

Biotechnology Use and Development Survey - 2005

Confidential once completed

Collected under the authority of the Statistics Act, Revised Statutes of Canada, 1985, Chapter S-19. Completion of this questionnaire is a legal requirement under the Statistics Act.

Si vous préférez ce questionnaire en français, veuillez téléphoner au 1-866-894-5474.

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Information for the Respondent

Purpose of Survey

Statistics Canada is conducting this survey to produce a profile of firms engaged in biotechnology activities and/ or research and development of nanotechnologies in Canada. The survey focuses on the characteristics and activities of firms that use or develop biotechnology as part of their company's activity. It will also help us learn about the key characteristics of firms that are engaged in research and development of nanotechnologies

Biotechnology is an emerging sector of the Canadian economy and its impact has the potential to be felt through all parts of Canadian society. An accurate understanding of biotechnology requires comprehensive data. Information from this survey may be used by businesses for economic or market analysis, by trade associations to study industry performance, government departments and agencies to assist policy formation, and by the academic community for research purposes. Statistics Canada may create a database by combining survey data with existing Statistics Canada data records.

Please report on Canadian biotechnology and nanotechnology activities of your firm for the corporate fiscal year of 2005 unless a specific question indicates otherwise. Complete a separate questionnaire for each company engaged in biotechnology (or nanotechnology) activities in Canada.

Authority

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Confidentiality

Statistics Canada is prohibited from publishing any statistics that would divulge information obtained from this survey that relates to any identifiable business, institution or individual. Data is treated in strict confidence, used for statistical purposes and released in aggregate form only. The confidentiality provisions of the Statistics Act are not affected by either the Access to Information Act or any other Legislation

Federal-Provincial Agreement

In order to reduce respondent burden, to reduce the cost of collection and ensure uniform statistics, Statistics Canada has entered into an agreement with the Institut de la statistique du Québec, under Section 11 of the Statistics Act, where data on firms located or operating in Québec will be transmitted to the Institut de la statistique du Québec. The Institut de la statistique du Québec has the same provision for confidentiality and penalties for disclosure of information as the federal Statistics Act and has the legislative authority to collect this information on their own.

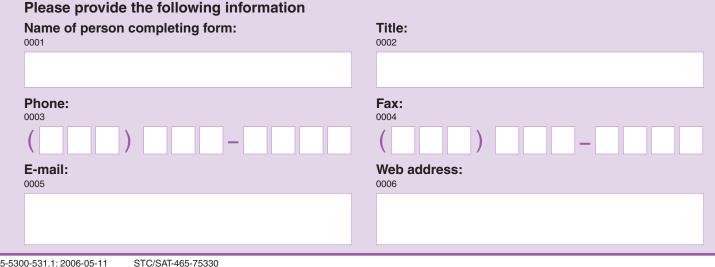
Who should complete this questionnaire?

A knowledgeable senior person in your firm can complete this questionnaire.

Assistance

If you have questions or require assistance please contact Statistics Canada

Telephone: 1-866-894-5474 Fax: 1-888-869-0972 Email: sieidinfo@statcan.ca





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Section 1 – Biotechnologies in Use

This section measures the use of biotechnologies in your firm.

1. Using the table below, please indicate the use your firm makes of each type of biotechnology listed. Check the applicable circle or circles.

	Currently	If currently us	use them for	Number	
Biotechnologies	used / Í in operation	Product/Process development	Current production	Environmental purposes	of years in use
DNA – the coding e.g. Genomics/pharmaco-genetics; Gene probes; DNA sequencing synthesis amplification; Genetic engineering	0100 ¹ Yes ³ No	0101	0102	0103	0104
Proteins and Molecules – the functional blocks e.g. Protein/peptide sequencing/ synthesis; Lipid/protein engineering; Proteomics; Hormones, growth factors, pheromones; Cell receptors signalling	0110 ¹ Yes ³ No	0111	0112	0113	0114
Cell and Tissue Culture, and Engineering e.g. Cell/tissue culture; Embryo manipulation; Tissue engineering; Hybridization; Cellular fusion; Vaccine/immune stimulants	0120 ¹ Yes ³ No	0121	0122	0123	0124
Process Biotechnologies e.g. Bioreactors; Fermentation (excluding beer, bread, cheese and yogurt); Bioprocessing; Bioleaching; Bio-pulping; Biobleaching; Biodesulphurization; Bioremediation; Biofiltration	0130 1 Yes 3 No	0131	0132	0133	0134
Sub-Cellular Organisms e.g. Gene therapy; Viral vectors	0140 1 Yes 3 No	0141	0142	0143	0144
Other Bioinformatics	0150 1 Yes 3 No	0151	0152	0153	0154
Nanobiotechnologies	0160 1 Yes 3 No	0161	0162	0163	0164
Environmental biotechnology	0170 1 Yes 3 No	0171	0172	0173	0174
Other, please specify: 0180txt	0180 1 Yes 3 No	0181	0182	0183	0184

If you use <u>at least</u> one of the biotechnologies listed in Question 1 \rightarrow Go to question 2

If you do not use any of the biotechnologies listed in Question 1 → Go to Section 8 (<u>Nanotechnology</u>) question 26.

