

A systemic approach to biomedical innovation in Brazil

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2nd Annual
Global Forum on
**INNOVATION,
CREATIVITY,
AND INTELLECTUAL
PROPERTY**
FEBRUARY 26-27, 2008
MUMBAI, INDIA

**Topic: Developing New
Treatments and Cures: The
Role of Innovation**

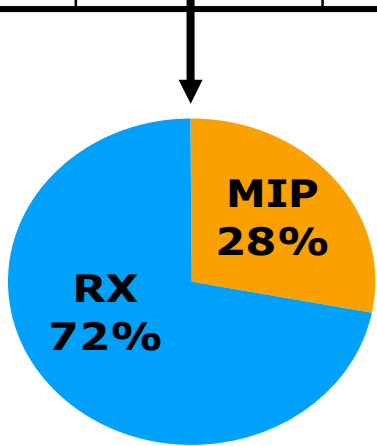
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Nature for Life

General highlights for a better context

- **Investment grade approaching Brazil in 2008/09**
- **Brazilian pharma sector is facing strong consolidation**
 - **Brazilian companies planning IPOs in 2008/09**
 - **Stronger signs of more M&As for 2008/09**
 - **Equity and strategic investors studying the sector**
 - **Growth potential is undermining valuations**
- **Brazilian companies are desperately looking for new products**
 - **R&D and in-licensing**

Brazilian Pharma Market

Market	Mar'07 US\$ Billions	Growth Mar'07 vs Mar'06			Growth CAGR Mar'07 vs Mar'03		
		US\$	R\$	Units	US\$	R\$	Units
TOTAL	10.2	19,4%	11,3%	4,8%	24,0%	13,0%	3,4%
RX	7.3	18,7%	10,7%	3,9%	24,0%	13,0%	3,8%
MIP	2.9	21,2%	13,0%	6,4%	23,9%	13,0%	2,6%



19,4% in US\$
11,3% in R\$
4,8% in Units

Source: IMS – PMB MAT March 2007

Ranking Top 10

Rank		Company	US\$B Mar'07	Evolution index	RK Position		
'05	'06				RX	MIP	GEN
			\$ 10,199,9	100.0			
1	1	Sanofi-Aventis	666,8	98	3	1	-
3	2	EMS Sigma-Pharma	657,3	119	6	7	2
2	3	Ache	590,6	88	2	13	4
6	4	Medley	523,9	133	23	35	1
5	5	Novartis	448,8	101	1	-	-
4	6	Pfizer	435,8	91	4	15	-
7	7	Eurofarma	336,5	116	7	28	3
8	8	Boehringer Ing	287,9	97	16	4	-
9	9	Schering do Brasil	263,3	96	5	50	-
10	10	Janssen Cilag	253,1	99	14	8	-
Top 10			\$ 4,458,4	-	-	-	-

Source: IMS – PMB MAT March 2007

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A long-lasting challenge...

