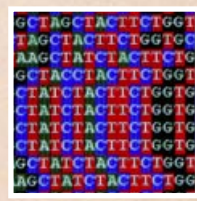


KPMG Business Study 2004

CEO's Guide to World Business Costs

# Biotech R&D



**F.Y.I.** The Economist Intelligence Unit (EIU) predicts that Canada will be the best country in the world to do business between 2004-2008. Why? The EIU cites Canada's openness to foreign trade and capital, high-quality infrastructure and great market opportunities within the North American marketplace.

# R&D Smarts For Less: Canada's 16.6 Per Cent Cost Advantage

KPMG conducted a detailed 10-month study of biotech R&D costs in 11 countries in North America, Europe and Asia-Pacific: *Competitive Alternatives, the CEO's Guide to International Business Costs*.

**Canada finished first worldwide, with a 16.6 per cent cost advantage over baseline U.S. costs**, which is more than enough of a differential to separate a good business year from a bad business year.

The model was a "pure" biomedical research facility, with no commercial sales. The workforce consisted primarily of research scientists and technicians. The results reflect the combined impact of 27 different location-sensitive cost components applied to the model.

## An Exciting New Tool for Investors

In addition to the study, KPMG developed a Web-based cost model and interactive Web site that enables investors to explore the costs involved in setting up and operating over a 10-year period in over 120 cities in Canada, the U.S., the U.K., France, Germany, Italy, Iceland, Luxembourg, the Netherlands, Japan and Australia.

Examine the data. Use your own criteria, make your own comparisons, pick potential spots to locate or expand.

The proof is at:  
**[www.competitivealternatives.com](http://www.competitivealternatives.com)**



## Comparison of Annual Costs – Biomedical R&D

Costs by major component, US \$'000

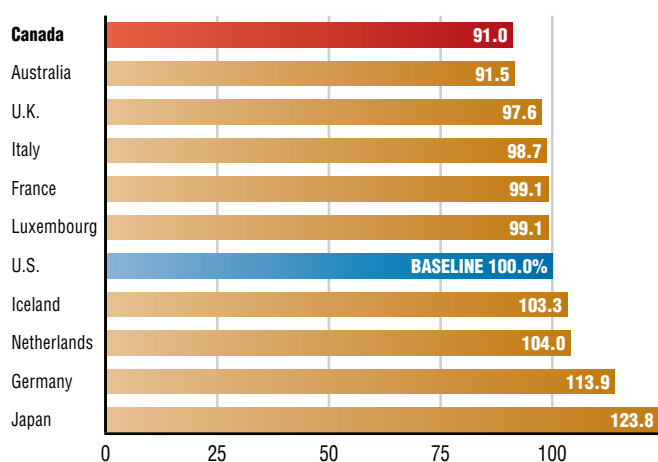
	North America			Europe						Asia Pacific	
	Canada	U.S.	France	Germany	Iceland	Italy	Luxembourg	U.K.	Netherlands	Australia	Japan
<b>Revenues</b>	7,547	8,835	8,480	9,955	8,384	7,751	8,806	8,702	8,832	7,893	11,770
<b>Costs</b>											
Salaries & wages	2,964	3,650	2,965	4,024	3,291	2,539	3,333	2,918	3,808	3,105	4,791
Statutory benefits	182	304	671	877	637	350	415	247	605	420	389
Other benefits	587	671	1,094	1,065	653	1,038	600	1,321	932	613	1,091
Total benefits	769	975	1,765	1,942	1,290	1,388	1,015	1,568	1,537	1,033	1,480
Labor and benefits	3,732	4,625	4,730	5,966	4,580	3,926	4,348	4,485	5,345	4,138	6,271
Facility Lease	720	851	536	638	730	532	1,247	1,165	737	809	1,785
Transportation	-	-	-	-	-	-	-	-	-	-	-
Utilities	121	125	148	200	172	168	134	118	245	121	302
Interest & depreciation	296	391	346	347	200	358	340	243	346	206	398
Non-income taxes	93	140	50	-	44	163	36	-	(546)	-	47
Location-insensitive costs	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900
<b>Profit Before Income Tax</b>	685	803	771	904	758	705	801	792	805	718	1,067
Income taxes <sup>1</sup>	(27)	169	267	383	151	479	213	12	277	89	442
Effective rate	n/a	21.1%	34.6%	42.3%	19.9%	68.0%	26.6%	1.5%	34.4%	12.4%	41.4%
<b>After-Tax Profit</b>	711	634	504	522	607	225	588	780	528	629	625
Total annual costs	6,836	8,201	7,976	9,433	7,777	7,526	8,218	7,923	8,304	7,264	11,145
Index (US=100.0)	83.4	100.0	97.3	115.0	94.8	91.8	100.2	96.6	101.3	88.6	135.9
<b>Rank</b>	1	7	6	10	4	3	8	5	9	2	11

1. Income taxes may be either positive or negative, irrespective of whether profit before income tax is positive or negative, due to the impact of specific expense deduction rules, minimum taxes, and refundable income tax credits.

