



Foreign Affairs and
International Trade Canada

Affaires étrangères et
Commerce international Canada

Canada



**Canada's Life Sciences:
Strong, Successful and a Partner for You**





Canada's Life Sciences Industry: Snapshot

- Home to the **3rd largest Life Sciences** industry in the world*, and a research community of over 100 institutes & 30,000 scientists
- **Strengths** in Vaccines, Regenerative Medicine (*Stem Cells, Neuroscience*), Cardiology, Medical Devices, Molecular Diagnostics, Nanotechnology and Materials.
- Strong industry integrated across **Biopharmaceuticals, Medical Devices and Contract Services**
- High **government priority** given to Life Sciences Research and Innovation
- **Leading Scientific Excellence:** World renowned scientific excellence. Canada has the highest percentage of individuals achieving at least college or university education, among OECD member countries.
- Significant and **profitable healthcare market**

*in terms of number of companies and employment



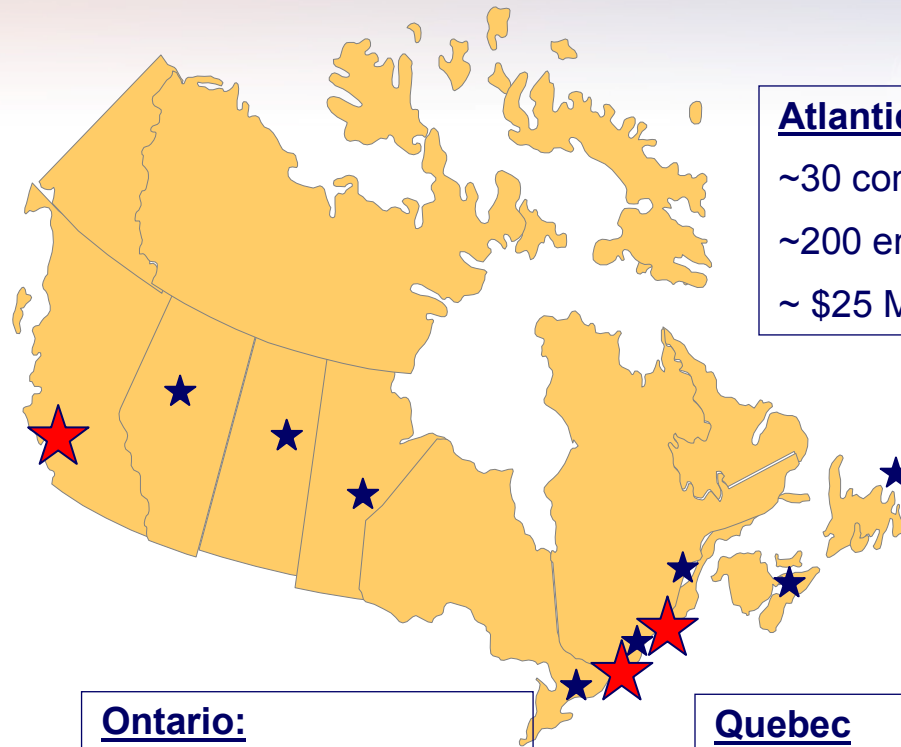
Life Sciences In Canada

British Columbia

~110 companies
~ 2500 employees (15%)
~ \$300 M in annual R&D

Prairies

~110 companies
~1800 employees (11%)
~ \$200 M in annual R&D



Atlantic Canada

~30 companies
~200 employees (1%)
~ \$25 M in annual R&D

Ontario:

~220 companies
~6000 employees (38%)
~ \$650 M in annual R&D

Quebec

~240 companies
~5500 employees (35%)
~ \$600 M in annual R&D



Canadian Life Sciences Key Strengths

Sector

Key Strengths

Bio- Pharmaceuticals

- Discovery & characterization of therapeutic molecules
- Genomics & proteomics platforms
- Vaccines & immuno-therapeutics
- Regenerative medicine & Stem cell research
- Drug formulation & delivery systems
- Generic pharmaceuticals

Medical Devices

- In-vitro diagnostics
- Medical imaging & analysis
- Nuclear medicine
- Surgical & implant devices
- Advanced materials & Nanotechnology
- Cardiovascular devices

Contract Services

- Drug formulation & delivery systems
- Clinical trial planning & management
- Manufacturing & Packaging
- Design & manufacturing of high value medical devices
- Analytical services
- Regulatory affairs & compliance



Canada's Life Sciences R&D Infrastructure

- **Universities- Centers of Excellence**

- Several outstanding Life Science programs; Several international research projects being led out of Canada.
- Collaborate with hospitals, government & industry to operate research centres & networks (e.g. UBC Centre for Drug Research & Development, U of Ottawa Stem Cell Network)

- **National Research Council (NRC)**

- Government funded research institutes with specialized expertise in the areas of medical, biological, nanotechnology, nutraceutical and biodiagnostic sciences.

