Information analysis for enhancing medical journal's impact

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Institute of Medical Information & Library
Chinese Academy of Medical Sciences (CAMS)

Aug 17, 2014

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Outline

- Tracking and evaluation of journal's impact
- Methods and practices for enhancing journal's impact: Information services
- Conclusions and Recommendations

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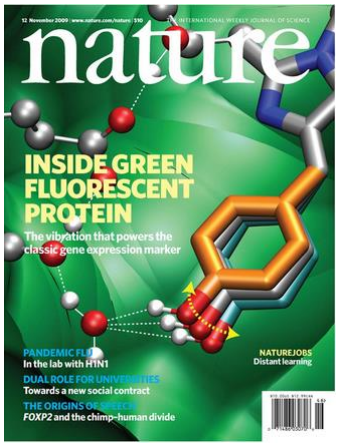
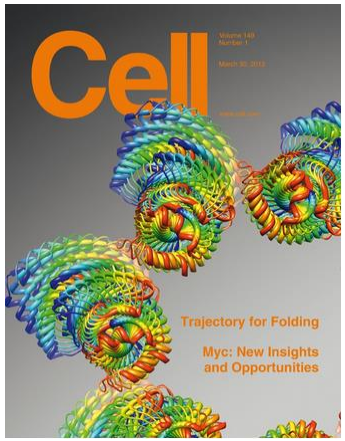
Definition of journal's impact

- A journal's global impact, is a kind of ability that the content and brand of a journal can attract readers' attention, get their recognition, and even change their thoughts, opinions and behaviors.

Wu & Xiao, 2013



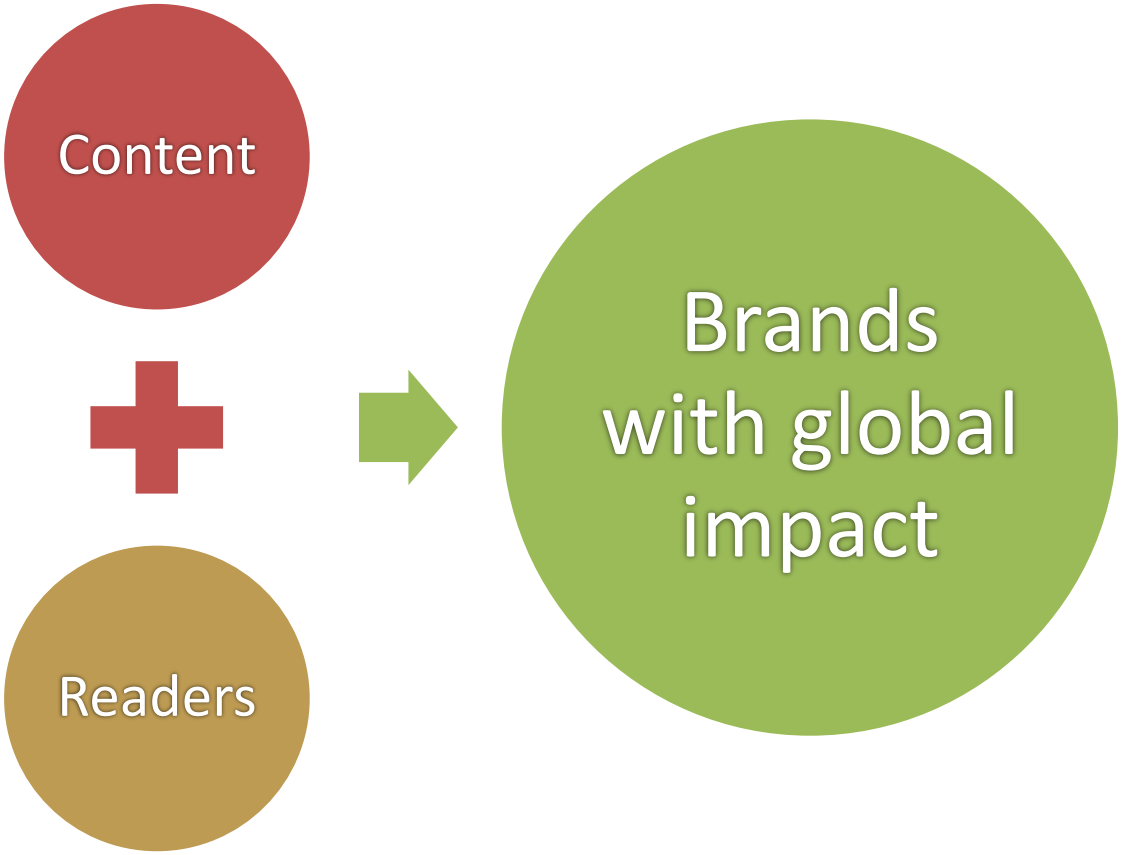


The NEW ENGLAND JOURNAL of MEDICINE

JAMA The Journal of the American Medical Association

Elements of journal's impact

- high quality papers with strict peer review process
- reflect the latest research trends



- attract readers' attention to read, cite and communicate scientific ideas
- attract authors' interest and intension to submit research papers

Analysis of a journal's impact

- In mainland China, the global impact of a journal is often described with the following parameters, but it is not enough,
  - Indexing by databases, i.e., WoS, Scopus, EI, CA
  - Impact Factor
  - Number of editorial board members out of China
  - Percentage of submissions or published papers from authors out of China
  - Percentage of reviewers out of China
- The promotion plan on global impact of Chinese science and technology journals In 2012

