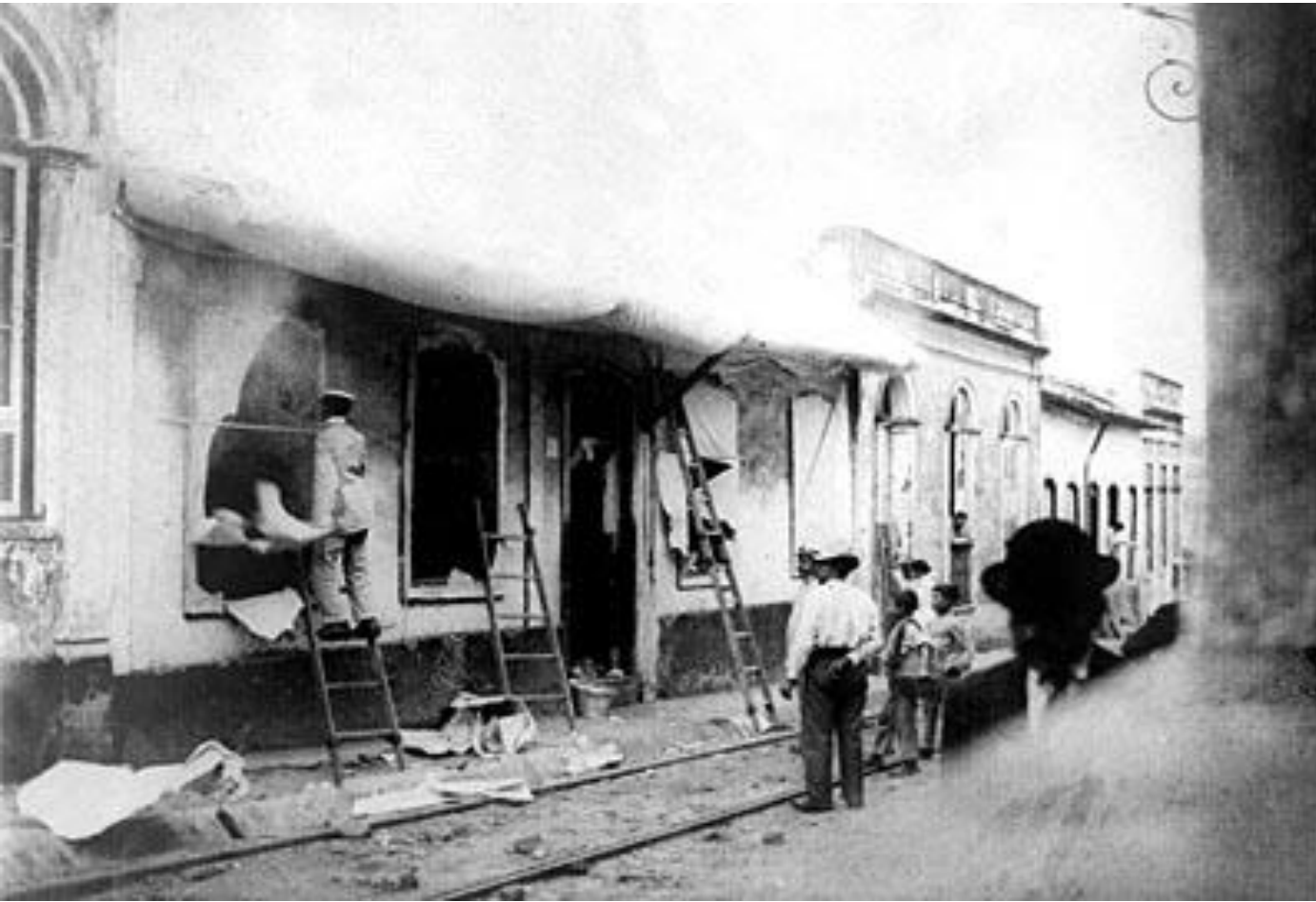


Oswaldo Cruz Foundation - Innovation Ecosystem



1900 - Founding of the Serotherapy Institute of Rio de Janeiro in May 25 th.