Section 2 – Human Resources in Biotechnology			
Concerns have been expressed about the availability of skilled biotechnology er of this section is essential in developing an accurate understanding of human re his survey "Employees" are defined as those workers for whom you completed he 2005 tax year. Include working owners. Do not include students. Only count f '0' (zero) indicate '0'.	sources in biote a Canada Reve	echnology. For the nue Agency T-4	he purpose of statement for
Imber of Biotechnology Employees			
a) How many employees does your firm employ in Canada? Please report typical employment level for 2005		0200	
b) How many employees have biotechnology-related responsibilities? Please report typical employment level for 2005		0201	
c) Employees with full-time biotechnology responsibilities For each group listed below indicate how many are employees with full-tim of their time spent on biotechnology-related activities)? If an employee fulf responsibility. Count each person only once. Please report typical employe	ills more than o	ne duty, report t	
Position		ber of full-tim	e
Scientific Direction/Research	0202		
Technicians	0203		
	0204		
Regulatory/Clinical Affairs	0205		
Production	0206		
Finance/Marketing/Business Development			
Administrative Management	0207		
0208txt Other, please specify:	0208		
		0210	n
Total employees with full-time biotechnology responsibilities	••••••		
 d) Employees with part-time biotechnology responsibilities For each group listed below indicate how many are employees with part-time of their time spent on biotechnology-related activities)? If an employee full responsibility. Count each person only once. Please report typical employment 	ills more than one than one that the second se	one duty, report	their primary
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b) Does your firm have a formal program to train and develop personnel for inter	rnal promotions to senior positions?	
⁰³¹⁰ ³ No		
¹ Yes		
c) Did your firm attempt to recruit any biotechnology employees in 2005?		
0320 ³ No \rightarrow Go to question 5		
¹ Yes → Were you successful?		
0321 ³ No \rightarrow Go to question 3 d)	0322	
¹ Yes \rightarrow How many did you hire?		
	50	
d) Did you attempt to hire biotechnology staff residing outside of Canada in 2005	5?	
$ \overset{\text{O330}}{\longrightarrow} \text{No} \Rightarrow \text{Go to question 4} $		
Yes → In the table below indicate the number of biotechnol If none were hired, please indicate "0".		n;
Region	Number of employees hired	
USA	0332	
Europe		
China	0333	
India	0334	
Asia (evoluting China and India)	0335	
Asia (excluding China and India)	0336	
Other, please specify:		
	0227	
Total employees hired from outside of Canada	0337	
Total employees hired from outside of Canada Please rate the impact of the following factors on your efforts in filling bio Low	otechnology-related vacancies:	High
Please rate the impact of the following factors on your efforts in filling bio Candidate factors Compensation requirements by candidates too high ⁰⁴⁰⁰ 1 Candidates unwilling to relocate ⁰⁴⁰¹ 1	2 3 4 2 3 4 2 3 4	5 5 5
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Please rate the impact of the following factors on your efforts in filling bio Candidate factors 0400 1 Compensation requirements by candidates too high 0400 1 Candidates unwilling to relocate 0401 1 Lack of experience 0402 1 Firm factors 0403 1 Capital/resources insufficient to attract candidates 0403 1 External factors 0404 1 Competition for qualified candidates 0405 1	2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4	5 5 5 5
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7. Is gourfirm a public firm? 0000 1 No A cot o question 8 0701 0000 1 No A cot o question 9 0701 8. a) Has your firm managed with another firm? 000 1 To imcrease the value on the stock market 1 No A cot o question 9 000 1 To gain a competitive advantage by acquiring theorem 9. a) Has your firm accord in the gration 1 To increase in evalue on the stock market 1 To gain a competitive advantage by acquiring theorem of the public market, paced market, paceed market, paced market		
I No + Go to question 8 I No + Go to question 9 I No + Go to question 0 I To increase the value on the stock market I No + Go to question 0 I To increase the value on the stock market I No + Go to question 0 I To increase the value on the stock market I No + Go to question 0 I To increase the value on the stock market I To pain a competitive attendage by acquiring thrapping assesses by point firm. I No + Go to question 10 I No + Go to question 11 I No + Go to question 12	7.	Is your firm a public firm?
 8. a) Has your firm marged with another firm? a) No + Go to question 9 b) What was the main reasons for the merger lake place b) What was the main reasons for the merger? a) I a your firm a canadian owned company? c) To acquire a technological advantage 9. a) Is your firm a Canadian owned company? c) To acquire a technological advantage c) Does your firm A Canadian owned company? c) To acquire a technological advantage c) Does your firm A Canadian owned company? c) To acquire a technological advantage c) Does your firm A Canadian owned company? c) To acquire a technological advantage c) Does your firm A Canadian owned company? c) Wes b) Does your firm A Canadian owned company? c) Yes c) Does your firm A Canadian owned company? c) Yes c) Does your firm A canadian owned company? c) Yes c) Does your firm A canadian owned company? c) Yes c) Does your firm A spin-off is defined as a new firmfore loop to vanisfir and commercialize inventions and technology developed in universities, firms or haber form c) Yes c) Does your firm A spin-off is defined as a new firmfore loop to vanisfir and commercialize inventions and technology developed in universities, firms or haber form c) What your firm A spin-off is defined as a new firmfore loop to vanisfir and commercialize inventions and technology developed in universities, firms or haber form c) Universityhnopilal c) Universityhnopilal c) Order, please specify: d) No 1 O you aver firm currently developing products d) Do you consider biotechnology? f) No 1 Yes f) So your firm currently developing products f		No Go to guestion 8
1		¹ Yes → What year was the Initial Public Offering (IPO)?
 No → Go to question 9 Yes → What year did the merger take place? b) What was the main reason for the morgo? Core 1 To increase the value on the stock market. 2 Vertical integration 3 To increase capacity (financial or other) 4 To acquire a technological advantage 9. a) Is your firm a Canadian owned company? Core 3 No → Go to question 10 1 Yes b) Does your firm have branches outside Canada? Core 3 No → Go to question 10 1 Yes b) Does your firm have branches outside Canada? Core 3 No → Go to question 10 1 Yes core 3 No → Go to question 10 1 Yes core 3 No → Go to question 10 1 Yes core 3 No → Go to question 10 1 Yes core 3 No → Go to question 10 1 Yes core 3 No → Go to question 10 1 Yes core 4 No + Go to question 10 1 Yes core 3 No → Go to question 10 1 Yes core 4 No + Go to question 10 1 Yes core 4 No + Go to question 10 1 Yes core 4 No + Go to question 10 1 Yes core 4 No + Go to question 11 1 Yes core 4 No + Go to question 11 1 Yes core 4 No + Go to question 11 1 Yes core 4 No + Go to question 12 	8.	a) Has your firm merged with another firm?
1 Yes What year did the merger lake place? b) What was the main reason for the merger? Image of products, etc.) that belongs to the other firm 2 Vertical integration 1 3 To increase the value on the stock market 1 2 Vertical integration 1 3 To increase capacity (financial or other) 1 4 To acquire a technological advantage 1 9. a) Is your firm a Canadian owned company? 1 0 2000 a No 2 9. a) Is your firm Acanadian owned company? 0 0 2010 yes Does your firm have branches outside Canada? 0 2011 3 No 1 Yes 10. Is your firm a spin-off? 3 No 1 11 Yes Verson 1 Yes 200 3 No 4 Go to questile fit 1 Yes Was your firm a spin-off for the spin-off is defined as a new firmercellog of variable and commercialize inventions and technology developed in universities, firms ari tabue cores. 200 No 4 Os to questile fit 1		No -> Go to question 9
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No ' Yes Dees your firm conduct R&D outside Canada? ' ' Yes ' Yes ' ' Yes ' ' Yes '		b) Does your firm have branches outside Canada?
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your firm's activities or strategies? If you answered "yes" to any part of question 11 → Go to question 12		