China Association for Science and Technology

Tracking and evaluation of journal's impact

- **How is your journal performing?**
- **How does your journal compare to others?**
  - **Impact Factor**
  - Submission Institutions
  - Article output trend
  - Citations by other journals
  - Self-Citation
  - H-Index
  - Relative Impact in your category
  - ……

Journal Impact Factor (JIF)

- Originally created as **a tool to help librarians identify journals to purchase**, not as a measure of **the scientific quality of research in an article**.
- Now used as the primary parameter to evaluate journal's impact and even research quality, but with limitations:
  - citation distributions highly skewed
  - field-specific
  - can be manipulated
  - data neither transparent nor openly available

San Francisco Declaration on Research Assessment (DORA)

- Initiated by the American Society for Cell Biology (ASCB) in 2012, together with a group of editors and publishers of scholarly journals, recognizes **the need to improve the ways in which the outputs of scientific research are evaluated.**

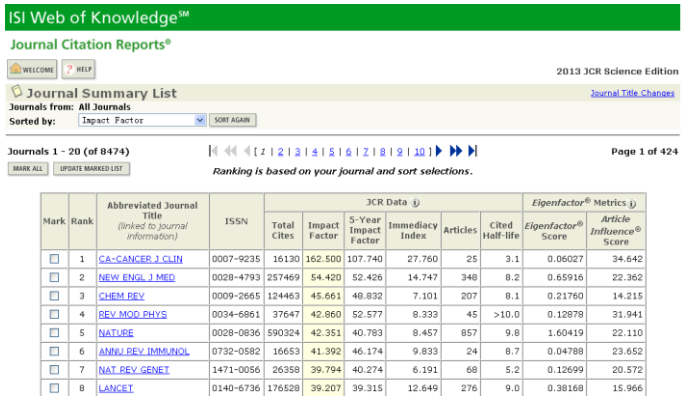
- **General Recommendation:**
  - *Do not use journal-based metrics, such as Journal Impact Factors, as a surrogate measure of the quality of individual research articles, to assess an individual scientist's contributions, or in hiring, promotion, or funding decisions.*

San Francisco DORA Declaration on Research Assessment

http://am.ascb.org/dora/

Multiple publication metrics
Data sources

- Journal Citation Reports
  - Impact Factor
  - 5-Year Impact Factor
  - Immediacy Index
  - *Eigenfactor*® Score


ISI Web of Knowledge℠

Journal Citation Reports®

2013 JCR Science Edition

Journal Summary List

Journals from: All Journals

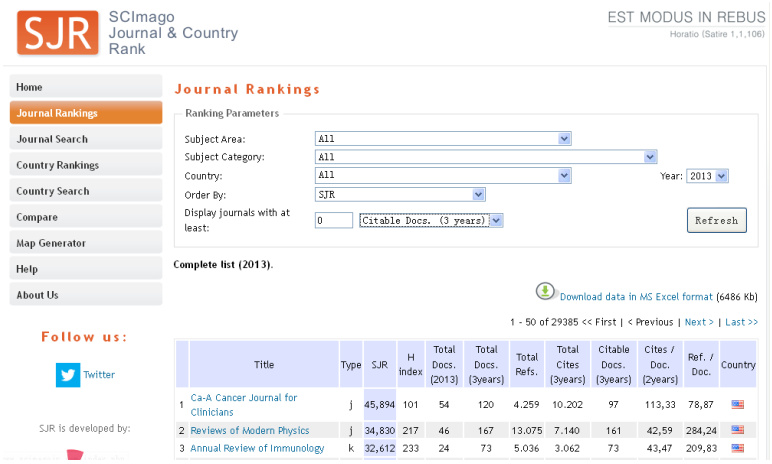
Sorted by: Impact Factor

Journals 1 - 20 (of 8474)

Page 1 of 424

Ranking is based on your journal and sort selections.

Mark	Rank	Abbreviated Journal Title (linked to journal information)	ISSN	JCR Data: Total Cites	Impact Factor	5-Year Impact Factor	Immediacy Index	Articles	Cited Half-life	Eigenfactor® Metrics: Eigenfactor® Score	Article Influence® Score
	1	CA-CANCER J CLIN	0007-9235	16130	162.500	107.740	27.760	25	3.1	0.06027	34.642
	2	NEW ENGL J MED	0028-4793	257469	54.420	52.426	14.747	348	8.2	0.65916	22.362
	3	CHEM REV	0009-2665	124463	45.661	48.832	7.101	207	8.1	0.21760	14.215
	4	REV MOD PHYS	0034-6861	37647	42.860	52.577	8.333	45	>10.0	0.12878	31.941
	5	NATURE	0028-0836	590324	42.351	40.783	8.457	857	9.8	1.60419	22.110
	6	ANNU REV IMMUNOL	0732-0582	16653	41.392	46.174	9.833	24	8.7	0.04788	23.652
	7	NAT REV GENET	1471-0056	26358	39.794	40.274	6.191	68	5.2	0.12699	20.572
	8	LANCET	0140-6736	176528	39.207	39.315	12.649	276	9.0	0.38168	15.966


SJR SCImago Journal & Country Rank

EST MODUS IN REBUS

Horatio (Satire 1,1,106)

Home | Journal Rankings | Journal Search | Country Rankings | Country Search | Compare | Map Generator | Help | About Us

Follow us: Twitter

SJR is developed by:

Journal Rankings

Ranking Parameters

Subject Area: All

Subject Category: All

Country: All

Year: 2013

Order By: SJR

Display journals with at least: 0 Citable Docs. (3 years)

Refresh

Complete list (2013).