Oswaldo Cruz

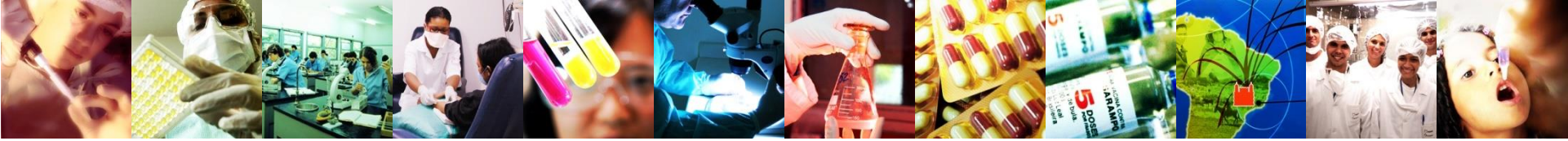


The fight against smallpox, bubonic plague and yellow fever

Scientific and technological knowledge applied to public health



Oswaldo Cruz Foundation



Research | Education | Innovation and Production | Surveillance and Reference Services |
Health & Medical Care | Environment and Health Promotion | Information and
Communication | History of Science and Health | Planning and Management

WORKERS: 12,795

PHD/DSC: 1,567

BUDGET: > USD 1,5 billion

RESEARCH: >1,500 projects

PRODUCTION (2011 – 2015)

511 million doses of **vaccines**

35 million diagnostic **reagents**

1,5 billion **drug units**

53 million **bottles of biopharmaceuticals**

TRAINING OF HUMAN RESOURCES

26 **Stricto Sensu** programs – master's and doctorate

50 **Lato Sensu** courses

2.500 **graduates/year** – postgraduate

56.706 **Professional education (1985 – 2015)**

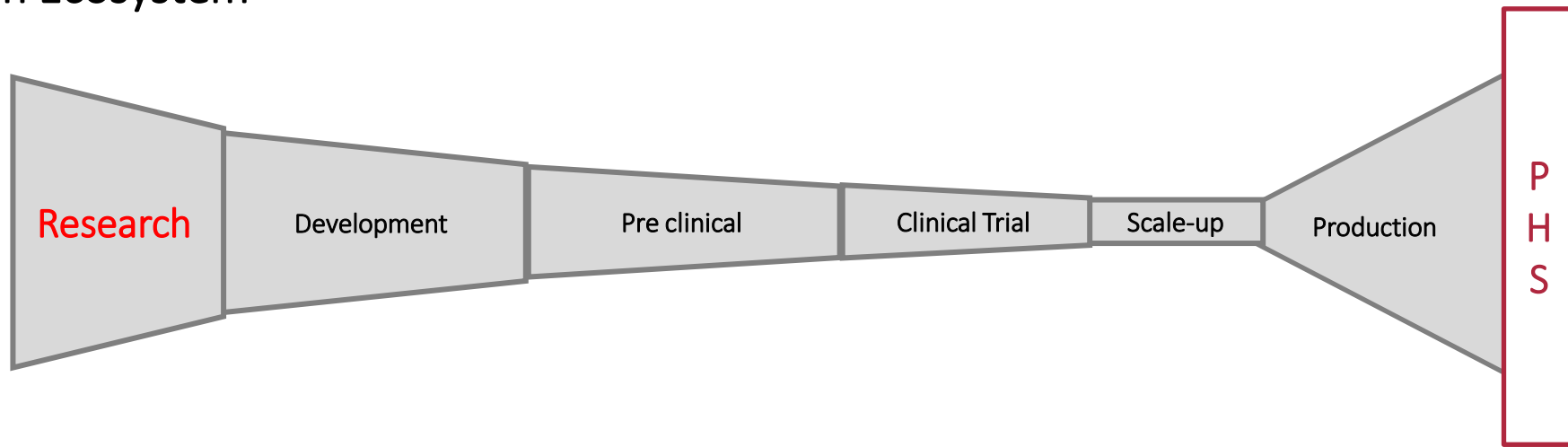
ANALYSIS, CONSULTATIONS AND EXAMINATIONS

4.416 **analyzed samples (2015)**

282.626 **consultations (2015)**

750.250 **clinical examinations (2015)**

234.426 **laboratory tests of reference (2015)**



Chagas Disease



Chagas disease or American trypanosomiasis was discovered by the Brazilian physician Carlos Chagas in 1909. The researcher completely described a new infectious disease indicating its pathogen, vector, clinical manifestations, epidemiology and some mammalian reservoir hosts.