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12. a) In the table below, please indicate the <u>number</u> of biotechnology <u>products</u> or <u>processes</u> your firm currently has for each stage of development in the Human Health Sector. If "0" (zero) please indicate "0".

	Number of biotechnology products/processes by development stage					
Biotechnology Sector	Research &	Pre-clinical	F	Regulatory phas	e	Approved/ On market/
	Development	trials	Phase I	Phase II	Phase III	In production
Human Health						
Diagnostics (e.g. biosensors, immunodiagnostics, gene probes)	1200	1201	1202	1203	1204	1205
Therapeutics (e.g. vaccines, immune stimulants, biopharmaceuticals)	1206	1207	1208	1209	1210	1211
Drug delivery	1212	1213	1214	1215	1216	1217

12. b) In the table below, for each sector listed please indicate the <u>number</u> of biotechnology <u>products</u> or <u>processes</u> your firm currently has for each stage of development. If "0" (zero) please indicate "0".

	Number of biotechnology products/processes by development stage					
Biotechnology Sector	Research & Development	Pre-clinical trials / Confined field trials/ Premarket	Regulatory phase/ Unconfined release assessment/ Final pre-market assessment	Approved/ On market/ In production		
Agriculture Biotechnology						
Plant biotechnology (e.g. tissue culture, embryogenesis, genetic markers, genetic engineering)	1218	219	1220	1221		
Animal biotechnology (e.g. diagnostics, therapeutics, embryo transplantation, genetic markers, genetic engineering, cloning)	1222	1223	1224	1225		
Non-food agriculture – Industrial uses (e.g. fuels, lubricants, commodities and fine chemical feedstocks, cosmetics)	1226	1227	1228	1229		
Non-food agriculture – Pharmaceutical / medical uses (e.g. molecular farming, xenotransplanting)	1230	1231	1232	1233		
Natural Resources						
Energy (e.g. microbiologically enhanced petroleum recovery, industrial bioprocessing, biodesulphurization)	1234	1235	1236	1237		
Mining (e.g. microbiologically enhanced mineral recovery, industrial bioprocessing, biodesulphurization)	1238	1239	1240	1241		
Forest products (e.g. biopulping, biobleaching, biopesticides, tree biotechnology, industrial bioprocessing)	1242	1243	1244	1245		

4

12. b) continued Number of biotechnology products/processes by development stage					
Biotechnology Sector	Research & Development	Pre-clinical trials / Confined field trials/ Premarket	Regulatory phase/ Unconfined release assessment/ Final pre-market assessment	Approved/ On market/ In production	
Environment					
Air (e.g. bioremediation, diagnostics, phytoremediation, biofiltration)	1246	1247	1248	1249	
Water (e.g. biofiltration, diagnostics, bioremediation, phytoremediation)	1250	1251	1252	1253	
Soil (e.g. biofiltration, diagnostics, bioremediation, phytoremediation)	1254	1255	1256	1257	
Aquaculture					
Fish health, broodstock genetics, bioextraction	1258	1259	1260	1261	
Bioinformatics					
Genomics & molecular modelling (e.g. DNA/RNA/protein synthesis and databases for humans, plants, animals and micro-organisms)	1262	1263	1264	1265	
Gene therapy (e.g. gene identification, gene constructs, gene delivery)	1266	1267		1269	
Food Processing		5	0		
Bioprocessing (e.g. using enzymes and bacteria cultures)	1270		1272	1273	
Functional foods/nutraceuticals (e.g. probiotics, unsaturated fatty acids)	1274	1275	1276	1277	
Other, please specify: 1281txt	1278	1279	1280	1281	
Section 5 – Biotechnology	Products Reg	gulations			

Products/processes in R&D

13. a) In 2005, did you have biotechnology products or processes in any stage of research and development (but not yet on market)?

3 (No	→	Go	to	question	14

¹ Yes \rightarrow Go to question 13 b)

1341

b) Of the biotechnology products or processes your firm had in research and development stages (not yet on market) in 2005, how many require formal regulatory evaluation and/or approval by Canadian regulatory authorities?

1310	

1300

1340

Number of products or processes

c) How much has your firm invested (in \$CAD) in research and development of your firm's **principal** biotechnology product or process to date?

