Ministry of Health
The Oswaldo Cruz Foundation

- Presidency / Central Administration

- Technological Development & Production Units
  1. Bio-Manguinhos
  2. Far-Manguinhos

- Biomedical Research Units
  1. Oswaldo Cruz Institute
  2. Aggeu Magalhães Research Centre (PE)
  3. René Rachou Research Centre (MG)
  4. Leônidas and Maria Deane Research Centre (AM)
  5. Gonçalo Moniz Research Centre (BA)
  6. Laboratory Animals Breed Centre

- Clinical Research and Mother/Child Care Hospitals
  1. Fernandes Figueira Institute
  2. Evandro Chagas Clinical Research Institute

- Post-graduation and Technical Schools
  1. National School of Public Health
  2. Joaquim Venâncio Health Politechnic School

- Documentation, Information & Historical Units
  1. Technological and Scientific Information Centre
  2. Oswaldo Cruz’ House

TOTAL STAFF: 8,825*
*Dated January/2005
Mission

To contribute for the strengthening of the Brazilian’s Health System through technological development and production of immunobiologicals needed by the country.
# Bio-Manguinhos’ Staff

<table>
<thead>
<tr>
<th>Description</th>
<th>Number*</th>
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</thead>
<tbody>
<tr>
<td>Central Administration</td>
<td>132</td>
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<tr>
<td>Quality Control &amp; Assurance</td>
<td>135</td>
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<tr>
<td>Production</td>
<td>233</td>
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<tr>
<td>Vaccines</td>
<td>186</td>
</tr>
<tr>
<td>Reagents</td>
<td>47</td>
</tr>
<tr>
<td>Maintainance &amp; Engineering</td>
<td>239</td>
</tr>
<tr>
<td>Technological Development</td>
<td>67</td>
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<td><strong>Total</strong></td>
<td><strong>806</strong></td>
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</table>

* Dated January/2005
Bio-Manguinhos’ Portfolio

Vaccines
- DTP+Hib – 05 doses
- Hib – 01 dose
- Measles – 05 doses
- Meningitis Polysaccharides A + C – 50 doses
- OPV – 25 doses
- Triple Viral – 10 doses
- Yellow Fever – 05 doses and 50 doses

Reagents for Laboratory Diagnosis
- Dengue
- Hepatites B
- HIV-1
- Viral Diarrhea
- Human Leptospirosis
- Chagas Disease
- Human and Canine Leishmaniasis

Biopharmaceuticals
- Interferon Alpha 2b Human Recombinant
- Eritropoyetine Human Recombinant

Others
- Anti Ig Human Conjugate
- Monoclonal Antibodies
- Reference Panel and Sera for Quality Control
Investments on Technology

Technological Complex of Vaccines - 2005

Construction of the Prototype, Reagents for Diagnoses and Biopharmaceuticals Centre, with 7,800 m². Investment: R$ 20 millions.

Validation of the CPAV – Viral Antigens Processing Centre, with 11,000 m² for the production of measles, mumps, rubella and other antigens. Includes quality control and quality assurance. Investment: R$ 42 millions. Estimated production: 50 million doses/year.

Beginning of production in the CPAB – Bacterial Antigens Processing Centre, with 2,400 m² for the production of Haemophilus influenzae b and other antigens. Remodeling investment: R$ 10,5 millions. Estimated production: 45 million doses/year.
Partnerships / Technology Transfer

1976 – Meningitis Polysacharides A + C – Mérieux Institute (France)
1982 – Measles – Biken Institute (Japan)
1984 – Oral Polio Vaccine – JPRI (Japan)
1999 – Haemophilus Influenzae B – Glaxo Smithkline (Belgium)
2002 – DTP + Hib – Butantan Institute (Brazil)
2003 – Triple viral vaccine (MMR) – Glaxo Smithkline (Belgium)
2004 – Quick Test for HIV Diagnosis – Chembio (USA)
   – Interferon Alfa 2b Human Recombinant – Heber Biotec (Cuba)
   – Eritropoietina Human Recombinant – Cimab (Cuba)
Bio-Manguinhos Main Clients

- SECRETARIAT FOR HEALTH SURVEILLANCE/MOH
  - PNI – National Program of Immunization
  - CGLAB – General Coordination of Laboratories
  - PNDST/Aids – National Program of Sexually Transmissible Diseases