- **Teaching & Research Hospitals**

- Major hospitals affiliated with research centres to carry out clinical trials & applied research (e.g. Toronto Hospital for Sick Children, Ottawa Heart Institute)

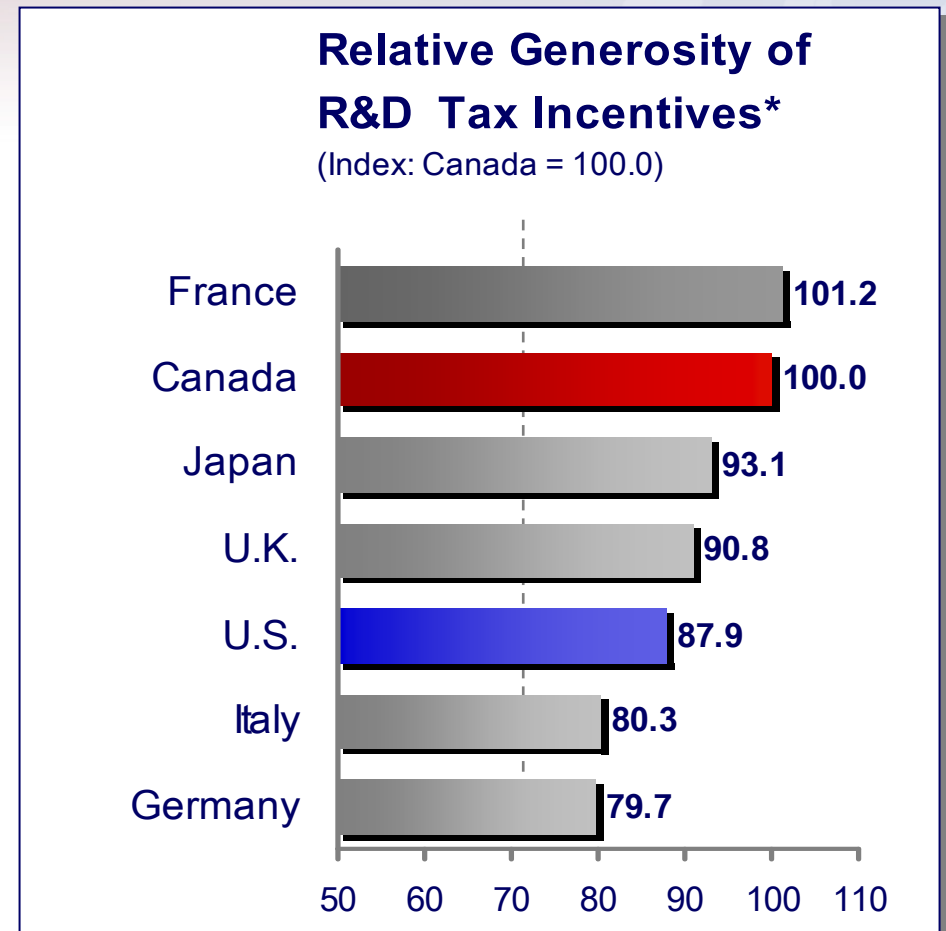
- **Government Science & Technology funding**

- Going Global, Global Opportunities for Associations (GOA), National Sciences and Engineering Research Council (NSERC)
- Canadian Institute of Health Research (CIHR)
- Networks of Centres of Excellence



Quality R&D — Canada's Big Bargain

- **Canada offers one of the most favorable tax treatments for R&D among the G-7.**
 - Canada provides a system of tax credits and accelerated tax deductions for a wide-variety of R&D expenditures.
 - Eligible costs include: salaries, overhead, capital equipment, and materials.
- **These tax-based incentives permit firms to significantly reduce R&D costs through direct investment or sub-contracting in Canada.**
- **Substantial commercialization infrastructure**
 - Government programs, services, talent and expertise.