Source: *Competitive Alternatives: The CEO's Guide to International Business Costs*. KPMG, 2004.

## Comparison of Annual Costs — 12 Industry Average

Overall business operation average in 12 industries.\*  
Per cent cost relative to the United States.



\*Total business costs comprise the sum of location-sensitive costs and location-insensitive costs.

Source: *Competitive Alternatives: The CEO's Guide to International Business Costs*. KPMG, 2004.

### Measurable Success

The best measure of a country's ability to compete in the global marketplace is its current account balance with all its trading partners. Canada has recorded an overall current account surplus for 17 straight quarters, and a surplus with its biggest trading partner—the United States—for 22 straight quarters.



**Canada** boasts the second-highest global concentration of biotech companies and ranks among the top five nations developing new biotechnology. Canada has earned an international reputation for research in areas such as genomics, proteomics, bio-informatics, protein engineering, immunotherapies, and drug delivery systems.

---

# Biotech R&D

## Canada: The Innovation Nation

For biotech firms based in the U.S., Europe or elsewhere, the Canadian environment for R&D has much to offer—and with a very reasonable price tag.

**Consider Canadian Biotech Clusters** – Toronto, Montreal and Vancouver are thriving clusters focused mainly on health. Saskatoon is home to innovative R&D work related to agriculture. Great universities—plus government support to infrastructure development—have nourished bio-clusters all across Canada.

**Consider Costs** – KPMG’s 2004 study shows Canada with the lowest business costs in the G7—Canada’s biotech R&D cost advantage over the U.S. is 16.6 per cent. Canada’s generous tax treatment of R&D plus competitive corporate tax rates help keep costs low. So do very reasonable wage rates for well-educated workers.

**Consider Innovation and Entrepreneurship** – Analysis in early 2004 identified 540 therapeutic products (excluding diagnostics) in the Canadian biopharma company pipeline—30 per cent in Phases I - III trials. Canada also has some star biotech companies in non-therapeutic applications. Nexia, logen and Ocean Nutrition are just a few that are well worth watching.

**Consider Results** – Vioxx, Singulair and Visudyne were developed in Canada at significantly lower costs than would be possible in the U.S. or E.U.

**Canada – Brains are our business.**

**THEY KNOW WHY  
THEY’RE HERE.  
SO SHOULD YOU.**

Aeterna  
Amgen  
Angiotech  
Aventis Pasteur  
Axcan Pharma  
Dow AgroSciences  
Genzyme Therapeutics  
ID Biomedical  
QLT

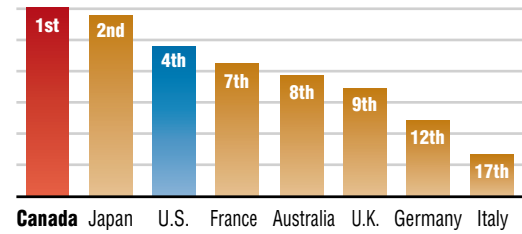


“The government has created a number of new tools to advance research and innovation, which have been spectacular. These, together with significant increases from the granting councils, which is very crucial, means that all together we have a symphony that is playing well.”

**Howard Alper, Vice-President of Research  
University of Ottawa**

## Canada Has The World's Best Educated Workforce

Higher Education Achievement – World Rank\*



\*Source: IMD World Competitiveness Yearbook, 2003.

## Canadian Biotech – Changing the World

Scientific breakthroughs seem to happen almost daily in Canada, many of them speeding toward solutions for global health threats, both old and new.

**For Instance** – In April 2003 scientists at the British Columbia Genome Sciences Centre completed the first publicly available draft sequence for the coronavirus implicated in Severe Acute Respiratory Syndrome, pointing to definitive diagnostic tests for SARS.

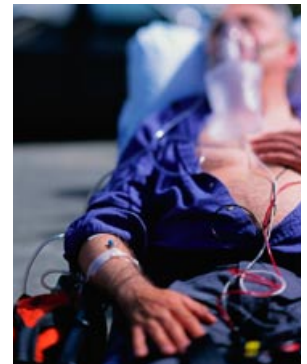
**For Instance** – In April 2004 the Canadian Network for Vaccines and Immunotherapeutics (CANVAC) announced that its scientists had identified key immune factors associated with the early stages of SARS.