by Hans von Manteuffel



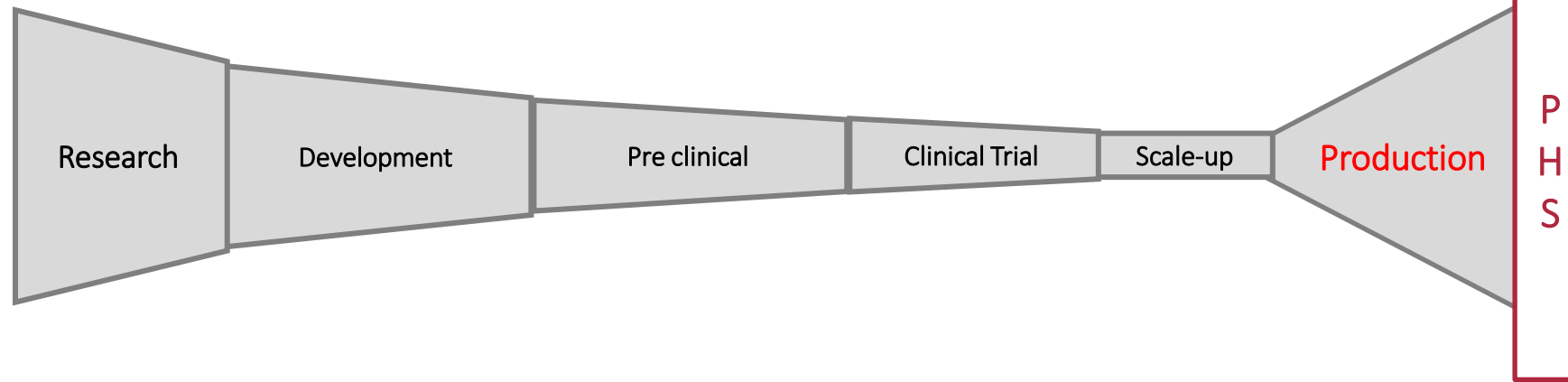
Celina Turchi

By Tom Frieden



outbreak of Zika-associated microcephaly

Fiocruz Innovation Ecosystem



Yellow Fever Vaccine Production (1930s)



Regular annual production for the Ministry of Health 25,000,000 doses, after 2016 outbreak new demand of 67,000,000

R&D

Scale-up

Clinical Trials

Manufacturing

Quality Control

Healthcare

Education

VACCINES AND DRUGS PRODUCTION

- Supply of vaccines to the **National Immunization Program (PNI)** calendar of immunization.
- Public producer of **biopharmaceuticals** in Brazil.
- Supplier of diagnostic reagents to the **National Program for STD/Aids** and for health surveillance actions coordinated by the CGLAB/MS.
- **Export** of more than 153 million doses of vaccines against yellow fever and against meningitis A/C for UN – WHO, Paho and Unicef (2001 – 2013).
- Supplier of **antiretrovirals** for the Unified Health System (SUS).
- Support to the **Pharmaceutical Care** programs of the Ministry of Health.



Ranking with the top 20 companies / groups in the pharmaceutical industry in 2017

Ranking	Variação	Grupo/Empresa	Faturamento (R\$)
1	-	GRUPO SANOFI/MEDLEY/GENZYME	> = 3 bilhões
2	▲	GRUPO E.M.S (E.M.S./SIGMA/LEGRAND/NOVA QUÍMICA/GERMED)	> = 3 bilhões
3	▼	GRUPO SANDOZ/NOVARTIS/ALCON	> = 3 bilhões
4	-	PRODUTOS ROCHE QUÍMICOS E FARMACÊUTICOS S.A.	> = 3 bilhões
5	▲	GRUPO ACHÉ/BIOSINTÉTICA	> = 3 bilhões
6	▼	GRUPO HYPERMARCAS (HYPERMARCAS/LUPER/NEO QUÍMICA/BRAINFARMA/NEOLATINA/COSMED/MANTECORP)	> = 3 bilhões
7	-	GRUPO EUROFARMA/MOMENTA	Entre 2 bilhões e 3 bilhões
8	▲	FUNDAÇÃO OSWALDO CRUZ (gov.) ←	Entre 2 bilhões e 3 bilhões
9	▼	GRUPO PFIZER/WYETH	Entre 2 bilhões e 3 bilhões
10	▲	GRUPO JOHNSON & JOHNSON/JANSSEN-CILAG	Entre 2 bilhões e 3 bilhões
11	▼	GRUPO MSD/SCHERING PLOUGH	Entre 2 bilhões e 3 bilhões
12	▲	GRUPO GLAXO/STIEFEL	Entre 1 bilhão e 2 bilhões
13	▼	BAYER S.A.	Entre 1 bilhão e 2 bilhões
14	▼	ASTRAZENECA DO BRASIL LTDA	Entre 1 bilhão e 2 bilhões
15	▲	GRUPO TAKEDA/MULTILAB	Entre 1 bilhão e 2 bilhões
16	▲	LIBBS FARMACÊUTICA LTDA	Entre 1 bilhão e 2 bilhões
17	▲	ABBVIE FARMACÊUTICA LTDA.	Entre 1 bilhão e 2 bilhões
18	▼	BOEHRINGER INGELHEIM DO BRASIL QUÍMICA E FARMACÊUTICA LTDA.	Entre 1 bilhão e 2 bilhões
19	-	INSTITUTO BUTANTAN (gov)	Entre 1 bilhão e 2 bilhões
20	▲	MERCK S/A	Entre 1 bilhão e 2 bilhões