Download data in MS Excel format (6486 Kb)

1 - 50 of 29385 << First | < Previous | Next > | Last >>

	Title	Type	SJR	H index	Total Docs. (2013)	Total Docs. (3years)	Total Refs.	Total Cites (3years)	Citable Docs. (3years)	Cites / Doc. (2years)	Ref. / Doc.	Country
1	Ca-A Cancer Journal for Clinicians	j	45,894	101	54	120	4.259	10.202	97	113,33	78,87	
2	Reviews of Modern Physics	j	34,830	217	46	167	13.075	7.140	161	42,59	284,24	
3	Annual Review of Immunology	k	32,612	233	24	73	5.036	3.062	73	43,47	209,83	

http://www.scimagojr.com/journalrank.php

- SCImago Journal Rankings
  - SJR (SCImago Journal Rank) indicator
  - H-index
  - Cites per Documents
  - Self Cites
  - Uncited Documents
  - % International Collaboration

Outline

- Tracking and evaluation of journal's impact
- Methods and practices for enhancing journal's impact: Information services
- Conclusions and Recommendations

Methods and Practices

1 Guidance with editorial policies

Editorial Policy → **Information Analysis**

Content Focus	• Tracking hot topics • Indentifying research fronts
Inviting Authors	• identifying highly cited authors • Exploring Key Opinion Leaders
Competitive Development	• Knowing the market you compete in • Understanding competitors

Methods and Practices

2 Guidance with Research Impact

- Methods for documenting impact
  - Citations, Downloads
  - especially by foreign authors/institutions/Journals
- Resources for locating evidence of impact
  - Web of Science, Scopus, Faculty of 1000
  - The publisher's website
- Strategies for enhancing impact

1.1 Tracking hot topics and research fronts

- Citations viewpoint
  - Web of Science, WoS
  - Essential Science Indicators, ESI
    - Highly Cited Papers (last 10 years)
    - Hot Papers (last 2 years)
    - Research Fronts
- Peer Review viewpoint
  - Faculty of 1000's article recommendations
  - The context of citations
- Research Funding viewpoint
  - NIH, MRC, NSFC

Essential Science Indicators℠

NOTICE: Essential Science Indicators was updated on July 9, 2014 to cover a 10-year plus 4-month period, January 1, 2004-April 30, 2014.

Information for New Users

Citation Rankings:	- Scientists - Institutions - Countries/Territories - Journals
Most Cited Papers:	- Highly Cited Papers (last 10 years) - Hot Papers (last 2 years)
Citation Analysis:	- Baselines - Research Fronts

Commentary:

