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## III.2 MEDICAL RESEARCH

### Medical Research

For more than 50 years, Canadian medical research has enjoyed an outstanding international reputation. Canada is recognized for the delivery of health care, and for pioneering achievements in diagnostics and treatment in areas such as neuroscience, diabetes and cardiology. With such a strong medical tradition, it is not surprising that health care continues to be at the forefront of Canada's R&D agenda.

Canada's past achievements include:

- the discovery of insulin by Banting, Best and Collip at the University of Toronto;
- discovery of the carcino-embryonic antigen, produced by cancers of the colon, and development of the first immunological blood test for the presence of cancer (Université de Montréal);
- discovery of the defective gene that causes cystic fibrosis by Dr. Lap-Chi Tsui (Hospital for Sick Children, Toronto);
- discovery of the T-cell receptor gene (Dr. Tak Mak, University of Toronto);
- discovery of an anti-viral therapy for hepatitis B (Dr. D. L. Tyrell, University of Alberta);
- development of a new method for detecting prostate cancer at an early stage, thereby improving survival rates for patients through the use of combined anti-hormonal treatments (Dr. F. Labrie, Université de Laval); and
- identification of the genetic defect responsible for myotonic dystrophy (University of Ottawa research team).

More recent developments, during the 1990s, in pharmaceutical and health-care research are highlighted by achievements in fields such as biomedicine, immunology, gene therapy, and cancer diagnosis and treatment, to name but a few.

The additional examples that follow indicate that Canadian researchers are at the forefront of world research and have made major contributions to our understanding of biological and medical processes, and to the generation of new technologies and new industries.

### Molecular Biology

The work of Dr. Michael Smith, Biotechnology Laboratory, University of British Columbia, in site-directed mutagenesis, has helped to accelerate discoveries made through genetic engineering. He received the 1993 Nobel Prize for Chemistry for this pioneering research.