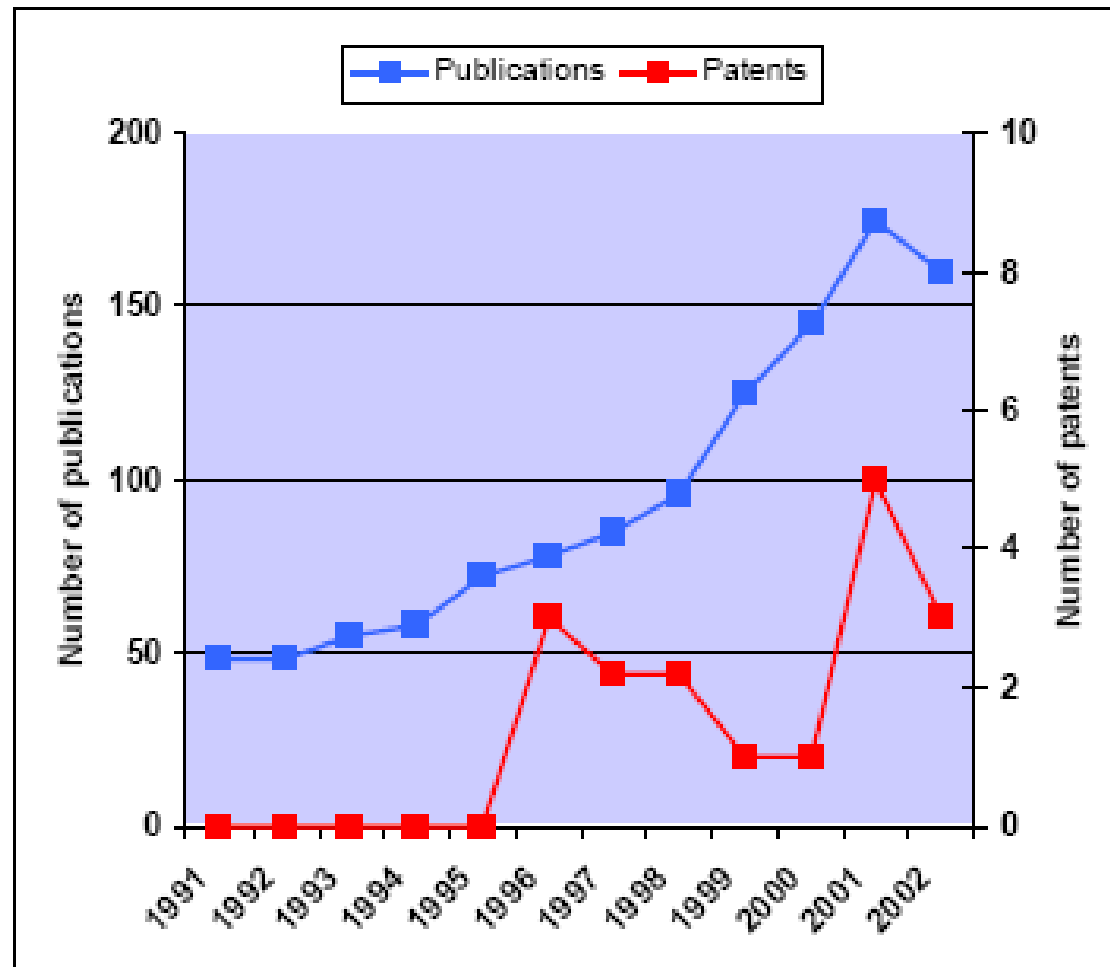
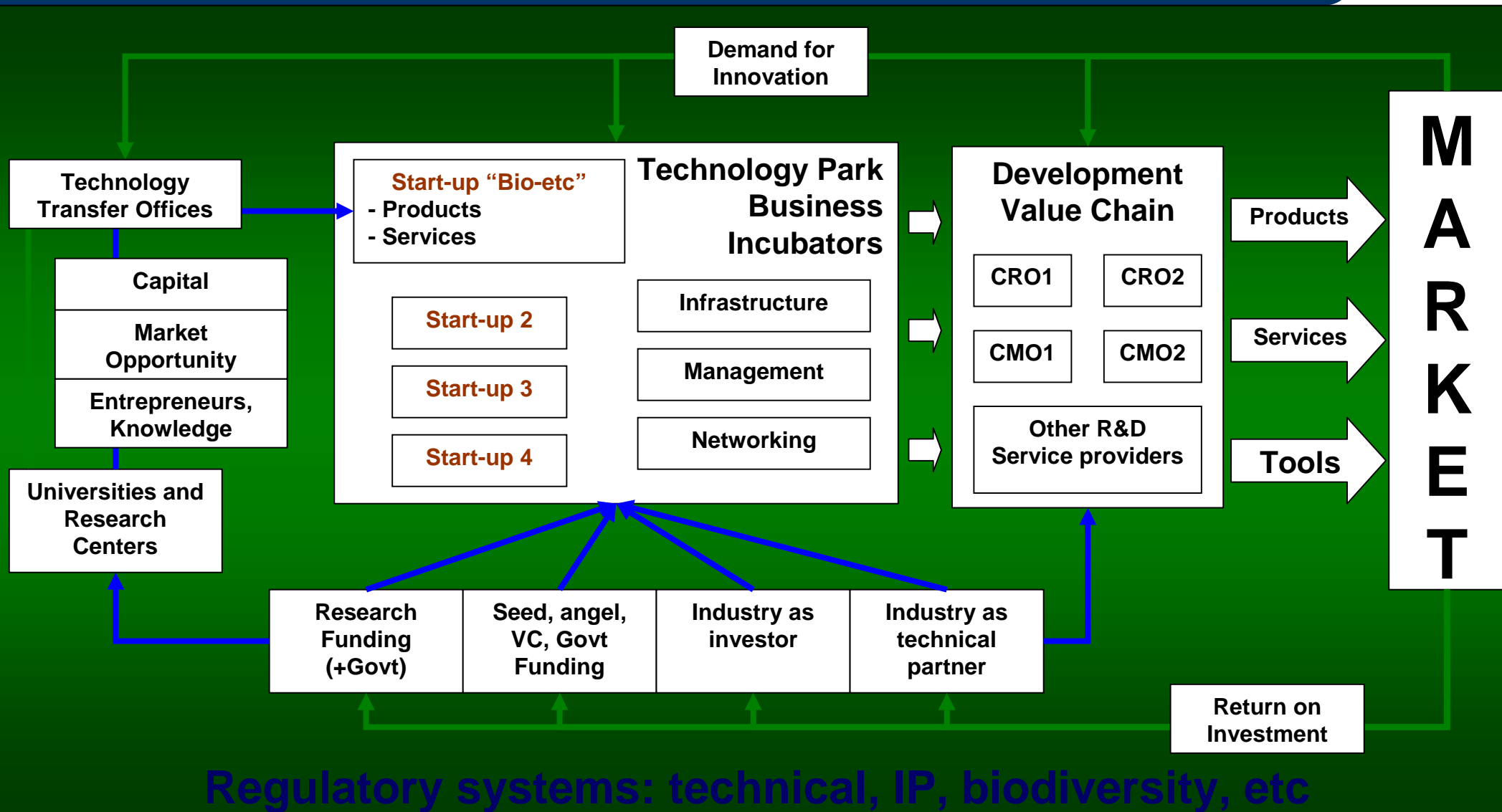