Fonte: CMED/Anvisa – A partir dos relatórios de comercialização enviados pelas empresas.

Nota: Dados processados em julho/2018.



ECONOMIA PARA OS COFRES PÚBLICOS - 2019

VACINA	DESCRIÇÃO OPAS	DEMANDA PNI 2019** - DS
Hib - 1 dose	Liofilizada 1 dose	20.000
Febre Amarela - 5 doses	5 doses	57.000.000
Febre Amarela - 10 doses	10 doses	3.000.000
IPV - 10 doses	5 doses	10.000.000
OPV - 25 doses	20 doses	16.000.000
TVV Jeryl-Lynn - 10 doses	1 dose	20.000.000
Rotavirus - 1 dose	1 dose	6.000.000
Pneumo 10-valente - 1 dose	1 dose	9.500.000
MMRV - 1 dose		1.050.000
	Qde de doses:	122.570.000

Valor gasto compras via OPAS = R\$ 1.632.594.791,97

Valor gasto fornecimento Bio = R\$ 1.370.494.400,00

Economia MS = R\$262.100.391,97

CÂMBIO 3,8339

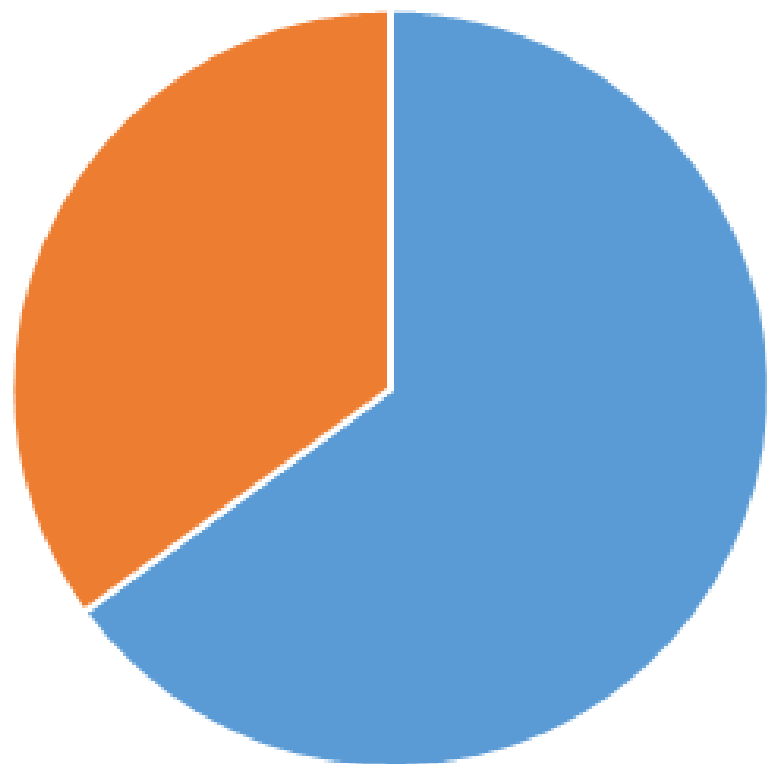
* Taxa Bacen - 10/04/2019

**Acordo de Cooperação Técnica nº 2/2019

*** 3% taxa OPAS + custo importação
CIF = aproximadamente 4,75%

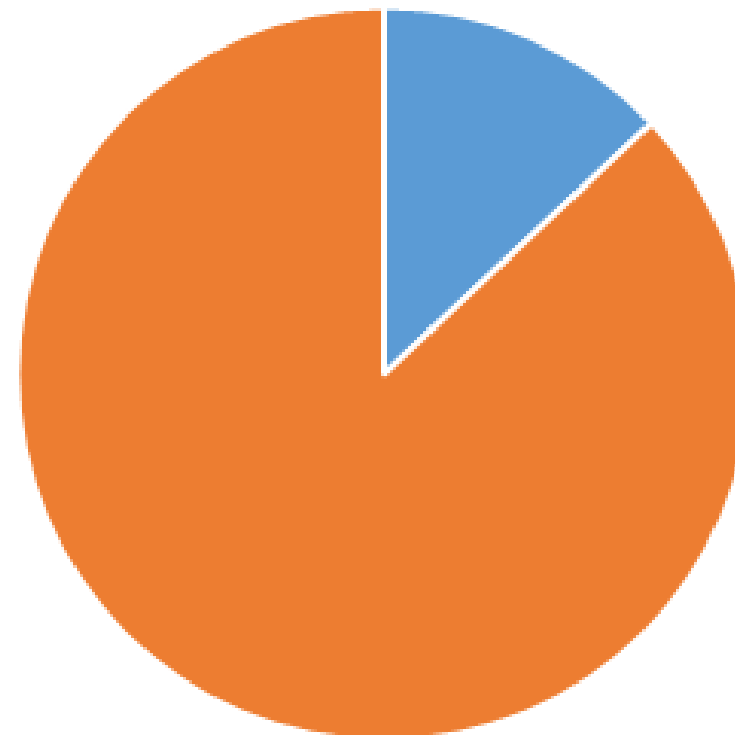
Brazilian Health Ministry Purchases

cost



■ biodrugs ■ synthetic

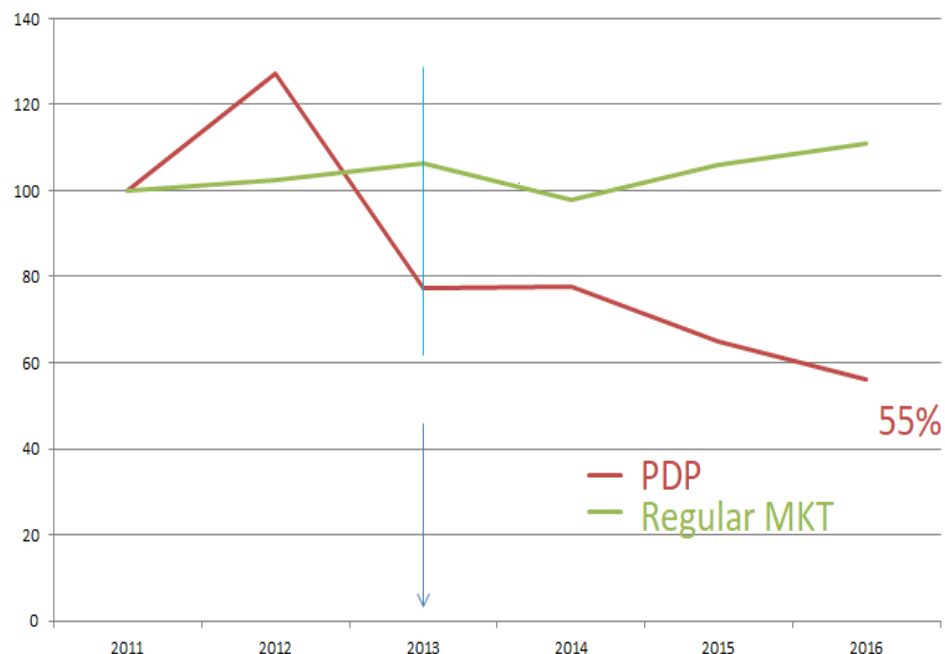
quantity



■ biodrugs ■ synthetic

MABs prices with and without PDPs

Medicamento	2011	2012	2013	2014	2015	2016
