 322 | 1 |
| 48. | JOURNAL OF MICROBIOLOGY AND BIOTECHNOLOGY | 1 | 1 | 0.50 | 264 | 1 |
| 49. | JOURNAL OF PATHOLOGY | 1 | 1 | 0.50 | 168 | 1 |
| 50. | JOURNAL OF PHARMACEUTICAL ANALYSIS | 1 | 1 | 0.50 | 487 | 1 |
| 51. | JOURNAL OF THE AMERICAN GERIATRICS SOCIETY | 1 | 1 | 0.50 | 176 | 1 |
| 52. | JOURNAL OF THE AMERICAN SOCIETY OF NEPHROLOGY | 1 | 1 | 0.50 | 193 | 1 |
| 53. | JOURNAL OF THE CHINESE MEDICAL ASSOCIATION | 1 | 1 | 0.50 | 297 | 1 |
| 54. | MAYO CLINIC PROCEEDINGS | 1 | 1 | 0.50 | 190 | 1 |
| 55. | MICROBIOLOGY AUSTRALIA | 1 | 1 | 0.50 | 109 | 1 |
| 56. | MILITARY MEDICAL RESEARCH | 1 | 1 | 0.50 | 1329 | 1 |
| 57. | NATURE | 1 | 1 | 0.50 | 129 | 1 |
| 58. | NATURE COMMUNICATIONS | 1 | 1 | 0.50 | 725 | 1 |
| 59. | NATURE REVIEWS CARDIOLOGY | 1 | 1 | 0.50 | 123 | 1 |
| 60. | NATURE REVIEWS IMMUNOLOGY | 1 | 1 | 0.50 | 935 | 1 |
| 61. | OPEN FORUM INFECTIOUS DISEASES | 1 | 1 | 0.50 | 125 | 1 |
| 62. | PATHOGENS | 1 | 1 | 0.50 | 175 | 1 |
| 63. | PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA | 1 | 1 | 0.50 | 375 | 1 |
| 64. | REVISTA PANAMERICANA DE SALUD PUBLICA/PAN AMERICAN JOURNAL OF PUBLIC HEALTH | 1 | 1 | 0.50 | 148 | 1 |
| 65. | SCIENCE OF THE TOTAL ENVIRONMENT | 1 | 1 | 0.50 | 176 | 1 |
| 66. | SCIENCE TRANSLATIONAL MEDICINE | 1 | 1 | 0.50 | 198 | 1 |
| 67. | THE BMJ | 1 | 1 | 0.50 | 108 | 1 |
| 68. | THE LANCET CHILD AND ADOLESCENT HEALTH | 1 | 1 | 0.50 | 200 | 1 |
| 69. | THE LANCET INFECTIOUS DISEASES | 1 | 1 | 0.50 | 410 | 1 |
| 70. | THE LANCET RESPIRATORY MEDICINE | 1 | 1 | 0.50 | 428 | 1 |
| 71. | TRANSLATIONAL RESEARCH | 1 | 1 | 0.50 | 722 | 1 |
| 72. | VETERINARY QUARTERLY | 1 | 1 | 0.50 | 167 | 1 |
| 73. | VIRUSES | 1 | 1 | 0.33 | 212 | 1 |