Trends in biotech literature 2005

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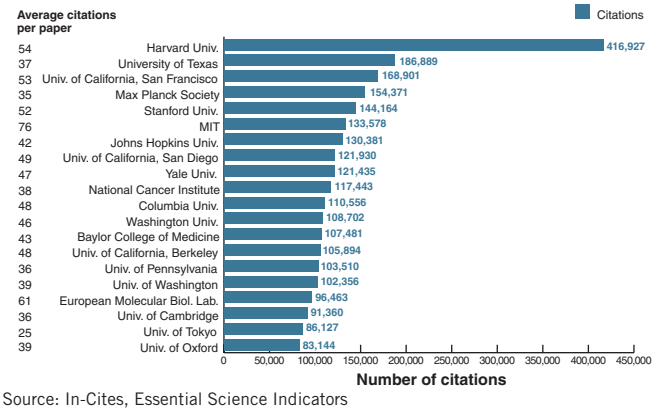
Unlike in 2004, when EU researchers easily outstripped US scientists in ouput of biotech papers, last year the two regions produced a nearly identical volume of biotech-related papers. South Korea dropped out of the top 15 countries in terms of biotech paper output, (92 and 16 papers in 2004 and 2005, respectively) making way for Belgium. Papers from US institutions, such as Harvard and MIT, are by far the most cited. Research in metabolomics and nanotech was particularly fertile, whereas previously booming fields, such as proteomics and RNAi, plateaued in paper output.

Highest cited US institutions

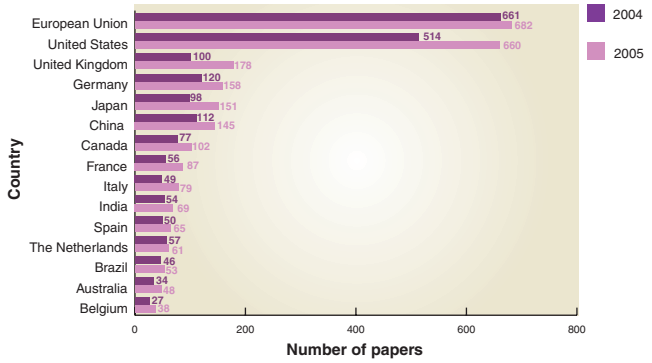
From 1995 to 2005, US institutions have dominated in terms of most cited molecular biology and genetics papers.



Source: In-Cites, Essential Science Indicators

Number of biotech journal articles by country

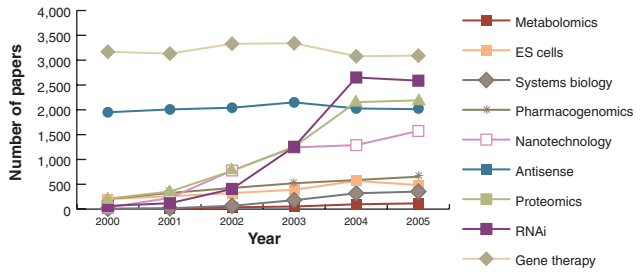
Last year, Belgium replaced South Korea among the top 15 countries publishing biotech papers.



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

Historical trends in biotech fields

Last year, the most growth occurred in papers related to nanotech and metabolomics, each increasing by about one-fifth.



Obtained using fields (e.g., proteomics) as search term in published papers. Source: National Center for Biotechnology Information's PubMed

Biotech journal impact

Primary research journal	Impact factor
Nature Biotechnology	22.4
Proceedings of the National Academy of Sciences USA	10.5
Genome Research	10.4
Molecular and Cellular Proteomics	9.6
Pharmacogenetics	6.4
Bioinformatics	5.7
Stem Cells	5.5
Molecular Therapy	5.2
Gene Therapy	5.0
Review journal	**Impact factor**
Nature Reviews Drug Discovery	19.6
Trends in Biotechnology	8.6
Annual Review of Biomedical Engineering	8.2
Current Opinion in Biotechnology	8.1

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

Top cited paper by field

Field	Author	Title	Citation	Times cited
RNAi	Reynolds, A. *et al.*	Rational siRNA design for RNA interference	*Nat. Biotechnol.* **22**, 326–330 (2004)	184
ES cells	Sato, N. *et al.*	Maintenance of pluripotency in human and mouse embryonic stem cells through activation of Wnt signaling by a pharmacological GSK-3-specific inhibitor	*Nat. Med.* **10**, 55–63 (2004)	142
Computational biology	Gentleman, R.C. *et al.*	Bioconductor: open software development for computational biology and bioinformatics	*Genome Biol.* **5**, R80 (2004)	124
Proteomics	Anderson, N.L. *et al.*	The human plasma proteome: a nonredundant list developed by combination of four separate sources	*Mol. Cell. Proteomics* **2**, 311–326 (2004)	92
DNA vaccines	Yang, Z.Y. *et al.*	A DNA vaccine induces SARS coronavirus neutralization and protective immunity in mice	*Nature* **428**, 561–564 (2004)	90
Diagnostics	Carlson, C.S. *et al.*	Mapping complex disease loci in whole-genome association studies	*Nature* **429**, 446–452 (2004)	85
Fluorescence imaging	Lidke, D.S. *et al.*	Quantum dot ligands provide new insights into erbB/HER receptor-mediated signal transduction	*Nat. Biotechnol.* **22**, 198–203 (2004)	75
Gene therapy	Silva, G.A. *et al.*	Selective differentiation of neural progenitor cells by high-epitope density nanofibers	*Science* **303**, 1352–1355 (2004)	66
Plant biotech	Hirai, M.Y. *et al.*	Integration of transcriptomics and metabolomics for understanding of global responses to nutritional stresses in *Arabidopsis thaliana*	*Proc. Natl. Acad. Sci. USA* **101**, 10205–10210 (2004)	44
Environmental biotech	Heidelberg, J.F. *et al.*	The genome sequence of the anaerobic, sulfate-reducing bacterium *Desulfovibrio vulgaris* Hildenborough	*Nat. Biotechnol.* **22**, 554–559 (2004)	38
Biosensors	Patolsky, F. *et al.*	Long-range electrical contacting of redox enzymes by SWCNT connectors	*Angew. Chem. Int. Ed. Engl.* **43**, 2113–2117 (2004)	35
Nuclear transfer	Kolber-Simonds, D. *et al.*	Production of alpha-1,3-galactosyltransferase null pigs by means of nuclear transfer with fibroblasts bearing loss of heterozygosity mutations	*Proc. Natl. Acad. Sci. USA* **101**, 7335–7340 (2004)	30

Source: ISI Web of Knowledge, as of March 14