Média Com PDP (Grupo de Tratamento)	100	127	77	78	65	56
TRASTUZUMABE 440 MG	100	103	49	43	42	42
BEVACIZUMABE 25 MG/ML,	100	100	27	28	71	34
RITUXIMABE, 10MG/ML,	100	172	87	98	81	82
ADALIMUMABE, 40 MG,	100	136	139	144	55	47
INFLIXIMABE, 100 MG,	100	126	84	77	75	75
Média Sem PDP (Grupo de Controle)	100	102	106	98	106	111
OMALIZUMABE, 150 MG,	100	103	106	107	117	124
TOCILIZUMABE, 20 MG/ML,	100	102	103	93	94	
CETUXIMABE, 5 MG/ML	100	63	65	65	71	81
CANAQUINUMABE, 150 MG	100	103	107	107	117	117
ECULIZUMABE 10 MG/ML	100	117	127	128	176	183
USTEQUINUMABE	100	103	106	93	100	100
PALIVIZUMABE 100 MG,	100	100	106	77	71	71
NATALIZUMABE 20	100	129	132	103	92	89
RANIBIZUMABE, 10 MG/ML,	100	103	104	107	117	124



Fonte: Compras do MS, Elaborado por DECIIS

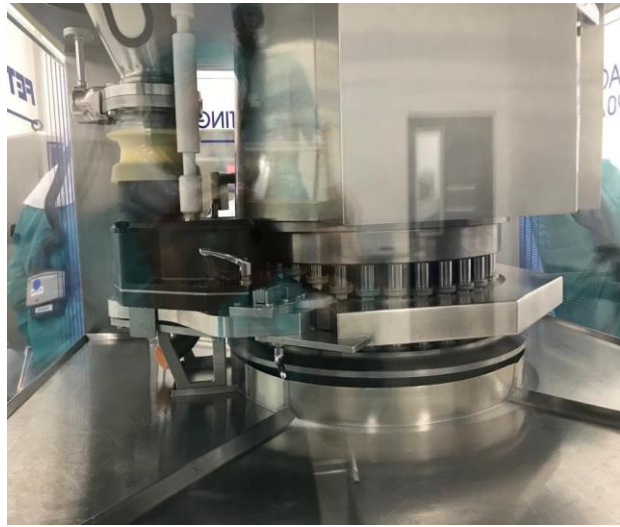
Farmanguinhos 2015-2020

15 new products in 5 years

New innovative treatments for Chagas disease (DNDi), Malaria and Tuberculosis (Unitaids TB Alliance) significant reduction of treatments, PDPs



Farmanguinhos	
Formoterol + budesonida	Antiasmático
Rifampicina + isoniazida + etambutol + pirazinamida	Tuberculostático
Tacrolimo	Imunossupressor
Sirolimo	Imunossupressor