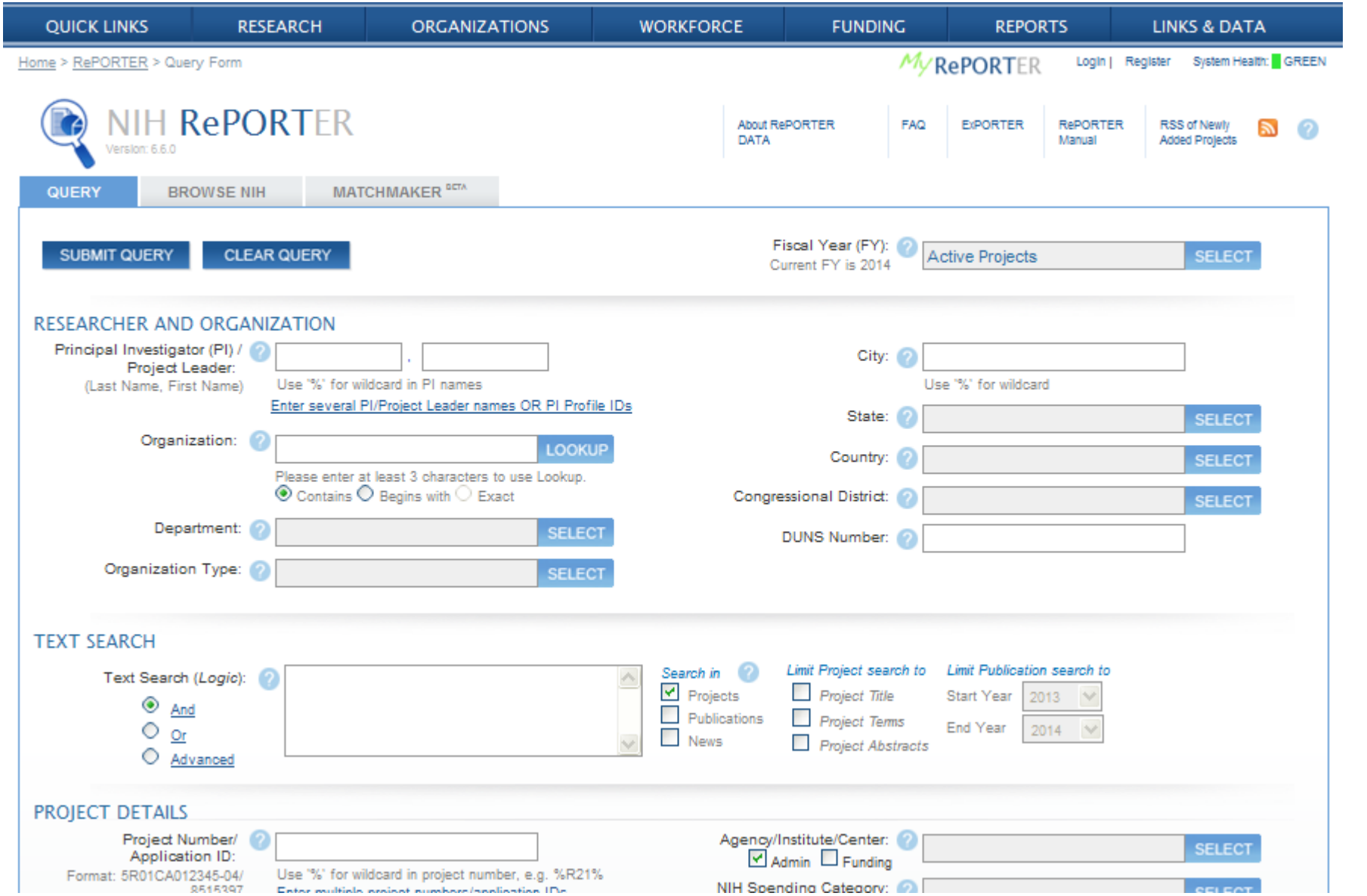
IN-CITES

SPECIAL TOPICS

SCIENCE-WATCH

NOTICES TUTORIAL

The Notices file was last updated Thu Jul 10 04:54:10 2014



http://projectreporter.nih.gov/reporter.cfm

Hot papers of HIV/AIDS in *ESI*

HIV/AIDS 领域最新研究热点论文

ESI（Essential Scientific Indicator）是基于 Web of Science 收录的文献数据建立的分析型数据库。每两个月 ESI 会公布发表于最近两年内且在最近两个月被引用次数为各领域 Top0.1%的文章，可辅助科研人员及时洞察学科持续热点研究中近期频受关注的研究内容。本期检索并分析 ESI 最新更新（2012 年 1 月 1 日）的 HIV/ AIDS 领域的 24 篇热点论文。

两篇文章共有的关键词越多，则说明两篇文章在内容上越相近。为揭示热点论文的研究主题及其之间的关系，根据这 24 篇文章共有关键词的数量，绘制其内容相近性关系图（如图 1）。可将 HIV/AIDS 领域划分为 4 大研究主题及若干零散主题（详见表 1）。具体主要包括 **HIV/AIDS 药物或疫苗研发及其相关基础研究、在 HIV 感染初期进行抗病毒药物治疗的重要性、HIV 感染者抗病毒药物治疗过程中相关神经认知功能障碍并发症、HIV-1 耐药突变检测、内含抗 HIV 药物 tenofovir 的阴道凝胶减少妇女感染、树突状细胞与 HIV 固有免疫等方面。**

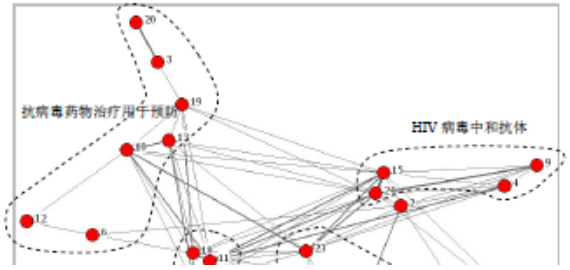


表 1　HIV/AIDS 领域的热点研究论文

综合后的研究主题	序号*	中文主题	标题	第一作者	出处	出版年	被引次数^
美国和泰国联合开发新型艾滋病疫苗	1	泰国使用 ALVAC 和 AIDSVAX 疫苗接种预防 HIV-1 感染	Vaccination with ALVAC and AIDSVAX to prevent HIV-1 infection in Thailand	RERKS-NGARM S	N ENGL J MED 361 (23)： 2209-2220	2009	323
关注 HIV 感染早期，应用抗病毒药物疗法进行预防	3	成人 HIV 感染者抗逆转录病毒治疗：International AIDS Society-USA Panel 的建议	Antiretroviral Treatment of Adult HIV Infection 2010 Recommendations of the International AIDS Society–USA Panel	THOMPSON MA	JAMA-J AM MED ASSN 304 (3)： 321-333	2010	124
	5	应用抗病毒药物治疗后异性性行为导致的 HIV-1 感染研究：一个前瞻性队列分析	Heterosexual HIV-1 transmission after initiation of antiretroviral therapy： a prospective cohort analysis	DONNELL D	LANCET 375 (9731)： 2092-2098	2010	94
	6	关注感染初期以预防 HIV 黏膜传播	Targeting early infection to prevent HIV-1 mucosal transmission	HAASE AT	NATURE 464 (7286)： 217-223	2010	84
	8	暴露前药物预防用于男同性恋的 HIV 预防	Preexposure chemoprophylaxis for HIV prevention in men who have sex with men	GRANT RM	N ENGL J MED 363 (27)： 2587-2599	2010	80
	10	社区病毒载量的减少伴随着新发 HIV 感染者的下降	Decreases in community viral load are accompanied by reductions in new HIV infections in San Francisco	DAS M	PLOS ONE 5 (6)： art. no.-e11068	2010	47
	12	HIV 感染者在长期不服药的情况下，病毒的持续性与病情缓解的前景	HIV Persistence and the Prospect of Long-Term Drug-Free Remissions for HIV-Infected Individuals	TRONO D	SCIENCE 329 (5988)： 174-180	2010	38
	13	抗病毒治疗的进展及其对 HIV-1/AIDS 流行的影响	Development of antiretroviral therapy and its impact on the HIV-1/AIDS pandemic	BRODER S	ANTIVIR RES 85 (1)： 1-18	2010	37