## Biopharma and Beyond

While more than 50 per cent of Canadian biotech products under development or on the market are health-related, 30 per cent are related to agri-food and 9 per cent focus on the environment. Three other important categories—bioinformatics, natural resources and aquaculture—each account for 3 per cent of Canada’s biotechnology industry.

## Priming the Intellectual Pump

Innovation demands intellect. Canada spends the most per-capita dollars on education of any country in the world. The 2003 *World Competitiveness Yearbook* ranks Canada No. 1 in “higher educational achievement.” Fully half of all adult Canadians have been educated at university, college or technical school. Canada also ranks well ahead of other North American countries at welcoming well-educated workers from foreign countries. Business Week magazine placed three Canadian universities—Queen’s, University of Toronto and University of Western Ontario—in the top half-dozen business schools outside the U.S.



© CANADIAN FOOD INSPECTION AGENCY



# Canada's Biotech R&D Ranks With the Best in the World



## We Innovate!

Vancouver's **ID Biomedical's** nasal Proteosome™-based vaccines protect against pneumonic plague caused by lethal aerosol infection with virulent plague bacteria. U.S. Army Medical and Materiel Command joined in experiments in which mice nasally immunized with plague antigen formulated with the Proteosome technology were completely protected against lethality, even when the plague antigen dose was tenfold lower than ever given nasally.

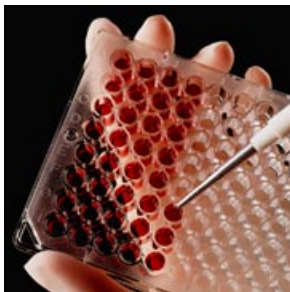
In early May 2004, Frost & Sullivan recognized Toronto-based **YM Biosciences** as a global entrepreneurial leader for breast cancer drugs. The company has developed a novel late-stage cytotoxic-enhancing compound for fighting metastatic breast cancer. YM focuses on novel therapeutics that principally target advanced solid tumour indications.

## We Partner!

Vancouver's **Angiotech Pharmaceuticals Inc.** focuses on advancing medical devices using disease-modifying drugs. The company's technology platform exploits paclitaxel's ability to block inflammation. Angiotech has forged alliances with **Boston Scientific, Cook Inc., Baxter Healthcare** and **U.S. Surgical**. Boston Scientific received U.S. FDA clearance in 2004 to market the TAXUS™ paclitaxel-eluting coronary stent system, which uses Angiotech's technology. Angiotech is one of 30 companies worldwide selected by the World Economic Forum as a Technology Pioneer for 2004.

Calgary's **SemBioSys Genetics Inc.** develops high value protein and oil body based products using its proprietary oil body/oleosin technology, enabling commercialization of purified protein products. **Syngenta** and SemBioSys entered into an agreement in 2004 giving Syngenta access to SemBioSys' proprietary oilbody-based Stratosome™ Biologics and StratoCapture Purification™ systems that could significantly reduce downstream purification costs of therapeutic proteins and monoclonal antibodies.

Montreal's **Caprion Pharmaceuticals** provides biopharma companies with proteomics research to better mobilize early stage drug discovery and is also developing its own diagnostic and therapeutic products. Caprion's diagnostic cell-mapping process, CellCarta™, has allowed the firm to gather research to create blood tests to detect Creutzfeld-Jacob Disease. Caprion and **Abbott Laboratories** announced a research collaboration in 2004 applying CellCarta™ for the discovery of novel antibody targets and the development of therapeutics for the treatment of lung cancer.



“Canada's safety assessment of drug candidates (toxicity evaluation) is of the highest quality—perhaps the best in the world.”

**Dr. Julian Adams, Chief Scientific Officer  
Infinity Pharmaceuticals**

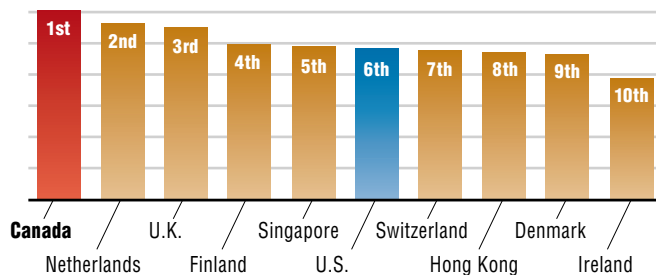
“Canada provides broad access to early-stage capital, world-class scientific research and progressive universities. This combination offers all kinds of opportunities for entrepreneurship in biotechnology.”