Source: Warda, Jacek, Rating Canada's R&D Tax Treatment: September 20,, 2007

Note: Relative generosity is determined by dividing the after tax cost of performing \$1.00 of R&D by 1 less the corporate tax rate.

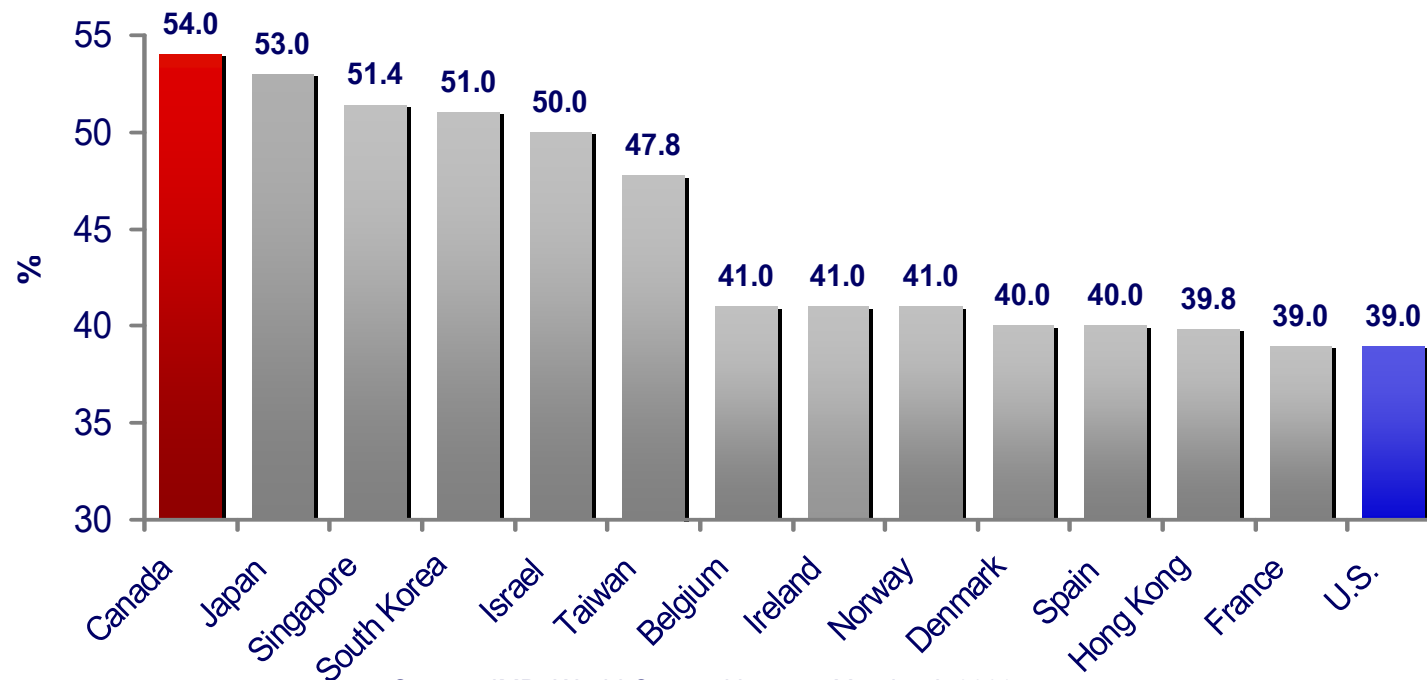
Results are indexed to the relative generosity of Canada's system of tax-based support for R&D. The higher the ratio the more competitive the tax system.

* Calculations based on large firms

An Educated and Available Workforce

- The overall skill level of Canada's workforce ranks high among competing countries.
- Canada has the highest percentage of individuals achieving at least college or university education, among OECD member countries.

Higher Education Achievement



Source: IMD, World Competitiveness Yearbook 2008



Leading Several International Projects

- **Canada-California Cancer Stem Cell Partnership**
- **Structural Genomics Consortium**
- **International Regulome Consortium**
- **International Consortium on Anti-Virals**
- **[Time magazine names CIHR-funded study top medical breakthrough of the year](#)**

Time magazine published its top 10 medical breakthrough of 2007. An international research study led by Dr. Stephen Moses (University of Manitoba), a CIHR-funded researcher, won the coveted first place. In December 2006, two clinical trials of male circumcision proved successful in reducing HIV incidence in young men. CIHR provided over \$2.5 million in funding to this study.



