

Bellus
HEALTH

The Canadian Biotechnology Industry

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Réseau Capital “Horizon 2010: Anticipating Change”

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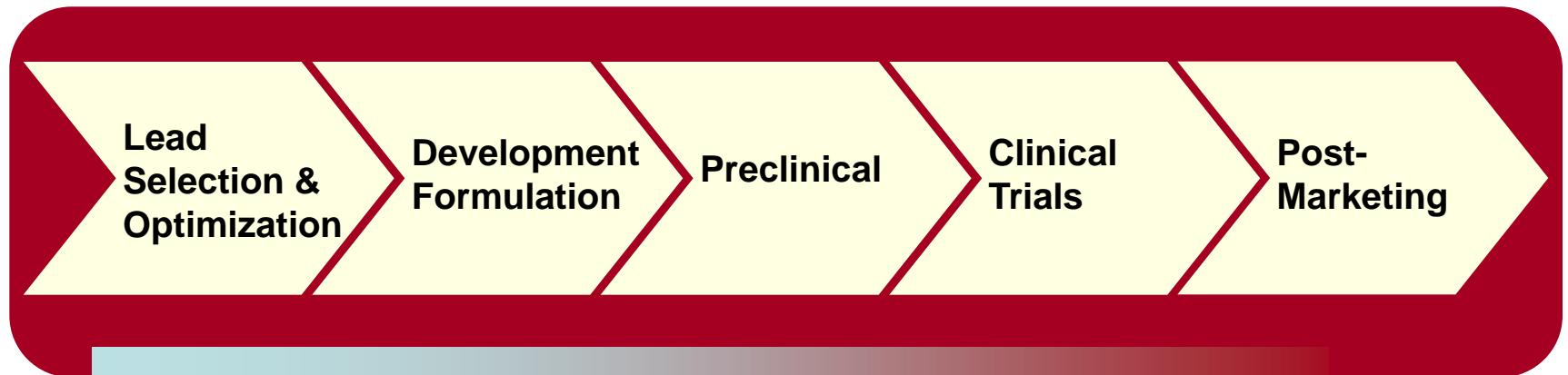
Today I will take you through an historical path of once an extremely successful Canadian biotechnology industry and highlight the strong and weak points of that sector.

HealthCare Sector – Introduction

- **Composed of the pharmaceutical and biotechnology industries**
 - Embraces all the goods and services designed to promote health
 - Applicable to diagnostics, therapeutics, personalized & regenerative medicine and vaccines
- **Large players include:**
 - Pharmaceutical companies such as Merck, AstraZeneca, and Eli Lilly
 - Biotechnology companies such as Amgen, Genentech, Genzyme and Gilead
- **A sector characterized by a history of lucrative successes, challenges and the need of immense sources of capital**