Hot papers of diabetes mellitus in *Faculty of 1000*

F1000 中近期最受关注的糖尿病领域论文包括以下内容：

1. **甲基 Bardoxolone 可能是 2 型糖尿病相关的慢性肾病一种有希望的疗法(F1000 因子:16)**　对于患有严重 CKD 和 2 型糖尿病的患者，甲基 Bardoxolone(一种口服抗氧化炎症调节剂)治疗与第 24 周肾小球滤过率(GFR)改善有关。这种改善作用可以持续到第 52 周，提示甲基 Bardoxolone 可能是 CKD 一种有希望的治疗方法。[Pergola PE, Raskin P, Toto RD, et al. Bardoxolone methyl and kidney function in CKD with type 2 diabetes. N Engl J Med. 2011 Jul 28; 365(4):327-36]

2. **在 1 型糖尿病中强化糖尿病疗法与肾小球滤过率(F1000 因子:12)**　受损的肾小球滤过率(GFR)可导致终末期肾病并增加心血管疾病控制和并发症试验(DCCT)中，研究人员发现，在接受型糖尿病人群中，GFR 受损的远期危险显著低于接[DCCT/EDIC Research Group, de Boer IH, Sun W, et al. In glomerular filtration rate in type 1 diabetes. N Engl J Med. 2011 De

3. **ATM 基因常见变异与 2 型糖尿病患者应用二甲双因子:11)**　二甲双胍能够帮助身体对胰岛素作出反应，员检查了二甲双胍在患 2 型糖尿病的 3,920 个欧洲白人为经治疗后糖化血红蛋白水平低于 7%。结果发现，AT GG 基因型的人与 GT 基因型个体相比，对二甲双胍的基因型的人相比效果降低为 0.75 倍。[Zhou K, Donnelly P, near ATM are associated with glycemic response to metformin in ty Feb; 43:117-20]

4. **I 型糖尿病中 CD8+ T cells 杀伤人胰岛 β 细胞的**高度集中于以肽为中心的相互作用，伴有次优化 TCR-p致胸腺脱逸和潜在的 CD8 + T 细胞介导的自体免疫反Skowera A, etal. Structural basis for TK-cell killing of human beta cell diabetes. Nat Immunol. 2012 Mar; 13(3):283-9]

5. **抑制生长激素受体有助于预防癌症和糖尿病(F1000**乎从来不会罹患糖尿病或癌症的厄瓜多尔一小群人进行些携带了生长激素受体(GHR)基因变异的个人几乎从来那些有着 GHR 基因变异的家族成员的胰岛素样生长因低，而且他们的胰岛素浓度也较低，而其胰岛素敏感性经达到正常成年人身高者的生长激素受体也许可以防

疾病。[Guevara-Aguirre J, Balasubramanian P, Guevara-Aguirre M, et al. Growth hormone receptor deficiency is associated with a major reduction in pro-aging signaling, cancer, and diabetes in humans. Sci Transl Med. 2011 Feb 16; 3(70): 70rn13]

6. **应用肾素-血管紧张素系统抑制剂联合内皮素-A 受体拮抗剂 Atrasentan 可减少糖尿病肾脏病患者蛋白尿水平(F1000 因子:10)**　2010 年 11 月，雅培公司(Abbott)宣布，2 期剂量探索临床试验表明，每天 0.75mg 选择性内皮素-A 受体拮抗剂 Atrasentan 可有效治疗糖尿病肾病[1]。2011 年 4 月，研究人员又报道了应用肾素-血管紧张素系统(RAS)抑制剂联合内皮素-A 受体拮抗剂 Atrasentan 可减少糖尿病肾脏病患者蛋白尿。[Kohan DE, Pritchett Y, Molitch M, et al. Addition of atrasentan to renin-angiotensin system blockade reduces albuminuria in diabetic nephropathy. J Am Soc Nephrol. 2011 Apr; 22(4): 763-72]

7. **红肉饮食和 2 型糖尿病的风险(F1000 因子:9)**　美国哈佛公共卫生学院的研究表明，红肉，特别是红肉制品，与 2 型糖尿病(type 2 diabetes)发生风险增加有关。吃红肉较多者糖尿病患病率较高，而低脂奶制品、坚果和全谷物食品可降低 2 型糖尿病发生风险。[Pan A, Sun Q, Bernstein AM, et al. Red meat consumption and risk of type 2 diabetes: 3 cohorts of US adults and an updated meta-analysis. Am J Clin Nutr. 2011 Oct; 94(4):1088-96]

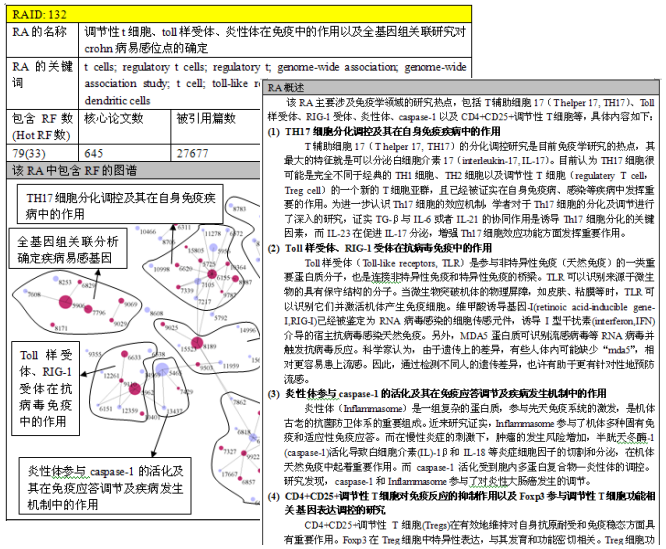
8. **糖尿病对重症疾病患者死亡率的影响(F1000 因子:9)**　一项系统综述与 meta 分析显示，糖尿病并未增加重症监护病房患者的发病率和死亡率，未纳入研究范围的心脏手术和其他外科手术，如烧伤患者除外。作者建议，对于无糖尿病史高血糖 ICU 患者的血糖管理应当给予更多的关注，同时，糖尿病患者即使在 ICU 病房也应该及时用药。[Siegelaar SE, Hickmann M, Hoekstra JB, et al. The effect of diabetes on mortality in critically ill patients: a systematic review and meta-analysis. 2011 Oct 10; 15(5):R205]