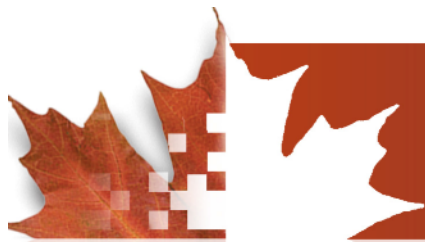
Demonstrating Canadian Excellence

Recent Investments In Canada:

- **Sanofi Pasteur** recently invested **\$100M** to expand its Canadian **vaccine R&D** facilities in Toronto, Ontario, Canada.
- **AstraZeneca** Canada Inc. invests **\$10M** in an expansion of its **pain control** research centre in Montreal.
- **Glaxo Smith Kline (GSK)** has just completed the initial expansion phase of its **vaccine production** facility in the city of Québec - an investment of CDN **\$199M**. GSK recently completed another **\$50M** expansion to it's North American **vaccine R&D** headquarters in Montreal, Quebec.

Recent Innovation Awards:

- **Spartan Bioscience** a Canadian molecular diagnostics company receives The 2008 Frost & Sullivan Global Award - **Polymerase Chain Reaction 2008 Product of the Year**.
- **MedMira** President and CEO, Hermes Chan was named the **Top Bioscience Innovator of 2007** at The Economist's Sixth Annual Innovation Awards, *October 2007*.



High-Performance Canadian Companies

BioPharmaceuticals

Company	Focus
Biovail	CNS disorders, pain management and cardiovascular disease
Apotex	Generics manufacturing
Cangene	Mfg of Ab's, peptides, vaccines
Prometic Life Sciences	Mfg of natural, recombinant and synthetic proteins
ImmunoVaccine Technologies	Vaccines innovation & development
BioNiche Life Sciences	Oncology, animal vaccines
BioMS	Multiple Sclerosis
Theratechnologies	Peptide-based therapeutics
QBM Cell Science	Cryopreserved mouse neurons
QSV Biologics	Peptide & protein Mfg
NAEJA	NCE discovery & synthesis

Medical Devices

Company	Focus
MDS Nordion	radiological imaging & isotopes
Resonant Medical	3D Ultrasound Imaging
Novadaq	Operating room imaging
Spartan Biosciences	Personal DNA analyzers
BrightWELL	Micro-Flow Imaging technology (MFI) for cell analysis
Rimon Therapeutics	Advanced medical polymers & biomaterials for wound care
DNA Genotek	DNA collection & preservation systems
Amorfix	Theranostics; detection of protein misfolding
Axela	Protein interaction technology
Uroynamix	Urology diagnostics
ART	Optical molecular imaging



Testimonials

“ Canada offers an excellent environment for clinical trials. Solvay Pharma is currently working with 44 sites across the country. In our experience, partnering with Canadian public health care facilities, universities and contract research organizations has yielded impressive results.”

**Dr. Laurence J. Downey, President & CEO
Solvay Pharma Inc.**

“ Canada is an excellent environment for clinical research. It combines excellent academics and top class researchers with good patient populations, excellent cost structures and leading R&D tax credits. In Canada you can reach your recruitment goals, and achieve extremely high quality research and quick performance with superior economics.”

**John Suk, President & CEO
ALTANA Pharma**



Make Your Investment in Canada

Contact the Canadian Trade Commissioner Service to find opportunities and partners.

There are two ways to reach us:

1. Canadian Trade Commissioners are located around the globe – contact the local Canadian Embassy for service.

Or

2. Visit : www.investincanada.gc.ca



Appendix– Additional slides for your selection



Canadian Biotech Industry

Example Companies

- **Cangene** (Winnipeg): protein therapeutics, vaccines & diagnostics development & manufacturing
- **Prometic Life Sciences** (Montreal): therapeutic protein synthesis, processing & purification technologies
- **ImmunoVaccine Technologies** (Halifax): development & synthesis of therapeutic & prophylactic vaccines
- **BioNiche Life Sciences** (Belleville): development & manufacturing of human & animal vaccines for cancer & infectious diseases