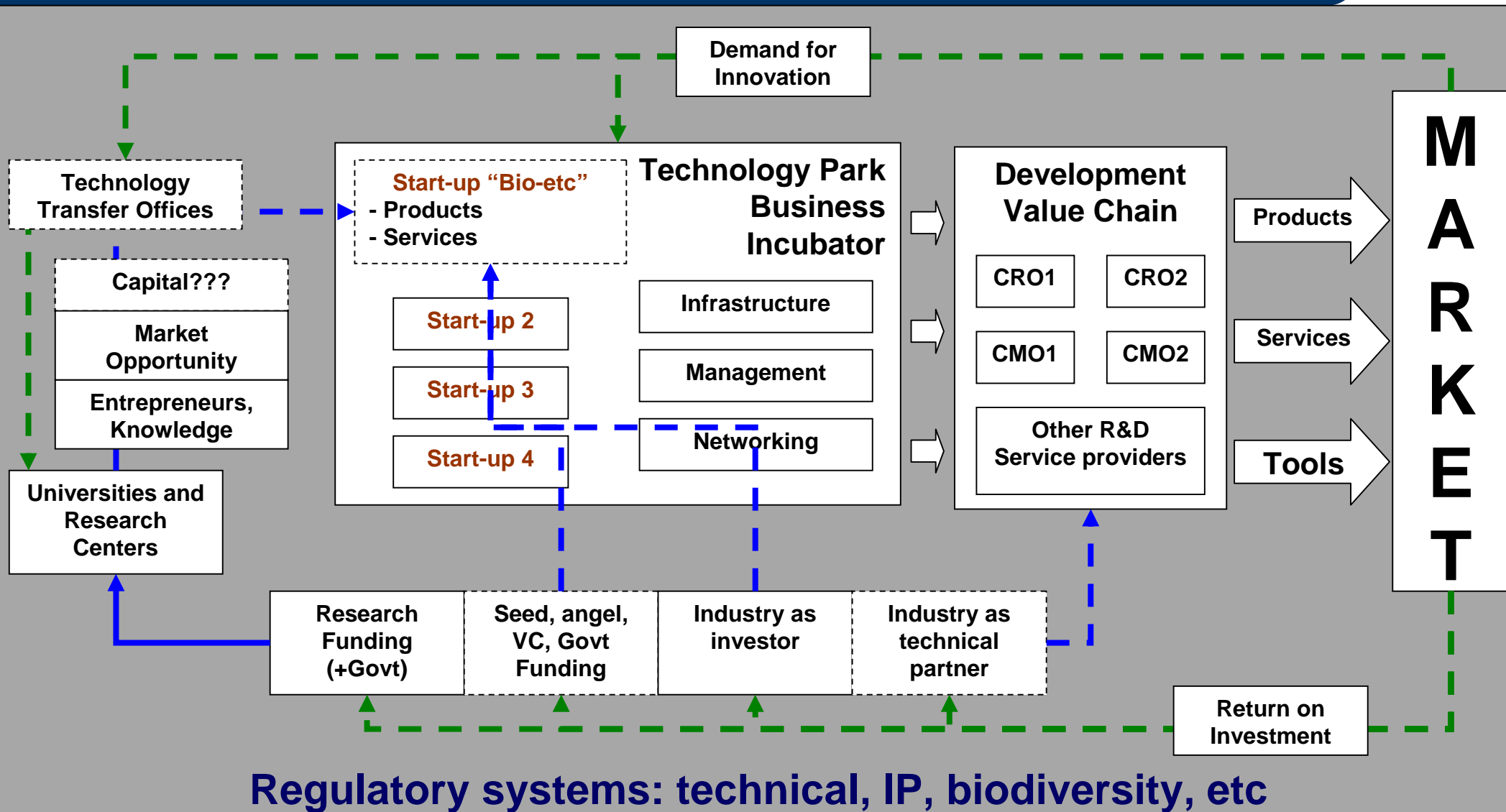