HealthCare Sector – Introduction *(cont'd)*

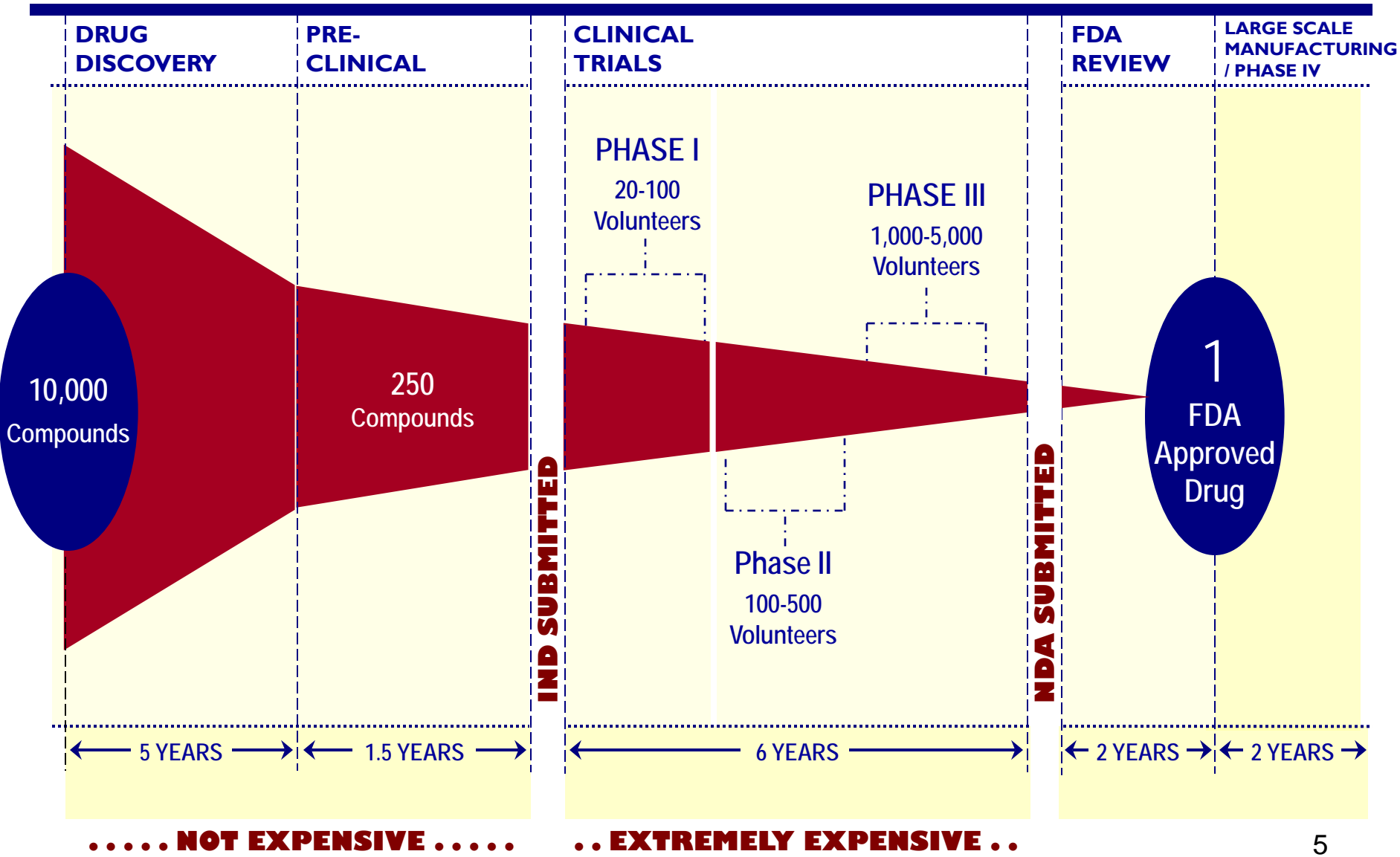
- Large pharmaceutical and biopharmaceutical companies normally have the structure to be successful at completing the long cycle of drug development
 - From discovery to the commercial phase: > 16 years



- Cost is exorbitant: > \$1 billion per drug

Drug Development Life Cycle

Risky with Very Few Succeeding



HealthCare Sector – Two Categories

A. Pharmaceuticals – The Giants

- The first players in the field were the pharmaceutical companies
 - Characterized by large market capitalization, vertical integration, heavy international presence, and reliance on sales and marketing
 - Due to their size, however, characterized by many inefficiencies such as bureaucracy and lack of innovations

Company	Market Cap	Sales	R&D	Net Income	LT Growth
Pfizer	\$213.5	\$51.4	\$7.1	\$8.0	12%
Glaxo	124.8	39.5	5.1	8.1	10%
Merck	68.9	23.0	3.2	6.6	2%
AstraZeneca	68.0	20.0	3.5	3.1	4%
Eli Lilly	58.9	13.5	2.4	2.5	10%

In US Dollars (billions)