Canadian Medical Device Industry

Example Companies

- **MDS Nordion** (Ottawa): development & manufacturing of isotope-based diagnostics & therapeutics
- **Angiotech Pharmaceuticals** (Vancouver): implantable devices for drug delivery, arterial repair & surgical applications
- **Axela** (Toronto): allows researchers to rapidly translate their protein discoveries into utilizable assays
- **Resonant Medical** (Montreal): development of 3-D ultrasound imaging systems



Canadian Contract Services

Example Companies

- **QSV** (Edmonton): contract manufacturer of active pharmaceutical & biological ingredients for therapeutic products
- **Algorithme Pharma** (Montreal): contract research organization specializing in pre-clinical, phase I & bioequivalence studies
- **Allphase Clinical Research** (Ottawa): clinical trial management company managing multi-site trials & sourcing trial services globally
- **Wellspring Pharmaceutical** (Toronto): contract manufacturer of specialized dosage forms for clinical & commercial distribution



Canadian Pharma Industry – Statistics*

- \$20 billion domestic market
- 100+ companies with 40,000+ pharma-related employees
- Market dominated by foreign multinationals
- \$1.5 billion in R&D spending
- Over \$4 billion in exports

* 2007 data



Canadian Biotech Industry – Statistics*

- 500+ companies (75% in health science) with 13,000+ employees
- 70% of companies have < 50 employees
- \$4.2 billion in revenues
- \$1.7 billion in R&D spending

* 2007 data



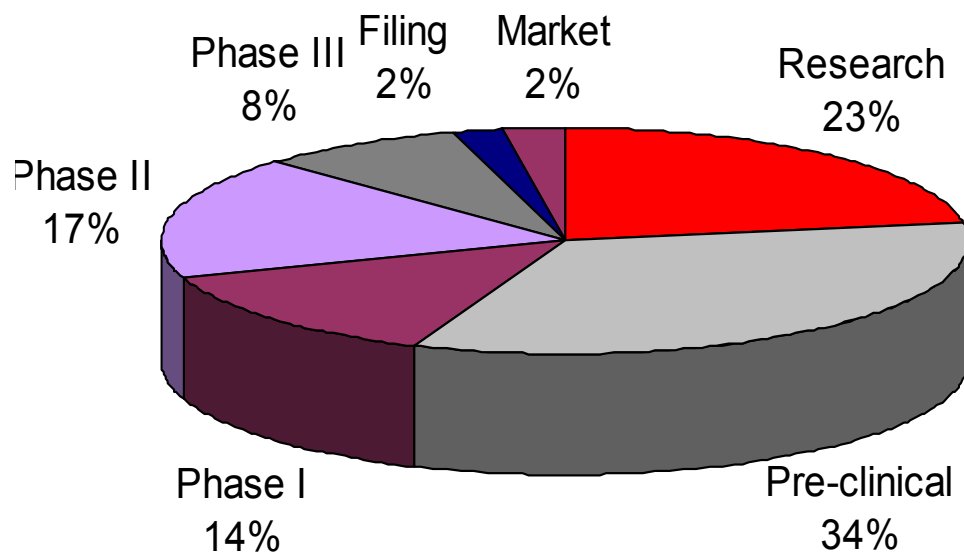
Canadian Medical Device Industry – Statistics*

- \$6 billion market
- \$2 billion of exports; \$4 billion in imports
- Majority of revenues to multinationals & distributors
- 200+ developers / manufacturers (90% Canadian owned)
- 94% of firms have < 50 employees

* 2006 data

Full Development Pipeline

Canada's Bio/pharmaceutical Companies Have Over 500 Products Under Development or on the Market



LEADING THERAPEUTICS

- 1) **Cancer (36%)**
- 2) **Cardiovascular (15%)**
- 3) **Neurological (11%)**
- 4) **Infectious Diseases (8%)**



Canadian Healthcare Market

- **The Canadian healthcare market is significant**

- Top 10 globally; \$20 billion drug market
- Stable due to high per-capita GDP and public healthcare system
- Patent protection consistent with other developed markets
- Highly profitable

- **High regulatory standards**

- Mutual recognition agreement between Canadian, EU & Australian drug regulators (manufacturing, product release)*
- Product registrations & manufacturing guidelines equivalent to major regulatory bodies (US-FDA, EU-EMA, UK-MCA, etc.)

* Drug & device registrations are reviewed independently.