**Ian McBeath, President and CEO  
Inflazyme Pharmaceuticals Ltd.**

## Canada's R&D Cost Advantage

	Canada	United States
1	Permanent program	Temporary program – periodically renewable through Act of Congress
2	Tax credits may be refundable	Tax credits are only non-refundable
3	R&D expenditures can be carried forward indefinitely	Time limits to expensing R&D expenditures
4	Salaries, material, contracts, overheads, and incremental costs may qualify	Only salaries, supplies, and 65% on contracts qualify
5	Capital equipment for R&D may qualify	R&D capital equipment does not qualify
6	Volume-based tax credits	Incremental tax credits
7	Research performed in Canada and funded by non-residents may qualify	Research funded by third party does not qualify

## Business Environment of Top Ten Countries, 2004-2008



Source: The Economist Intelligence Unit, January 2004

## Access a wealth of information

The Canadian Embassy or Consulate nearest you is well positioned to assist in all of your key investment decisions and analysis. They can help you compare city-based sites worldwide, gather information on incentives, regulations, transportation and taxation, and arrange introductions to key government and private sector contacts.

Locate your nearest Embassy or Consulate at [www.investincanada.gc.ca](http://www.investincanada.gc.ca).

### Investment Partnerships Canada

Government of Canada  
235 Queen Street, 6th Floor  
Ottawa, Ontario, Canada K1A 0H5  
Telephone: (613) 954-5031  
Fax: (613) 954-2340  
E-mail: [investincanada@ic.gc.ca](mailto:investincanada@ic.gc.ca)

*Let us show you why investing in  
Canada makes good sense, visit:*

[www.investincanada.gc.ca](http://www.investincanada.gc.ca)

### Industry Canada

Life Sciences Branch  
235 Queen Street  
Ottawa, Ontario, Canada K1A 0H5  
Tel: (613) 954-4715  
Fax: (613) 952-4209  
E-mail: [linvest@ic.gc.ca](mailto:linvest@ic.gc.ca)

*To learn more about Canada's  
life sciences sector, visit:*

<http://strategis.ic.gc.ca/lifesciences>

# Why is Canada Such a Great Place to Do Business?

## ✓ A STRONG AND STABLE ECONOMY

Canada was the only G7 country to record a sixth consecutive budgetary surplus at the end of the 2002-2003 fiscal year. Finance Canada forecasts a seventh surplus for 2003-2004 and for each of the next five fiscal years. Inflation has averaged a modest 2.4 per cent over the past five years, producing low interest rates and one of the lowest cost-of-living indices in the developed world.

## ✓ SUPERIOR WORKERS AND MANAGEMENT

Canada leads the world in the percentage of citizens with a university or college education. Surveys show that Canada has North America's most impressive record for workplace stability and company loyalty. Canada's highly skilled, multilingual workforce stimulates the creation of global teams in the workplace.

## ✓ REASONABLE WAGES AND SALARIES

KPMG's 2004 business cost study found that Canada's average labour costs are significantly lower than comparable American costs. For positions paying US\$63,000 in the United States, salary levels are 20 per cent lower in Canada.

## ✓ LOWER EMPLOYER BENEFIT COSTS

Because of Canada's national health-care system, employer-paid health benefits amount to 2.1 per cent of workers' gross pay in Canada, compared to 9.6 per cent in the United States.

## ✓ WELCOME MAT FOR INVESTORS

Canada performed extremely well in the World Bank's report *Doing Business in 2004: Understanding Regulation*. It typically takes only two procedures, three days, and less than the equivalent of 1 per cent of annual income per capita to open a business in Canada.

## ✓ SERVING ALL OF NORTH AMERICA

Under NAFTA, American markets are Canadian markets. Canada provides access to more than 400 million consumers with a combined GDP of over US\$11.4 trillion. Canada and the U.S. have the world's largest trading partnership, with two-way trade amounting to more than US\$508 billion in 2002. Of Canada's 20 largest cities, 17 are within an hour-and-a-half drive of the United States. Many large North American firms have integrated Canadian and American production facilities.

## ✓ GREAT R&D AT HUGE SAVINGS

Canada's R&D tax treatment is among the most generous in the industrialized world. It includes immediate full write-offs for all expenditures in R&D capital equipment and appreciable tax credits. Firms can significantly reduce R&D costs through direct investment or subcontracting in Canada.

## ✓ A MOST PALATABLE QUALITY OF LIFE

Canada has the lowest G7 cost of living, and it leads the G7 as a safe place to live and do business. In a survey of 90 countries, *The Economist* recently ranked Canada third to Finland and Sweden for honesty and reliability in business dealings.

"Far from experiencing a 'brain drain', at Affinium we are seeing just the opposite. The quality of the science and commercial environment here is attractive to world class scientists from North America and Europe. In the end, this business is about people and ideas, and both are here in Canada."

John D. Mendlein, Ph.D., J.D., Chairman and CEO  
Affinium Pharmaceuticals, Inc.

To find out more about investment opportunities in Canada:

[www.investincanada.gc.ca](http://www.investincanada.gc.ca)