\$				
	or your principal biotechnol ents of the regulatory proces	s the total cost (ir	n \$CAD) incurred t	to meet the
1330 \$				

e) In 2005, for your **principal** biotechnology product, what is the total duration of its regulatory process to date? (Include any interval for preparation of materials to be submitted to Canadian regulatory authorities.)

years

months

¹³⁵⁰ ³ No •	Go to ques	tion 14			
1 🔵 Yes •	→ Why? (Mar)	k any that apply)			
1351	R&D show was not w	wed the product/ proce vorthwhile	ess 1356	Differing in regula	tory requirements
1352		al Property considerat	ons 1357	Lack of Canadian	market
1353	Lack of ex	xpertise	1358	Product failed to r requirements	meet company
1354	Regulator	y requirements unclea	1359 ar	Lack of capital	
1355	Moved R	&D to another jurisdict	1360 ion	Other, please spe	ecify:
	<u> </u>		13	60txt	
14. Did your firm attemp	ot to obtain re	gulatory information	and application	forms?	
¹⁴⁰⁰ ³ No	Go to ques				
1Yes •	 What source Please cheeler 	es do you use to acce ck all that apply.	ss regulatory infor	mation and application t	forms?
	Governm	ent	1404	Regulatory consu	Iltants
1401	Federal G	overnment	1405	 Industry associati 	ions
1402	Provincial	Government	1406	Other, please spe	
1403	Bioportal	website (www.bioport	al.gc.ca) ¹⁴	06txt	
	<u> </u>				
15. a) In 2005, did you hav			esses in produc	ction or on the mark	et?
1 ONO	Go to ques			. : ($\gamma \gamma \gamma$
				narket in 2005 how man nadian regulatory author	
	1501		er of products	3	
b) W/bot was the total	time required		cesses	av product or process	from the initial
b) What was the total development phase	/proof of conc	ept stage to market		gy product of process	i nom me miliai
1510 year	1511 S	months	\sim		
c) What was the total	cost (in \$CAI	D) to bring your prin	cipal biotechnol	ogy product or proces	ss from the initial
development phase,	/proof of conc	ept stage to market	?		
\$					
Section 6 – Busine	ss Practice	es			
Contracting Activities					
16. a) Did your firm contra	ct out biotech	nology related activ	ities in 2005?		
¹⁶⁰⁰ ³ No •	Go to ques	tion 16 d)			
¹ Yes •	For each pa	artner type listed below	v, please indicate t	the number and value of	f contracts:
	Number	Total	value of contract	in 2005 by purpose:	(\$CAD)
Organization	of Contracts	R&D	Regulatory/ clinical	Production	Other
CRO (Contract research	1601	1602	1603	1604	1605
organization)	1606	1607	1608	1609	1610
CMO (Contract manu- facturing organization)					
University/Hospital	1611	1612	1613	1614	1615
	1616	1617	1618	1619	1620
Government Lab					
	1621	1622	1623	1624	1625
Other biotech firm					
Other, please specify: 1626txt	1626	1627	1628	1629	1630
Total	1631	1632	1633	1634	1635

f) In 2005, has your firm halted/abandoned the development of a biotechnology-based product in any stage of research or development in Canada?

┥

1640

b) Did contracting out in 2005 replace biotechnology employees in	your firm?
---	------------

³ No \rightarrow Go to question 16 c)

Yes → Please indicate the number of employees replaced for each group listed below:

N	umbei	r of employees replaced
Scientific Direction/Research	1641	
Technicians	1642	
Regulatory/Clinical Affairs	1643	
Production	1644	
Finance/Marketing/Business development	1645	
Administrative Management	1646	
Other, please specify:	1647	
Total number of employees replaced by contracting out activities	1648	

c) Rate the level of importance of each of the following reasons on your decision to contract out.

			I	mportanc	e	
		Low		•		High
Reasons for Contracting Out		1	2	3	4	5
Access outside scientific expertise/knowledge	1650	1	2	3	4	5
Activity area outside core competence of firm	1651	1	2	3	4	5
Faster completion of the work	1652		20	3	4	5
Lower risks to the firm	1653	n	2	3	4	5
Increase your physical capacity (infrastructure, equipments, etc.)	1654	1	2	3	4	5
Cost Reduction Related to:						
R&D activities	1655		2	3	4	5
Regulatory/Clinical Affairs	1656	1	2	3	4	5
Production	1657	1	2	3	4	5
Other, please specify: 1658txt	1050					
	1658	1	2	3	4	5

d) Does your firm provide contract services to other firms or organizations?

)	C)(,		

3

1

Yes > For each type of contract services listed below, please indicate the number of contracts entered into in 2005 and the revenues received from each by type of organization:

	Number of contracts entered into in 2005	Revenues received from this source in 2005
Other biotechnology firm	1661 1662 \$	
Pharmaceutical firm	1663	
Firms other than biotech or pharmaceutical	1665	
University/Hospital	1667 1668 \$	
Government Lab	1669 1670 \$	
Other, please specify: 1671txt		
	1671	
Total	1673 1674	
	· · · · · · · · · · · · · · · · ·	

Collaborative Arrangements

1

Cooperative and collaborative arrangements involve the active participation in projects between your company and other companies or organizations in order to develop and/or continue work on new or significantly improved biotechnology processes, products and/or services. **Pure contracting-out work is not regarded as collaboration.**

17.a) Was your firm involved in biotechnology-related cooperative/collaborative arrangements with other companies or organizations in 2005? (*Please include both those inside and outside of Canada.*)

¹⁷⁰⁰ ³ No → Go to question 18

Yes

 Provide the number of arrangements by purpose and partner type:

		Number of	Arrangements by P	Partner Type	
Arrangement Purpose	Biotech Firm	Pharmaceutical firm	Firm other than biotech or pharmaceutical	Academic Institution/ Hospital	Government lab or agency
To conduct research and development (R&D)	1701	1702	1703	1704	1705
Regulatory affairs	1706	1707	1708	1709	1710
Access others' patents	1711	1712	1713	1714	1715
Production/ manufacturing	1716	1717	1718	1719	1720
Access markets/ distribution channels	1721	1722	1723	1724	1725
Access capital	1726	1727	1728	1729	1730
Access Intellectual Property from partner	1731	1732	1733	1734	1735
Access others' knowledge and skills	1736	1737	1738	1739	1740
Lower expenses	1741	1742	1743	1744	1745
Other, please specify: 1746txt	1746	1747	1748	1749	1750

Collaborations with foreign partners

1

b) In 2005, was your firm involved in biotechnology related cooperative/collaborative arrangements with other foreign companies or organizations (located outside of Canada)?

