

## 2. TARGETING NEW GROWTH AREAS

### 2.8. Biotechnology patents

Biotechnology and genetics research have received extensive investment from both the public and private sectors, with a growing impact on health care. Advances in medical genetics promise faster and better diagnosis as well as a new generation of targeted therapies.

After steady growth in the 1990s, the number of biotechnology patent applications filed under the Patent Co-operation Treaty (PCT) decreased from more than 11 800 in 2000 to 9 481 in 2006, at an average rate of -3.6% a year between 2000 and 2006, compared to an increase of 20.4% over 1995-2000. Conversely, the total number of PCT patent applications increased by an average of 6.5% a year over 2000-06. As a result, the relative weight of biotechnology in all international patent filings decreased between the mid-1990s and the early 2000s in many countries. On average, biotechnology patents represented 6.7% of countries' patent portfolios over 2004-06, compared to 10.6% in the mid-1990s.

The surge in biotechnology patents in the late 1990s was partly due to patent applications pertaining to the human genome. The recent decrease raises concerns that more stringent criteria on the patenting of genetic inventions may discourage further research and reduce access to the benefits of the technology.

The United States accounted for 43.5% of all biotechnology PCT patent applications in 2006. Japan and Germany followed with shares of 11.6 and 6.7%, respectively. Nearly 4% of all biotechnology patents were developed by inventors in the BRIICS countries (Brazil, Russian Federation, India, Indonesia, China, South Africa), notably China (1.9%), India (0.9%) and the Russian Federation (0.8%).

Denmark remains the most active country in biotechnology patenting with 15.8% of biotechnology patents in total patents. This is more than twice the share of biotechnology patents in all patent applications between 2004 and 2006 for all countries combined. Belgium, Singapore and Canada also have a strong revealed technological advantage in biotechnology, with more than 10% of their patent portfolio dedicated to biotechnology.

#### Biotechnology patents

Biotechnology patents are identified using the International Patent Classification (IPC) system: one or several classification codes are attributed to the patent during the examination process. For emerging technologies, however, a specific category or class may not yet be part of the patent classification system, which means that some biotechnology patent applications may be missed.

The 8<sup>th</sup> edition of the IPC is used to identify patents in the biotechnology sector. IPC classes selected include areas such as transgenic vertebrates, invertebrates and plants; methods, processes and testing; bioinformatics; biological materials, etc. These are: A01H1/00, A01H4/00, A61K38/00, A61K39/00, A61K48/00, C02F3/34, C07G(11/00, 13/00, 15/00), C07K(4/00, 14/00, 16/00, 17/00, 19/00), C12M, C12N, C12P, C12Q, C12S, G01N27/327, G01N33/(53\*, 54\*, 55\*, 57\*, 68, 74, 76, 78, 88, 92).

Source: The definition remains provisional; its coverage is being discussed in the framework of the OECD Working Party on Biotechnology. For further details on the IPC classes (IPC, 8th edition), [www.wipo.int/classifications/ipc/ipc8/?lang=en](http://www.wipo.int/classifications/ipc/ipc8/?lang=en).

#### Source

OECD, Patent Database, June 2009, [www.oecd.org/sti/ipr-statistics](http://www.oecd.org/sti/ipr-statistics).

#### Going further

OECD (2009), "OECD Biotechnology Statistics 2009", [www.oecd.org/dataoecd/4/23/42833898.pdf](http://www.oecd.org/dataoecd/4/23/42833898.pdf).