Atazanavir	Antirretroviral
Lopinavir 100 mg + Ritonavir 25 mg	Antirretroviral
Tenofovir 300mg + Lamivudina 300 mg (2 em 1)	Antirretroviral
Tenofovir 300mg + Lamivudina 300 mg + Efavirenz 600 mg	Antirretroviral
Cabergolina	Inibidor de Prolactina
Pramipexol	Antiparkinsoniano
Sevelamer	Hiperfosfatemia
Insulina Humana Recombinante	Diabetes



Bio-Manguinhos 2015-2020.

11 new Biological products in 5 years



Bio-Manguinhos	
Vacina Tetra Viral	Sarampo, caxumba, rubéola e catapora
Betainterferona1a	Esclerose múltipla
Taliglucerase alfa	Doença de Guacher
Cetuximabe	Oncológico
Etanercepte	Oncológico
Trastuzumabe	Oncológico
Filgastima	Oncológico
Bevacizumabe	Oncológico/ degeneração macular relacionada à idade
Adalimumabe	Artrite Reumatoide
Somatropina	Hormônio de crescimento
Rituximabe	Artrite reumatoide e Linfomas

Biological Production Capabilities in Fiocruz 2006-2016



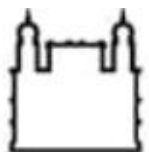
CTV (2006)



CTV (2016)

- **27** (Fiocruz) PDPs formally set up for the production of Medicinis, Vaccines and Biodrugs.





Ministério da Saúde

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FIOCRUZ

We focus
on partnerships
in health
to not leave
anyone
behind