9. **奥美沙坦治疗用于延迟或预防 2 型糖尿病的微量蛋白尿(F1000 因子:9)**　微量白蛋白尿是糖尿病肾病和早发心血管疾病的早期预测因子，在有 2 型糖尿病并且尿白蛋白正常的患者中，研究人员对使用血管紧张素受体阻滞剂(ARB)治疗是否会延迟或预防微量白蛋白尿的出现进行了研究。结果表明奥美沙坦与延迟微量白蛋白尿的出现相关。在原来就有冠心病的患者中，奥美沙坦组致死性心血管事件的发生率较高，令人担忧。[Haller H, Ito S, Izzo JL,et al. Olmesartan for the delay or prevention of microalbuminuria in type 2 diabetes. N Engl J Med. 2011 Mar 10; 364(10):907-17]、

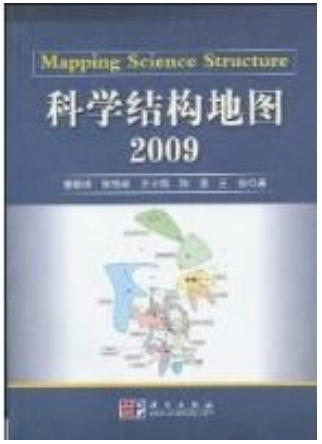
[1] Abbott. "Abbott Announces Positive Results From Phase 2 Study Of Low Dose Atrasentan For Treatment Of Diabetic Kidney Disease." *Medical News Today*. MediLexicon, Intl., 23 Nov. 2010. Web. 26 May. 2012. <http://www.medicalnewstoday.com/releases/208947.php>

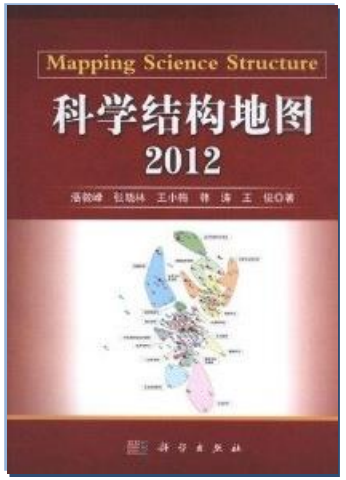
Mapping Science Structure

- Detection, measurement and interpretation of the biomedical science structure based on research front papers in ESI.



- To help indentify the most active and emerging research areas in biomedical research.





1.2 Identifying Key authors

- Bibliometric analysis can play an important role in helping to find the key opinion leaders:
  - The most active authors
  - Highly cited authors
  - Authors with high degree of international collaboration
- Analyzing publication and citation patterns for evidence-based decisions.
  - inviting prestigious specialists to write
  - Pushing relevant paper to the right readers

Use high-quality data

- We encourage the use of high-quality data for quantitative analysis to make evidence-based decisions.
  - Literature search with *Cycling* (Keyword Plus, Related Records, and Citation Counts as discriminators)
  - Relative citation measures to find top-end performers(authors of highly cited and hot papers)
  - Research fronts to examine specialty structures, identify research leaders, and make the most appropriate and effective connections
  - *F1000* to find the most influential scientists within a specialty (post peer review)

ISI Web of Knowledge℠
Essential Science Indicators℠

FACULTY of 1000

Identifying high influential scholars in the field of Nutrition related health economics

表 4-8 以第一/通讯作者发表 2 篇以上论文的 59 位作者的表现

序号	论文数	第一/通讯作者	总被引次数	中心度(10^{-3})	研究活跃年度（论文平均发表年）
1	5	Fiedler, J L	36	6.9	2010.2
2	5	Splett, P L	10		
3	5	Waitzberg, D L	227		
4	4	DETSKY, A S	83		
5	4	Lenoir-Wijnkoop, I	0		
6	3	Dangour, A D	24		
7	3	Koletzko, B	31		
8	3	Ohlhorst, S D	0		
9	3	Pichard, C	34		
10	3	Walter, E	0		

