MISSION
Development of pharmaceutical ingredients from biodiversity

To attend demands of Public Heath

Emphasis on neglected diseases and/or diseases of great social impact
Ministério da Saúde
Fundação Oswaldo Cruz
Fiocruz

a public complex created in 1900
oriented to R&D for the improvement of the health situation in the whole country

**MAIN AREAS OF ACTIVITIES**

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Fiocruz

**STAFF:**
- > 12,000
- 1000 PhD

**BUDGET:**
- > USD 1 billion

**Research:**
- > 1,800 projects in process

**Publications:**
- > 1,000 papers per year

**Teaching:**
- > 5 thousand students

**Production:**
- > 110 million doses/vaccines
- > 3 million diagnostic kits
- > 4 billion medicines (units)
Institute of Drug Technology
Farmanguinhos - FIOCRUZ

Medicines for the
Unified Health System
- anti-inflammatories
- anti-infectives
- anti-ulcer drugs
- analgesics
- medicines for endemic diseases such as malaria and tuberculosis
- antiretroviral drugs for AIDS
- medicines for diseases of the cardiovascular system
- medicines for diseases of the nervous system

Production capacity for 10 billion medicines (units)
The search for new therapeutic solutions begins with basic research, then through applied research and technological development until the stage of production is reached, strictly complying with all the quality requirements of national and international regulatory agencies.

**MEDICINAL PLANTS:** validation studies (agrobotanic, chemical-pharmaceutical, pharmacological, preclinical and clinical stages) and development of phytopharmaceuticals, phytotherapeutic and phyto-derivative products.
Natural Products R&D

- Herbal material identification
- Evaluation of activity
- Chemical composition and
- Characterization of the constituents of interest
- Seasonal variation of constituents
- Standardization
- Stability studies
- Preformulations
Farmanguinhos RD&I – Phytomedicines

Key Steps

ETAPA 0: Pesquisa Exploratória
- Identificação botânica
- Cadastro no CGEN

ETAPA I: Tecnologia em Prospecção
- Otimização do método de extração
- screening
- Perfis químicos

ETAPA II: Prova de conceito laboratorial
- Padronização do método de extração
- Identificação e definição dos marcadores ativos
- Farmacologia in vivo
- Genotoxicidade
- Revalidação do extrato nas condições edafoclimáticas

ETAPA III: Desenvolvimento tecnológico
- Formulação farmacêutica
- Validação do método instrumental cromatográfico
- Tecnologia Agrícola
- Scale up
- Toxicologia em roedores e não roedores
Farmanguinhos RD&I – Therapeutic Targets

- **Doença Negligenciada**
  - Leishmaniose
  - Malária
  - Chagas

- **Câncer**
  - Leucemias
  - Gliomas

- **Anti-inflamatório**
  - Doença autoimune
  - Asma
  - Cicatrizante
  - Dor

- **Efeitos vasculares**
  - Microcirculação cerebral e esquelética

- **Sistema digestório e excretor**
  - Fígado
  - Renal
Public Policies for Medicinal Plants and Phytomedicines

• Incentive to the adoption of Phytotherapy in public health programs
• Incentive for R&D in relation to the use of medicinal plants and herbal medicines
National Program of Medicinal Plants and Phytomedicines

• concerned with benefit distribution and environmental protection, considering that clean technology production models are essential for conservation.

• Integrative projects are being devised taking into account also larger scale production of herbal raw material (phytomedicines, nutraceuticals, cosmeceuticals, food, natural insecticides and other agrochemicals)

• Farmanguinhos/Fiocruz is ready to help with and discuss R&D contracts and cooperation programmes.
Uma instituição a serviço da vida
An Institution to serve life

Thank you