- SECRETARIAT FOR SCIENCE, TECHNOLOGY AND STRATEGIC IMPUTS/MOH

- UNITED NATIONS AGENCIES
# Vaccine Delivery - MOH

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Present.</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTP+Hib</td>
<td>05 doses</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>22,174</td>
<td>8,007</td>
<td>23,993</td>
</tr>
<tr>
<td>Hib</td>
<td>05 doses</td>
<td>7,500</td>
<td>14,577</td>
<td>7,867</td>
<td>2,066</td>
<td>1</td>
<td>20</td>
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<tr>
<td>Measles</td>
<td>05 doses</td>
<td>5,900</td>
<td>7,500</td>
<td>10,000</td>
<td>3,694</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Meningitis</td>
<td>50 doses</td>
<td>-</td>
<td>500</td>
<td>-</td>
<td>488</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Poliomyelitis</td>
<td>25 doses</td>
<td>41,131</td>
<td>18,968</td>
<td>24,117</td>
<td>64,194</td>
<td>30,017</td>
<td>42,971</td>
</tr>
<tr>
<td>Viral Triple</td>
<td>10 doses</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>20,000</td>
</tr>
<tr>
<td>Yellow Fever</td>
<td>05 doses</td>
<td>-</td>
<td>6,051</td>
<td>1,173</td>
<td>19,141</td>
<td>29,120</td>
<td>15,880</td>
</tr>
<tr>
<td></td>
<td>50 doses</td>
<td>65,000</td>
<td>32,387</td>
<td>9,284</td>
<td>2,884</td>
<td>-</td>
<td>-</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td>119,531</td>
<td>79,983</td>
<td>52,441</td>
<td>114,641</td>
<td>67,145</td>
<td>102,864</td>
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## Exports – Yellow Fever Vaccine

<table>
<thead>
<tr>
<th>Year</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>Quantity</td>
<td>5,360,600</td>
<td>8,956,150</td>
<td>26,460,100</td>
<td>40,776,850</td>
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</table>
Yellow Fever Exports Evolution

Doses

Year

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
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<tbody>
<tr>
<td>0</td>
<td>5000</td>
<td>10000</td>
<td>30000</td>
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<tr>
<td>5</td>
<td>10000</td>
<td>20000</td>
<td>30000</td>
</tr>
<tr>
<td>10</td>
<td>15000</td>
<td>30000</td>
<td>45000</td>
</tr>
<tr>
<td>20</td>
<td>25000</td>
<td>50000</td>
<td>75000</td>
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</tbody>
</table>

Bio-Manguinhos
Exports – Yellow Fever Vaccine

Central America (20)
- Anguilla
- Antigua
- Bahamas
- Barbados
- Belize
- Bermuda
- Cuba
- Dominican Republic
- Honduras
- Jamaica
- El Salvador
- Mexico
- Montserrat
- Net. Antilles
- Nicaragua
- Panama
- St. Kitts
- St. Lucia
- St. Vincent
- Trinidad Tobago

South America (10)
- Argentina
- Bolivia
- Colombia
- Ecuador
- Guyana
- Paraguay
- Peru
- Surinam
- Uruguay
- Venezuela

Africa (19)
- Angola
- Burkina Faso
- Cameroon
- Cape Verde
- Congo
- Ethiopia
- Gambia
- Ghana
- Guinea
- Guinea Equatorial
- Kenya
- Liberia
- Mali
- Mauritania
- Niger
- Nigeria
- Rwanda
- Senegal
- Sudan

Asia (3)
- Pakistan
- Philippines
- Maldives
Technological Development - Vaccines

1, 2 and 3 YEARS
- *N. Meningitidis* B (Outer Membran Vesicle) + C Conj.
- Pentavalent DTP/Hepatitis B + Hib

5 - 10 YEARS
- Rotavirus
- Pneumococos
- Tripe Viral + Varicella
- *N. Meningitidis* B (OMV) + C Conj+A Conjugate
- Dengue
- Leishmaniasis
- Leptospirosis
- Inactivated Polio Vaccine
- Chicken Pox
## Technological Development - Reagents

<table>
<thead>
<tr>
<th>Disease/Pathology</th>
<th>Projects / Products</th>
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</thead>
<tbody>
<tr>
<td>Dengue</td>
<td>IgG capture</td>
</tr>
<tr>
<td></td>
<td>IFA for the identification of isolated viruses</td>
</tr>
<tr>
<td></td>
<td>Expression and obtention of recombinant proteins of Dengue virus</td>
</tr>
<tr>
<td></td>
<td>Molecular Tests for detection and identification of Dengue virus</td>
</tr>
<tr>
<td>Diarréias Virais</td>
<td>Expression and obtention of recombinant proteins of the main Viral Diarrheas agents</td>
</tr>
<tr>
<td>HIV/Aids</td>
<td>Western Blot for HIV-1</td>
</tr>
<tr>
<td>Hepatites Virais</td>
<td>IgM capture for Hepatitis A</td>
</tr>
<tr>
<td></td>
<td>New HBsAg and anti-HBs kits using recombinant antigens</td>
</tr>
<tr>
<td>Leishmaniose</td>
<td>EIA for canine leishmaniasis using recombinant antigens</td>
</tr>
<tr>
<td></td>
<td>Rapid test for canine leishmaniasis</td>
</tr>
<tr>
<td>Leptospirose</td>
<td>EIA using recombinant antigens</td>
</tr>
<tr>
<td></td>
<td>Rapid test for antigens capture</td>
</tr>
<tr>
<td>Anti IgG e Anti IgM</td>
<td>Methodology for the production of recombinant antibodies</td>
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</table>