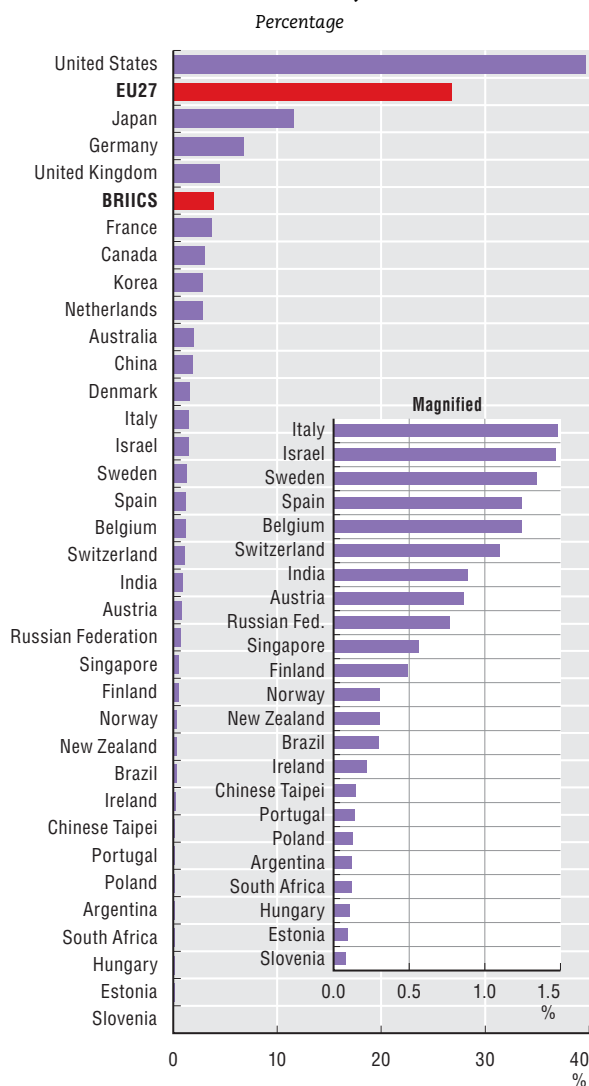
OECD (2009), *OECD Patent Statistics Manual*, OECD, Paris.

#### Figure notes

Data relate to patent applications filed under the PCT, at international phase, designating the European Patent Office (EPO). Patent counts are based on the priority date, the inventor's country of residence and fractional counts.

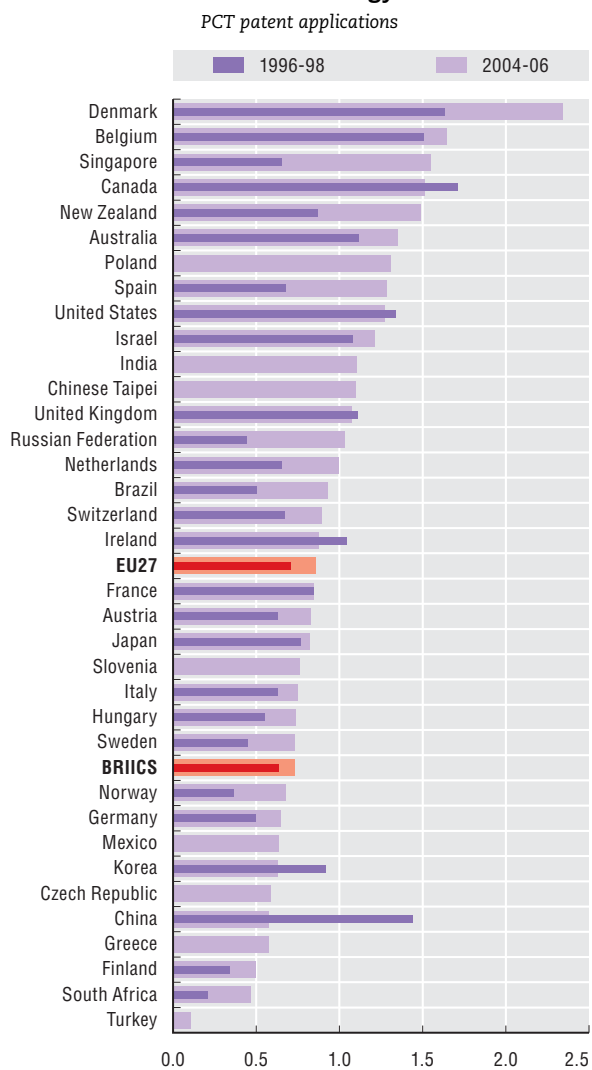
The revealed technological advantage indicator is calculated as the share of biotechnology in a country's patents relative to the share of biotechnology in total patents. Only countries with more than 250 patents during the periods are included in the figure.

**Share of economies in biotechnology patents filed under PCT, 2006**

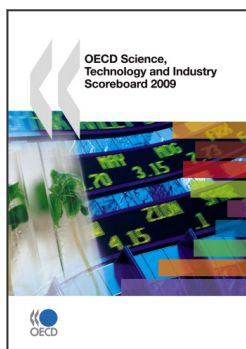


StatLink <http://dx.doi.org/10.1787/743548442486>

**Revealed technological advantage in biotechnology**



StatLink <http://dx.doi.org/10.1787/743558060332>



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