¹⁷⁵¹ ³ No → Go to question 18

Yes → In the table below, check collaboration/cooperation arrangements by each type and their geographic location:

Partner type	USA	Europe	China	India	Asia (Excluding China and Other India)
Biotechnology firm	1752	1753	1754	1755	1756
Pharmaceutical firm	1758	1759	1760	1761	1762 1763
Firm other than biotechnology or pharmaceutical	1764	1765	1766	1767	1768 1769
Academic Institution/Hospital	1770	1771	1772	1773	1774
Government lab or agency	1776	1777	1778	1779	1780
Other, please specify: 1782txt					
	1782	1783	1784	1785	1786 1787

Reasons for collaborating with foreign partners

c) Rate the following purposes in your decision to form a collaborative/cooperative arrangement with a foreign partner (located outside of Canada).

		Low	Ir	nportanc	е	High
Arrangement Purpose		1	2	3	4	5
Research and development (R&D)	1788	1	2	3	4	5
Regulatory affairs	1789	1	2	3	4	5
Production/manufacturing	1790	1	2	3	4	5
Access international markets/distribution channels	1791	1	2	3	4	5
Access capital	1792	1	2	3	4	5
Access Intellectual Property from partner	1793	1	2	3	4	5
Access others' knowledge and skills	1794	1	2	3	4	5
Other, please specify: 1795txt	1795	1	2	3	4	5

Intellectual Property

18. a) Does your firm have biotechnology related patents or pending patents?

¹⁸⁰⁰ ³ No	→ Go t	o question 1	8 d)							
¹ Yes	➔ How firm	many? Indica	ate the dia t Office:	stribution	of biotechno	ology rela	ated pater	nts an	d pending patents	your
		adian Intelleo roperty Offic (CIPO)		U.S. Pate rademark (USPT	Office	Europ Pate Offic	nt 🛛	Other	r, please specify:	1800txt
Existing Patents	1801		1802		1803			1804	011	
Pending Patents	1805		1806		1807		λ	1808		
Expired patents	1809		1810		1811			1812		
b) Provide the number in:	er of prod	lucts or proc	cesses fo 2004		your compa	any helo		nt (exi	sting or pending)
Number of patented or processes	products	1820			1821	Y				
c) Provide the numb	er of uniq	ue patents a 2004	applicatio	ons subm	nitted by yo 2005		pany and	d the	number granted	in:
Number submitted	1830	2004		1831	2000					
Number granted	1832			1833						
d) Does your firm ha		•••		emarks?						
		o question 1								
' Yes	➔ How	many? Indica	ate the nu	imber of b	001echnolog 2004	-	l tradema	ırks	2005	
	Num	ber of registe	ered	1841	200-	•	1842		2005	
		emarks	otorod	1843			1844			
		ber of unregis marks	stereu							
9. a) Did your firm assig	an or licer	nse biotechr	nology re	elated inte	ellectual pr	operty	(IP) right	s to a	nother firm?	
¹⁹⁰⁰ ³ No		o question 1				1 5	() 0			
1		-		Invanartu	inotrument	listed be		a indi	cate the number o	.f ID
Tes	For erights	s granted by o	country a	nd the tota	al income re	ceived f	rom IP lice	ensin	g in 2005:	"
Intellectual Prope Instrument	erty		umber wi nadian fir		umber with JSA firms		mber with er countr firms		Total Income IP licensing i	
Licensing Agreemer	nt	1901		1902		1903		1904	\$	
Licensing Agreemer Patent Assignment	nt	1901 1905		1902 1906		1903 1907		1904 1908	\$\$	

1914

1915

¹⁹¹⁶ \$

Other, please specify:

1913txt

1913

1

b) What is the total value of th	e intellectual property	y rights assigned v	vhen all conditions ar	nd payments are met?
\$				
What percentage of ¹⁹²¹ that have you received?	%	What is the leng your most signif	th in years of ¹⁹²² icant agreement?	Years
c) Did your firm acquire biote	chnology related intel	llectual property ri	ghts from another firn	n?
¹⁹³⁰ ³ No → Go t	o question 20			
¹ Yes → Plea	se complete the followir	ng table:		
Intellectual Property	Number with	Number with	Number with other country	Cost to your firm of
Instrument	Canadian firms	s USA firms	firms	obtaining IP in 2005
Licensing Agreement			\$	
Patent Assignment	1935	1936 19	¹⁹³⁸ \$	
Technology Transfer Agreeme		1940 194	⁴¹ 1942 \$	
Other, Please Specify: 194	6txt			
	1943	1944 19	⁴⁵ 1946 \$	
d) What is the total value of th	o intolloctual proports	rights acquired w	then all conditions an	d navmont aro mot?
1950	ie interectual property	y nyms acquireu w		a payment are met?
\$				
What percentage of ¹⁹⁵¹ that have you paid?	%	What is the leng	th in years of ¹⁹⁵² icant agreement?	Years
that have you paid?	/0	your most signi	icant agreement?	
Section 7 – Firm Charac	teristics and Fina	ancial Profile		011
Report for fiscal years and in report for Canadian revenues Total Firm Revenues 2000 (all sources)	Canadian dollars. If '0 and research and dev 2004.	2001	ed in Canada. 2005 2002	2007 Forecast
% of revenues from Biotechnology	%	2004	2005	%
Total R&D spending 2006	\$	2007	2008	\$
% of R&D spending on Biotechnology R&D	9 %	2010	²⁰¹	%
Financing activities				
A great deal of attention has foc raising capital. Questions in this facing the biotechnology sector.				
21. a) Did your firm <i>attempt</i> to rai	se capital for biotechr	ology related purp	ooses in 2005?	
2100 3 No \rightarrow Why	not? 2100txt			→ Go to question 21 f)
¹ ◯ Yes ➔ Why	did you attempt to raise	e capital? Indicate e	ach category that applie	es to your firm.
	D purposes/Expand R8	0105	Develop production	on/manufacturing
²¹⁰² Re	epay current investors	2106	capability Commercializatio	n expenses
	ommercialize current R&	D projects 2107	Other, please spe	
	inical/regulatory expense		07txt	Sony.
\bigcirc				
b) Were you successful in rais				
	o question 21 d)	2111	-	
¹ Yes ➔ How	much capital did you ra	ise in 2005?	\$	
		Page 12		5-5300-531.1

