

Trends in biotech literature 2007

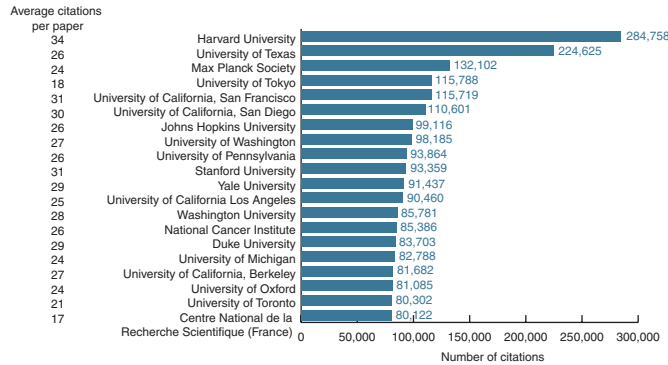
Gaspar Taroncher-Oldenburg & Andrew Marshall

MicroRNAs and cancer stem cells continue to dominate the list of most-cited papers, but the biotech paper that made the biggest splash was the first description of induced pluripotent stem (iPS) cells. Despite the emergence of the latter area, publications on embryonic stem cells as a

whole contracted in 2007, and proteomics and RNA interference tailed off. The number of papers in nanotech and systems biology continued to expand rapidly. China overtook the United States for the first time in terms of output of 'biotech' papers.

Most cited institutions in biology and biochemistry

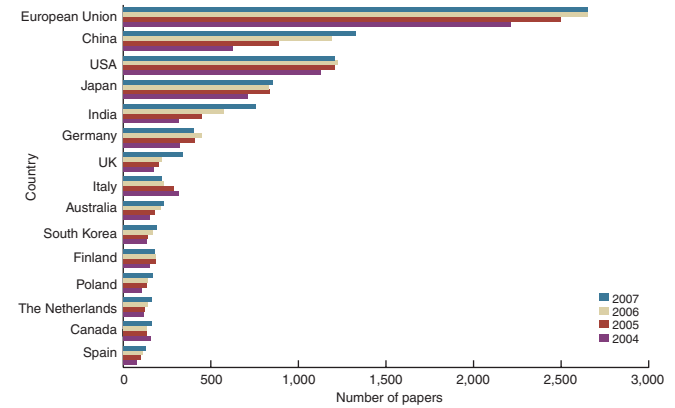
From 1996 to April 2007, Harvard led the way in terms of citations and number of papers



Source: In-Cites, Essential Science Indicators

Number of biotech journal articles by region

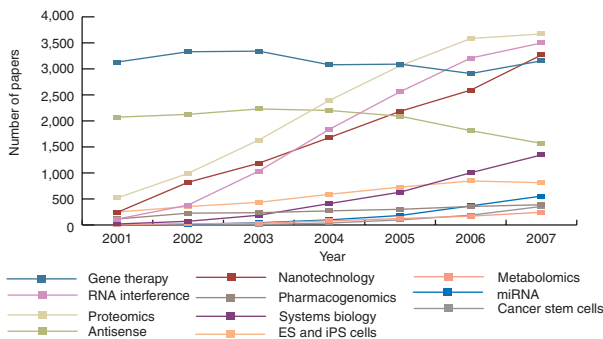
India and China continued their rapid growth in published articles, with the latter producing more papers than the United States for the first time.



Based on search for papers containing 'biotechnology' in abstract. Source: National Center for Biotechnology Information's PubMed

Historical trends in biotech fields

Nanotech and systems biology continued their growth, with microRNA and cancer stem cells nearly doubling; papers in RNA interference and proteomics tailed off and stem cell papers declined.



Obtained using fields (e.g., proteomics) as search term in published papers. ES, embryonic stem; iPS, induced pluripotent stem; miRNA, microRNA. Source: National Center for Biotechnology Information's PubMed

Top cited paper by field

Field	Author	Title	Citation	Times cited
iPS cells	Takahashi, K. & Yamanaka, S.	Induction of pluripotent stem cells from mouse embryonic and adult fibroblast cultures by defined factors	<i>Cell</i> 126 , 663–676 (2006)	415
Diagnostics	Sjoberg, T. et al.	The consensus sequences of human breast and colorectal cancers	<i>Science</i> 314 , 268–274 (2006)	330
Proteomics	Gavin, A.C. et al.	Proteome survey reveals modularity of yeast cell machinery	<i>Nature</i> 440 , 631–636 (2006)	330
Cancer stem cells	Bao, S.D. et al.	Glioma stem cells promote radio-resistance by preferential activation of DNA damage response	<i>Nature</i> 444 , 756–760 (2006)	198
Microarrays	Shi, L.M. et al.	The MicroArray Quality Control (MAQC) project shows inter- and intraplatform reproducibility of gene expression measurements	<i>Nature Biotechnology</i> 24 , 1151–1161 (2006)	198
Imaging	Huang X.H. et al.	Cancer cell imaging and photothermal therapy in the near-infrared region by using gold nanorods	<i>Journal of the American Chemical Society</i> 128 , 2115–2120 (2006)	189
Gene therapy	Manno, C.S. et al.	Successful transduction of liver in hemophilia by AAV-factor IX and limitations imposed by the host immune response	<i>Nature Medicine</i> 12 , 342–347 (2006)	170
ES cells	Ludwig, T.E. et al.	Derivation of human embryonic stem cells in defined conditions	<i>Nature Biotechnology</i> 24 , 185–187 (2006)	145
Synthetic biology	Ro, D.K. et al.	Production of the antimalarial drug precursor artemisinic acid in engineered yeast	<i>Nature</i> 440 , 940–943 (2006)	100
Nanobiotechnology	Ellis-Behnke, R.G. et al.	Nano neuro knitting: peptide nanofiber scaffold for brain repair and axon regeneration with functional return of vision	<i>PNAS</i> 103 , 5054–5059 (2006)	76
Plant biotech	Earley, K.W. et al.	Gateway-compatible vectors for plant functional genomics and proteomics	<i>Plant Journal</i> 45 , 616–629 (2006)	58

Biotech journal impact

Primary research journal	Impact factor
<i>Nature Biotechnology</i>	22.8
<i>Nature Chemical Biology</i>	13.7
<i>Genome Research</i>	11.2
<i>Molecular Systems Biology</i>	10.0
<i>PNAS</i>	9.6
<i>Molecular and Cellular Proteomics</i>	9.4
<i>Clinical Pharmacology & Therapeutics</i>	8.1
<i>Stem Cells</i>	7.5
Review journal	Impact factor
<i>Nature Reviews Drug Discovery</i>	23.3
<i>Annual Review of Pharmacology</i>	21.7
<i>Pharmacological Reviews</i>	18.8
<i>Annual Review of Biomedical Engineering</i>	11.6
<i>Trends in Biotechnology</i>	7.6
<i>Current Opinion in Biotechnology</i>	7.4

Source: ISI categories Biotechnology & Applied Microbiology; Engineering, Biomedical

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