**When a System is too Big,
it Fails – A New Sector was Born**

A new breed of companies overtook the healthcare space

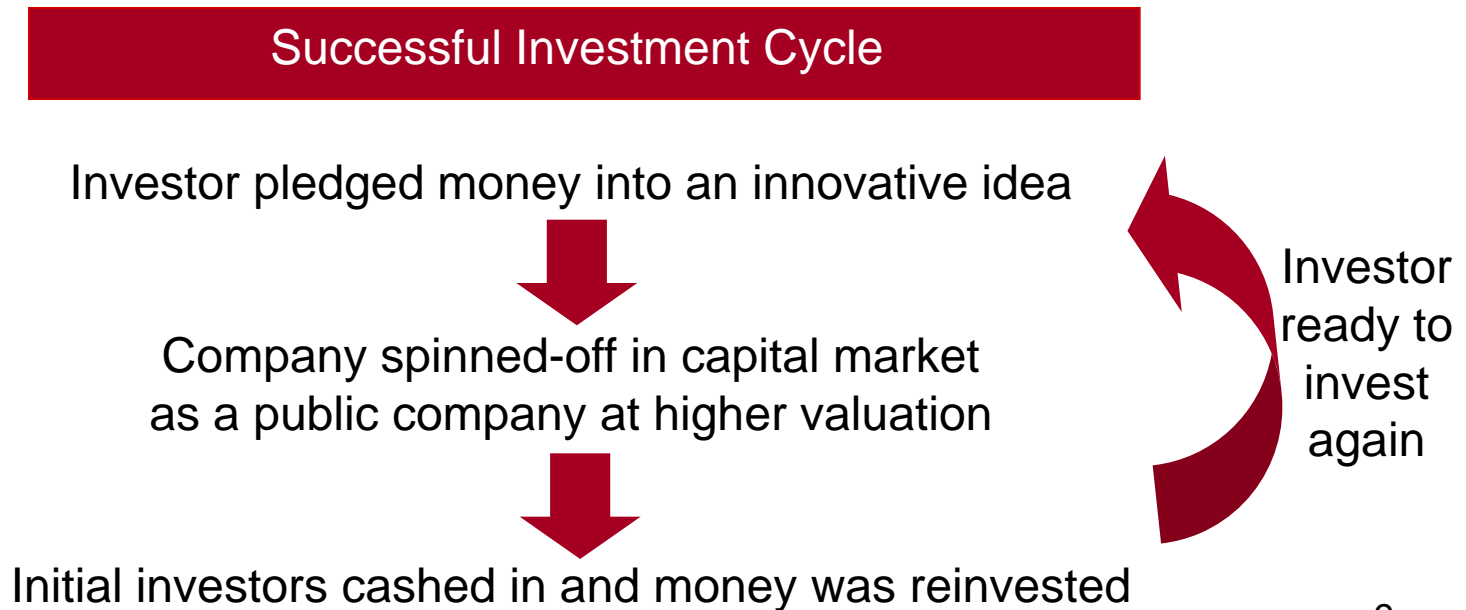
HealthCare Sector – Two Categories

B. The Biotechnology Companies

- Arose in the 60's
- An era of stamina and excitement characterized by:
 - Innovations
 - Entrepreneurship
 - Visionary & patient investors
- Biotech companies were not successful at first at bringing products to market
 - Frequent failure of their first product candidate
- With patient and knowledgeable shareholders, the sector persevered and succeeded into multi-billion dollar companies which were eventually stand-alone or sold to or merged to large pharmaceutical companies with very large profits for their shareholders

The Birth of Biotechnology Companies in Canada

- In Canada, the first companies were created in the 80's
- West Coast – QLT / East Coast - Biochem Pharma
(still in existence) / (sold for \$6 Billion in 2000)
- Initially the investment cycle into biotech sector was straightforward and very successful:



From Such an Excellent Start, Why Have We Failed to Build a Biotech Industry in Canada? Many Reasons...

Broken Investment Cycle

Lack of knowledgeable investors within this sector,
more speculators than investors



Professional stock players came into play when
companies tried to raise capital on their 2nd or 3rd rounds



VC investors were not able to recuperate their initial capital
nor making profit – essentially placed in an ill-liquid position

Broken
cycle of
investment

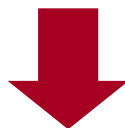
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In Canada Broken Cycle Continues

Investors sold companies to pharmaceuticals rather than growing the company by going public



Other companies merged or folded



Market eventually crashed



Shareholders disappeared from the field
'in mass quantities'



An already weak sector almost vanished

The Biotech Sector Became Very Weak Again, for Many Reasons...

- Failures of some clinical trials
- The best companies sold at early stage (e.g. Virochem to Vertex, Anormed to Genzyme)
- Investors losing their constructive perspectives towards the financial health of biotech companies
 - Technically drove the companies into financial difficulties
- IPOs became less frequent

IPOs – Not What They Used to Be

	Number of IPOs	Positive since IPO	Negative since IPO	Acquired or delisted	Amount Raised* (\$ Million)	Average Δ % change Since IPO**
2003	7	0	2	5	\$438	(96%)
2004	29	4	14	11	1,628	(26%)
2005	17	2	8	7	819	(43%)
2006	19	5	11	3	920	(18%)
2007	28	2	24	2	2,041	(47%)
2008	1	0	1	0	6	(79%)
Total	101	13	60	28	5,852	(51%)

Source: Burrill & Company

* Includes over-allotments
** As of December 2008

Canada 2009: the Situation is Brutal

- Many companies have been decimated
- Most of those surviving have less than 1 year of available cash on top of having no choice but to dramatically cut their development activities