	Did yo			,														
-,	2120	3 (No	•	Go to	o que	stion 2	21 d)									
		1 (Yes	→	Go to	o que	stion	21 e)									
d)						ende	er/inv	estor	give in lir	niting c	or refus	ing yc	our req	uest for a	capital	?		
-	Checl	k all t			-		,		-		2135							
		\bigcirc	deve	elope	ed 👘				s not suffic	-		\bigcirc		tainties of				
	2131	\bigcirc		echn cope	ology	y pro	duct li	ine or p	oortfolio lin	nited	2136	\bigcirc	Lende	r does no	t fund c	levelop	ment pro	jects
	2132	\bigcirc		fficie ertise		pecific	c man	ageme	ent skills/		2137	\bigcirc	Other,	please s	oecify:			
	2133	\bigcirc	Сар	ital n	ot av	/ailab	ole due	e to ma	arket condi	tions	2	137txt						
	2134	\bigcirc			orodu requi		evelop	oment c	or proof of									
e)	What	sour	ces	prov	ided	l funo	ding?	%	of total rai n each sou								of total m each s	
	Cana	dian-	has	ed v	ontu	reca	anital	2140		%	Priv	ato nl	acome	nt		2147		
	Juna	aiun-	200		ontu		aprial	2141	L		IPO	•	asonic			2148		
	Amer	ican-	base	ed ve	entu	re ca	apital			%			bic Off	ering)				
	Europ	bean-	bas	ed v	entu	ire ca	apital	2142		%	SPC (Sec		ary Pub	lic Offer	ing)	2149		
	Ventu count							2143		%				rangeme		2150		
	Debt							2144								2151		
	(such			loar	ns).			0145		%	Oth 2151t		ease sp	becify:			S	
	Ange	l Inve	stor	s/Fa	mily			2145		%				+		U		
	0																	
		rnmo	nt c	ouro	00			2146		%	Tota	al = 10	00%	λ		2152	10	0
f)		rnme ou pla ³ (n or		sing	capi	tal in	2146 2006 stion 1		%	Tota	al = 1 (00%	3.		2152	10	C
f)	Do yo	ou pla	n or	n rais	sing →	capi [:] Go to	tal in o que	2006 stion do you		O aise?	n	a) = 10 3 4	\$	5,000,000 \$10,000,				C
x In	Do yo	ou pla ³ (¹ (n or	n rais No	sing →	capi [:] Go to How	tal in o que much 1	2006 stion do you	22 u plan to ra < \$1,000,0	O aise?	n	3	\$	5,000,000				C
x In	Do yc 2160	ou pla ³ (¹ (ives 05, di	n or	n rais No Yes D Dur fi	sing → → V	capi Go to Plow 2161	tal in o que much 1 2 r for b	20061 stion : do you	22 u plan to ra < \$1,000,0	aise?	00,000	3 4) () () >	5,000,000 \$10,000,	000	000,00	0	
x In	Do yc 2160	ou pla ³ (¹ (ives 05, di	n or	n rais No Yes D Dur fi	rm a elopn	capi ^a Go to How 2161	tal in o que much 1 2 for b (SR& much	20061 stion 1 do you do you	22 u plan to ra < \$1,000,000 \$1,000,000 \$1,000,000 \$1,000,000 \$1,000,000 \$1,000,000	o aise? 0 – \$500 echnolo um?	00,000	3 4) () () >	5,000,000 \$10,000,	000	000,00	0	
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x In	Do yo 2160 Tcent In 200 Expen	ou pla ³ (¹ (ives 05, di	n or	n rais No Yes Our fi Deve Yes	rm a elopn	capir Go to How 2161 Apply nent How apply How recei	tal in o que much 1 2 for b (SR& y for in y for in y for in y for in	20062 stion 2 do you do you enefits &ED) to did you	22 u plan to ra < \$1,000,000,000 \$1,000,000,000 \$1,000,000,000,000 \$1,000,000,000000 \$1,000,000,000,000 \$1,000,000,000,0000 \$1,000,000,000,000 \$1,000,000,000,000,000,000,000 \$1,000,000,000,000,000,0000,0	o echnolo m?	00,000	3 4) () () >	5,000,000 \$10,000,	000 he Scie	000,00 entific I	0	ch an
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x In	Do yo 2160 Tcent In 200 Expen	ives 1 05, di 1	n or	n rais No Yes Our fi Deve Yes No 2203 2204	rm a elopn	capii Go to How 2161 2161 Apply nent How recei Why Tin of Ur Ur	tal in o que much 1 2 for b (SR& much ve in 2 not? me / (applic ncerta	20062 stion 2 do you do you enefits &ED) t did yoo 2005? Cost / C cation p inty of	22 u plan to ra < \$1,000,000 \$1,000,000 s for biote ax progra ou 220 ou 220 complexity process eligibility	0 aise? 0 - \$500 echnolo um? 0 ¹ \$ [0 ² \$]	2205txt	3 4 ted ac Please met by	ctivities	5,000,000 \$10,000, a under the under the eligi rm:	000 he Scie ➔ Go	000,00 entific I to que	0 Researc	ch an