Figure 6: Brazilian publications and USPTO patents in health biotechnology (1991-2002).
Source: Nature Biotechnology, 2004

From discovery to return on investment...



... and why it does not happen in Brazil!



COINFAR is a R&D joint venture

- Venture of three Brazilian pharmaceuticals



- Drug discovery and development joint venture based in São Paulo
- Virtual Biotech: manage external labs & manufacturers
- Core products: biopharmaceuticals (natural products from biodiversity)
- Core areas: cancer, pain and wound repair



Project CNF021.03

- **Pain killer**
 - **Acute and chronic pain, neuropathic**
- **Peptide family derived from Brazilian snake**
 - **Collaboration with Instituto Butantan**
 - **Orally available**
 - **Long lasting effect and lower side effects**
 - **Mechanism of Action (MoA) shows potentially new receptors involved**
- **Proof of Principle (PoP) and preclinical outsourced abroad**



Project CNF011.04

- Anti-cancer recombinant protein
 - Indications for lung, breast, ovarian prostate, uterus, kidney cancer
- Discovered from tick saliva
 - Collaboration with Instituto Butantan
 - MoA shows anti-apoptotic activity without affecting normal cells
 - Preliminary PoP shows decreased metastasis activity and tumor growth reduction
- Proof of Principle (PoP) and preclinical outsourced abroad



COINFAR Bioprospection Program

- **Call for projects**
 - **Collaboration with universities and small companies**
 - **Directed to biodiversity and discovery platforms, early stage projects**
 - **~US\$ 1,7 million for 2008**

Conclusions

- **IP system is key for innovation, but not sufficient by itself**
- **Systemic approach should be based on**
 - **Rewarding risk-takers**
 - **Structuring tech transfer and science-based businesses**
 - **Developing a bio-pharma value chain**
 - **Incentives for more innovation**

Issues being discussed in Brazil for bio-pharmaceutical competitiveness

- **Technical regulation**
- **Resolving tech transfer legislation and infrastructure**
- **Training and education**
- **Investments for development value chain**
- **IP enforcement system**

Thank you!!!

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Factors affecting Brazilian competitiveness

- **Difficulties in patenting natural products and biotechnology derived ones**
- **ANVISA previous authorization for Brazilian PTO to grant patents**
- **CGEN previous authorization for Brazilian PTO to grant patents**
- **Lack of transparency and regulation of “compulsory licensing”**