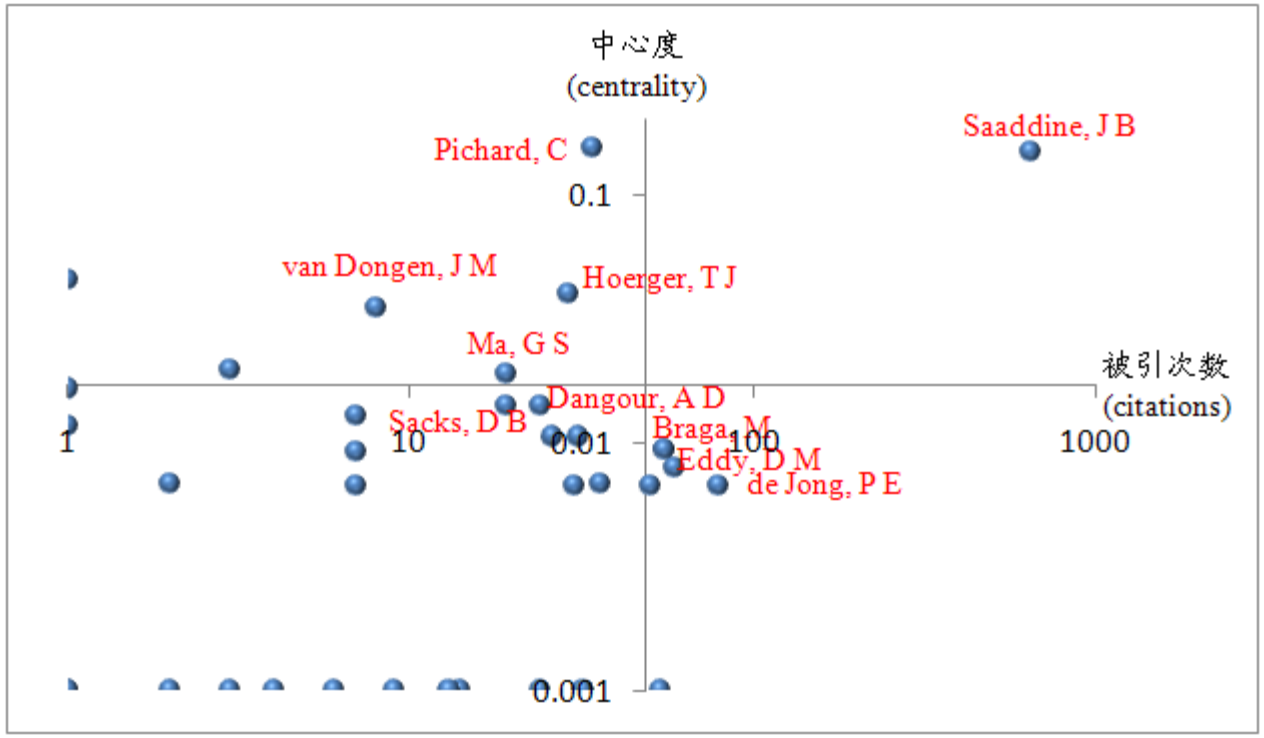


图 4-5 研究活跃年度在 2004 年至今的高影响力学者

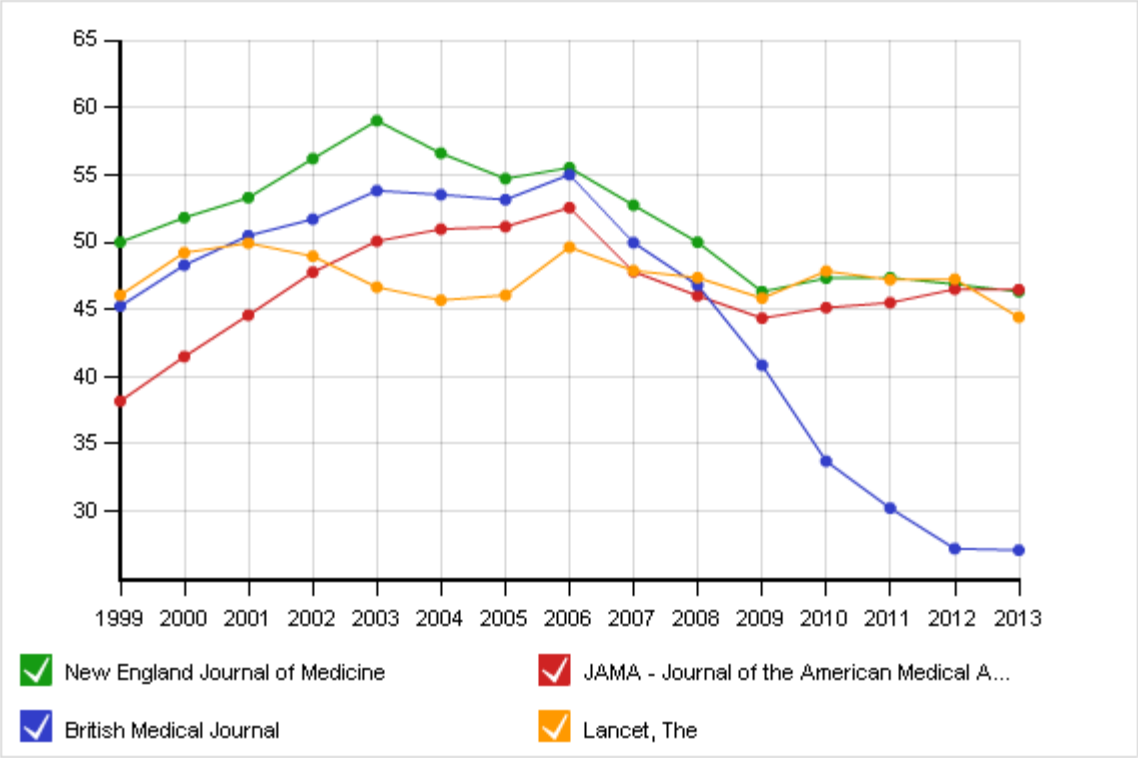
1.3 understanding your competitors

- We have to stand out and offer something new and different:
  - How to rank among other journals in a specific subject category?
  - How are competitors performing?
  - Does the scope of the journal reflect the latest research trends?