Company	Symbol	Avg Q loss	F2008 cash	Months of cash	Lead program
Active Biotech	ACTI	\$7.3	\$16.2	6.7	Anyara in Phase III for RCC; lariquinimod in Phase III MS trial
Adherex	AHX	\$3.5	\$5.3	4.6	Phase III STS trial in Pt-induced hearing loss
Adventrx	ANX	\$7.5	\$9.9	3.9	Vinorelbine emulsion completes bioequivalency trial; NDA filing
Aeterna Zentaris	AEZ	\$15.6	\$49.7	9.6	Phase III cetorelix/prostate cancer data expected in Q3/09
Alizyme	AZM	\$4.3	\$3.2	2.2	Cetilistat in Phase III obesity trial; partnered with Takeda
Altus	ALTU	\$25.8	\$48.6	5.7	Trizytec lipotamase in Phase III pancreatic insufficiency trial
Ambrilia	AMB	\$3.7	\$8.3	6.7	Octreotide Phase III acromegaly data available
AP Pharma	APPA	\$3.8	\$10.5	8.3	Granisetron in Phase III chemo-therapy-induced nausea trial
Avax	AVXT	\$1.8	\$0.3	0.6	M-Vax melanoma vaccine in Phase III
BioMS	MS	\$15.1	\$90.4	18.0	Two Phase III SPMS trials testing peptide drug dirucotide
Cardiome	COM	\$12.1	\$97.1	24.1	Merck partnership will reduce burn and adds US\$60M to cash
Emisphere	EMIS	\$7.7	\$7.5	2.9	Oral calcitonin in Phase III osteoporosis-osteoarthritis trial
Introgen	INGN	\$6.2	\$6.3	3.0	Advexin under EU review for H&N cancer
Isolagen	ILE	\$4.9	\$7.0	4.3	Isolagen cellular therapy for facial wrinkles in Phase III
La Jolla	LJPC	\$16.9	\$26.1	4.6	Riquent in Phase III for lupus; negative results in Feb/09
Migenix	MGI	\$0.8	\$1.0	3.8	Negative Phase III data for Omigard reported in Q1/09
NexMed	NEXM	\$2.0	\$5.9	8.9	Vitaros (ED drug) negatively reviewed by FDA in Jul/08
Opko	OPK	\$7.6	\$14.6	5.8	Bevasiranib in Phase III AMD trial
Theratechnologies	TH	\$10.8	\$71.8	20.0	Tesamorelin NDA filing expected in Q2/09
Transition	TTH	\$6.8	\$55.8	24.8	Large well-designed Phase II Alzheimer's trial
Willex AG	WL6	\$7.5	\$21.3	8.5	Rencarex in Phase III RCC trial; partnered with UCB in Jan/09

What Went Wrong in Canada?

- Financially, we invested an excessive amount of funds in start-up companies with inexperienced management instead of investing to reinforce strong pre-existing companies
- Then, some VCs which were initially created by provincial governments almost completely cut-off their investments instead of investing in times when capital markets were weak
- Canada research tax credits privileged small private start-ups or large pharmaceutical companies and remained unavailable to the non-profitable public companies
- Finally, a controversial deduction on interest rate hit the Quebec taxpayers

Why is the Canadian Biotech Business Case still Valid?

- Canada fosters top-tier medical researchers – highly qualified and competent scientists
- The world population is aging, including in Canada
- Many diseases have yet to be conquered
- Pharmaceutical companies are running out of patent protection and they need innovative products to strengthen their pipeline
- We need an outlet for our graduating students to go to after graduating

What Can Be Done?

- Private investors and Canadian funds are not going to put up the capital because they were badly burned in the past in the biotech field
 - Currently, they mostly invest in the mining and oil & gas industries
 - The persisting lack of knowledge within investment community about biotech industry is not helping
- In order to reverse this trend, the government has to intervene

What Can Be Done? *(cont'd)*

- Currently, Canadian tax credits are not working:
 - It is mostly directed towards basic research (small companies doing only basic research) and it facilitated large multi-national pharmaceutical companies to write down this research tax credit against their profit
 - Reimbursements remain in the hands of some analysts' subjective analysis who do not have any understanding of what R&D is all about

What Can Be Done? *(cont'd)*

- In the 60's and 70's the government had played an active role in the fields of mining and oil & gas exploration
- As a result the government provided large tax advantages to private investors to inject money in this sector and those efforts paid off. They included:
 - Flow-through shares
 - Limited partnerships
 - Etc...
- Today, and if not too late, such a strategy should be applied to R&D and this should help the revival of the biotech sector

Conclusion

Canada does not spend sufficiently in R&D

- In 2008, Canada spent 1.7% of its gross domestic expenditures in R&D
 - Most of the money was spent in basic research
- The only companies that were investing in order to bring these ideas to market were the entrepreneurial biotech companies
- Canada is in the process of losing the majority of them within the next 12 to 24 months if something is not done
- Private investors are the answer but they have to be rewarded for the risk they are willing to take

R&D incentive should target both private and public companies with emphasis on development

Conclusion

- Government should be increasing the size and ramifications of certain of its agencies such as IRAP to not only finance the discovery but also the development programs
 - Lately, some agencies have also been financing some marketing and patent expenses but not yet to the level required
- The government should change its approach in how to develop this field of the future by making development a priority

Only with the right incentives can the biotech sector be saved

Canada is a Great Place for Science

- In Canada, we have some of the best research facilities and some of the greatest minds in the world
- However, it is in desperate need of people and funds to take the ideas to market
- The Canadian Government should make it easier for foreign investors to invest into Canadian companies – they should make it attractive for Canadians to invest in this business
- It is a risky business which takes patience, know-how and understanding but at the end – **THE RETURN CAN BE ENORMOUS**