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x In	Do yo 2160 Acent In 200 Expen 2200	ou pla 3 (1 (ives 05, di 1 (3 (n or	No Yes Our fi Deve Yes No 2204 2205	sing + (+ (+ (+ (+ ()))) + (+ ())) + ()) + (capi Go to How 2161 2161 Apply 2161 How recei Why Tin of Ur Ur Dir rec	tal in o que much 1 2 for b (SR& much ve in 2 not? me / (applic ncerta d not quirer	20062 stion 2 do you do you enefits &ED) t a did yoo 2005? Cost / C cation p inty of meet e ments	eligibility	0 aise? 0 cchnolo um? 0 ¹ \$ 0 ² \$ 22006 2	2205txt	3 4 ted ac Please met by Other,	ctivities	5,000,000 \$10,000, a under the under the eligi rm:	000 he Scie ➔ Go	000,00 entific I to que	0 Researc	ch an
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-	Do yo 2160	ou pla ³ (¹ (ives ¹ (³ (³ (³ (¹ ())))))))))))))))))))))))))))))))))))	n or	n rais No Yes Our fi Deve Yes No 2203 2204 2205 Pply Yes No	rrm a elopn elopn	capi Go to How 2161 How 2161 How recei Why Tir of Ur Dir rec any p Why Why Copro	tal in o que much 1 2 for b (SR8 much y for in much y for in much y for in much y for in much y for in much y for p in applic ncerta d not quirer provir	20062 stion 2 do you enefits ED) t a did you 2005? Cost / C cation p inty of meet e ments ncial F ou not a stity of	22 u plan to ra < \$1,000,000 \$1,000,000 s for biote ax progra u 220 220 Complexity process eligibility eligibility eligibility eligibility apply? applicatior	O aise? O cchnolo Im? D ¹ \$ 2 2206 2 2206 2 2 2206 2 2	2205txt cr incen	3 4 ted ad Please met by Other, ntive?	specific please	5,000,000 \$10,000, a under the y the eligitrm: specify:	000 he Scie → Go bility re	000,00 entific I to que	0 Researce	ch an 3 wasn'
x In	Do yo 2160	ou pla ³ (¹ (ives ¹ (³ (³ (³ (¹ ())))))))))))))))))))))))))))))))))))	n or	n rais No Yes Our fi Deve Yes No 2203 2204 2205 2204 2205 Yes No 2301 2302	rrm a elopn elopn	capii Go to How 2161 How 2161 How receiv Why Tir of Ur Dir rec any p Why Copro	tal in o que much 1 2 for b (SR& much y for in much y for in much y for in much y for in much y for in much y for in applic ncerta d not quirer provin did yc ocess ncerta	20062 stion 2 do you energits ED) t did you 20052 Cost / C cation p inty of meet energits cation p inty of meet energits cation p inty of meet energits cation p inty of meet energits cation p inty of inty of inty of inty of	22 u plan to ra < \$1,000,000 \$1,000,000 s for biote ax progra u 220 200 200 200 200 200 200 200	O aise? O cchnolo Im? O 2 2206 2 2206 2 2 2206 2 2 2006 2 2 2006 2 2 2006 2 2 2006 2 2 2006 2 2 2006 2 2 2 2	00,000 gy rela 2205txt 2206txt pr incen	3 4 ted ad Please met by Other, ntive?	<pre>specif / your fi please e specif / your fi</pre>	5,000,000 \$10,000, a under the y the eliging rm: specify: y the eliging rm:	000 he Scie → Go bility re	000,00 entific I to que	0 Researce	ch an 3 wasn'
x In	Do yo 2160	ou pla ³ (¹ (ives ¹ (³ (³ (³ (¹ ())))))))))))))))))))))))))))))))))))	n or	No Yes Our fi Deve Yes No 2203 2204 2205 2204 2205 Ppply Yes No 2301	rrm a elopn elopn	capii Go to How 2161 How 2161 How receiv Why Tir of Ur Dir rec any p Why Copr Ur Dir cont Tir of Dir trec Tir of Dir trec Tir of Dir trec Tir Dir trec Tir Dir trec Tir Dir trec Tir Dir trec Tir Dir trec Dir trec Tir Dir trec Tir Dir trec Tir Dir trec Tir Dir trec Tir Tir Tir Trec Tir Tir Trec Tir Tir Trec Tir Tir Tir Trec Tir Tir Tir Trec Tir Tir Tir Tir Tir Tir Tir Tir Tir Tir	tal in o que much 1 2 for b (SR& much y for in much y for in much y for in much y for in much y for in applic ncerta d not quirer provin did yc ocess ncerta	20062 stion 2 do you energits ED) t did you 20052 Cost / C cation p inty of meet energits cation p inty of meet energits cation p inty of meet energits cation p inty of meet energits cation p inty of inty of inty of inty of	22 u plan to ra < \$1,000,000 \$1,000,000 s for biote ax progra u 220 220 Complexity process eligibility eligibility eligibility eligibility apply? applicatior	O aise? O cchnolo m? O 2 2206 2 2206 2 2 2206 2 2 2304	00,000 gy rela 2205txt 2206txt pr incen	3 4 ted ad Please met by Other, ntive?	<pre>specif / your fi please e specif / your fi</pre>	5,000,000 \$10,000, a under the y the eligitrm: specify:	000 he Scie → Go bility re	000,00 entific I to que	0 Researce	ch an 3 wasn'