Compare journals in SCImago (based on Scopus)

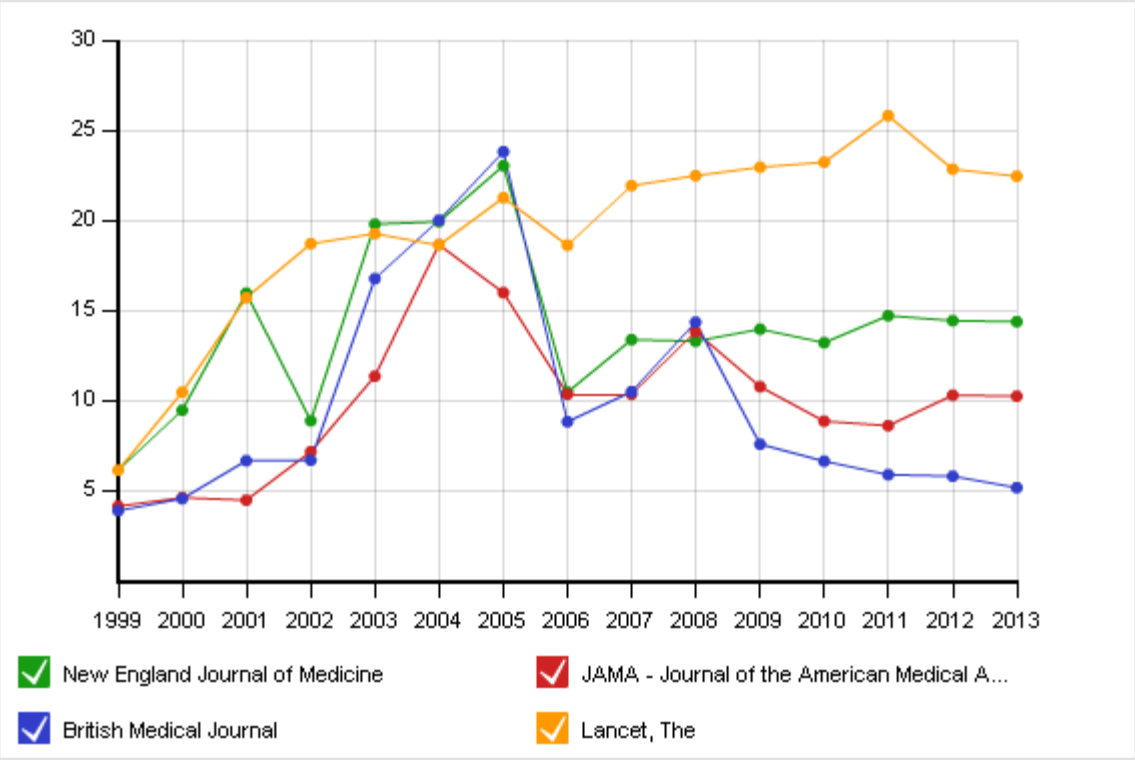
Compare journals according to various metrics

Percentage of cited documents *of NEJM, The lancet, JAMA* and *BMJ*



	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
New England Journal of Medicine	49.990	51.800	53.300	56.210	59.030	56.600	54.700	55.540	52.740	49.990	46.290	47.290	47.350	46.870	46.300
JAMA - Journal of the American Medical Association	38.160	41.490	44.560	47.750	50.060	50.940	51.140	52.540	47.810	46.000	44.340	45.130	45.490	46.480	46.470
British Medical Journal	45.230	48.280	50.470	51.680	53.810	53.510	53.130	55.000	49.930	46.790	40.840	33.710	30.200	27.200	27.070
Lancet, The	46.030	49.200	49.900	48.930	46.640	45.660	46.030	49.610	47.870	47.340	45.840	47.840	47.190	47.240	44.420

International collaboration: Percentage of documents with more than one country



	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
New England Journal of Medicine	6.118	9.435	15.946	8.868	19.778	19.925	23.020	10.434	13.365	13.282	13.943	13.191	14.693	14.432	14.371
JAMA - Journal of the American Medical Association	4.124	4.583	4.435	7.154	11.334	18.640	15.973	10.342	10.324	13.816	10.766	8.833	8.576	10.278	10.227
British Medical Journal	3.851	4.524	6.653	6.658	16.746	20.000	23.817	8.809	10.487	14.327	7.545	6.612	5.853	5.787	5.130
Lancet, The	6.116	10.436	15.692	18.705	19.265	18.607	21.255	18.618	21.929	22.485	22.951	23.217	25.820	22.832	22.448

2 Guidance with Research Impact

- Strategies for enhancing impact
  - Content
    - Solicit papers on hot topics
    - Publish articles of highly cited authors
  - Readers
    - Invite renowned scholars to write reviews
    - Share important papers in conferences and symposiums
    - Keep in contact with established scholars
    - Expand your network among new scholars
    - Push selected papers/links to potential readers globally

Outline

- Tracking and evaluation of journal's impact
- Methodologies and practices for enhancing journal's impact: Information services
- Conclusions and Recommendations

Conclusions and Recommendations

- Strategic decision on journals' development
  - Informed decision and evidence based decision
  - Make full use of various data and information

- Big data thought
  - find qualified authors, potential readers, etc.
  - Reliable author, reviewer & readers database
  - big data sources, journal archive, Google scholar, Web of Science

Conclusions and Recommendations

- Brand promotion
  - Promoting the journal to global research community
  - Calling for papers globally for the journal's special issues/sections
  - Leveraging globally resources
  - Obtaining premium submissions
  - Improving journal impact in the field, and building the journal brand gradually

Many **publishers …**
Even more **journals**

The NEW ENGLAND JOURNAL of MEDICINE

- To **attract the best authors**
- To keep them **coming back !**

- To **increase the number of readers**
- To keep them **coming back !**

Thanks!

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