Imports and Exports

24. Did your firm export biotechnology products?

2400 3

1

Please complete the following table. Report for fiscal years and in Canadian dollars. If '0' (ZERO) please indicate, do not leave blanks. Please only report for exports from Canada. Yes 🗲

		2004	1		2005	5	Forecast for 2007		
Total Exports Revenues (all sources)	²⁴⁰¹			²⁴⁰² \$			²⁴⁰³ \$		
% export revenues for Biotechnology	2404		%	2405		%	2406		%
Regional distribution of revenues from biotechnology exports		2004			2005			ecast for 2	007
% export revenues from US	2407		%	2408		%	2409		%
% export revenues from Europe	2410		%	2411		%	2412		%
% export revenues from China	2413		%	2414		%	2415		%
% export revenues from India	2416		%	2417		%	2418		%
% export revenues from Asia (excluding China and India)	2419		%	2420		%	2421		%
% export revenues from other regions	2422		%	2423		%	2424		%
Total = 100%	2425		%	2426		%	2427		%

25. a) Did your firm import biotechnology products?

1

2500 3 No Go to question 26

¹ Yes → Please complete the following table. Report for fiscal years and in Canadian dollars. If '0' (ZERO) please indicate, do not leave blanks. Please only report imports to Canada.									
		200	4		2005	+1		Forecast f	or 2007
Total Import Expenditures (all sources)	²⁵⁰¹ \$			2502	2	28	⁵⁰³ \$		
% import expenditures from Biotechnology	2504		%	2505		%	506		%
Regional distribution of expenditures 2004 2005 Forecast for 2007									
% import expenditures to US	2507		%	2508		%	509		%
% import expenditures to Europe	2510		%	2511		%	512		%
% import expenditures to China	2513		%	2514		%	515		%
% import expenditures to India	2516		%	2517		%	518		%
% import expenditures to Asia (excluding China and India)	2519		%	2520		%	521		%
% import expenditures to other regions	2522		%	2523		%	524		%
Total = 100%	2525		%	2526		%	527		%

b) In 2005, what were the main intended end-use of the biotech products imported by your firm into Canada? Please rate the importance of each intended end-use of your imported biotechnology products:

	Low		importan	ce	High		
End-use	1	2	3	4	5		
Resale as final product	2530 1	2	3	4	5		
Use as intermediary product or raw material in:							
Seeding and Planting	2531 1	2	3	4	5		
Feed/food use	2532 1	2	3	4	5		
Veterinary Biologics	2533 1	2	3	4	5		
Drug/pharmaceutical	2534 1	2	3	4	5		
Other, please specify: 2535txt	2535 1	2	3	4	5		
Other end-use, please specify: 2536txt	2536 1	2	3	4	5		

c) In 2005, how many imported biotech products required regulatory evaluation and/or approval by Canadian regulatory authorities?

Number of imported products or processes

2540

Section 8 – Nanotechnology								
Purpose:								
Definition:								
	26. In 2005 was your firm developing, using or planning to use nanotechnology? (Please refer to the list below and check all that apply.)							
2600	0 3 No \rightarrow Go to ques	tion 32						
	¹ Yes	and 1	Research Development	In productio on market				
	nophotonics	260	\bigcirc	2605	2606			
Nai			7					
Nai	nobiotechnology	260 261	\bigcirc	2608	2609)		
Nai	nomedicine)		
Nai	nomaterials			2614	2615			
Qu	antum Computing	. 261	6	2617	2618)		
Sel	f Assembly	261	9	2620	2621			
Inst	trumentation Development	. 262	2	2623	2624			
Oth	ner, please specify: 2625txt	262	5	2626	2627			
						n		
lf y (tha	ou are developing or using <u>at l</u> at is, you checked at least one na	least on inotechn	e of the nanotechn ology in either the fi	ologies listed in rst column "In Res	Question 26 search and	Go to question 27		
Dev	velopment" or the second column	"In proc	luction/on market" in	the grid above)				
	ou are not developing or using nanotechnologies listed in Qu			ion 9 (St <mark>rat</mark> egies 2	Used in 2005)			
		the nanotechnologies listed in Question 26. Question 32						
Revenues and Research and Development (R&D) Expenditures								
27. Ple	ase complete the following a	ble. If in	formation is not a	vailable please p				
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29.	Does your firm have alliances or collaborative arrangement $\frac{2900}{3}$ No. 1 Via D With whem? Charle all the	
	²⁹⁰¹ Nanotechnology incubators	
	²⁹⁰² Other nanotechnology firm	
	2903 Other firms	²⁹⁰⁸ Other, please specify:
	²⁹⁰⁴ Federal government	2908txt
	2905 Provincial governments	
30.	Did your firm attempt to raise capital for nanotechnology projects?	2
	3000 3 No 1 Yes \rightarrow Were you successful?	
	³⁰⁰¹ ³ No	3002
	¹ Yes – How much capit in 2005 for pape	al did you raise technology purposes? \$
21 0		
31. a	Does your firm possess any nanotechnology related intelle 3100 3 No \rightarrow Go to question 32	ctual property instruments?
	¹ Yes	
b	Please indicate for each Intellectual Property instrument the	e number vour firm held in 2005.
	If "0" please indicate "0".	·
	3110 Patents 3112 Licensing Agreem	ents 3114 Other, please specify:
	3111 Pending 3113 Technology Transfer Patents Agreements	er _{3114txt}
Se	ction 9 – Strategies Used in 2005	
32.	Please rate the significance of each of the following strateg	ies on your firm's performance in 2005
•=-		Low High
	Knowledge development strategies Captured and used knowledge obtained from other industry	1 2 3 4 5
	sources such as industry associations, competitors, clients and suppliers	3200 1 2 3 4 5
	Captured and used knowledge obtained from public research	3201 1 2 3 4 5
	institutions including universities and government laboratories .	
	Developed new knowledge through collaborative arrangements with other firms or organizations	3202 1 2 3 4 5
	Used and updated databases of scientific information	3203 1 2 3 4 5
	Developed firm policies and practices for knowledge/ intellectual property protection	3204 1 2 3 4 5
	Developed/encouraged staff education/upgrading	3205 1 2 3 4 5
	Conducted an Intellectual Property Audit to ensure protection	3206 1 2 3 4 5
	of products and processes at all stages of development	
	Business strategies	3207 1 2 3 4 5
	Increased firm size through acquisition, merger or joint venture	3208 1 2 3 4 5
	Downsized operations of the firm	
	Provided products or services to other firms based on interim or incremental R&D discoveries to generate revenue flow	3209 1 2 3 4 5
	Entered product trials/adapted products or processes for	3210 1 2 3 4 5
	increased market penetration	
	Began new research & development project	3211 1 2 3 4 5
	Expanded into foreign markets	3212 1 2 3 4 5
	Other, please specify: 3213txt	3213 1 2 3 4 5
33.	Approximately, how many hours did you spend collecting th	e data and completing this questionnaire?
	3300	

hours

Thank you for your assistance. Please return the questionnaire in the accompanying prepaid return envelope.

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