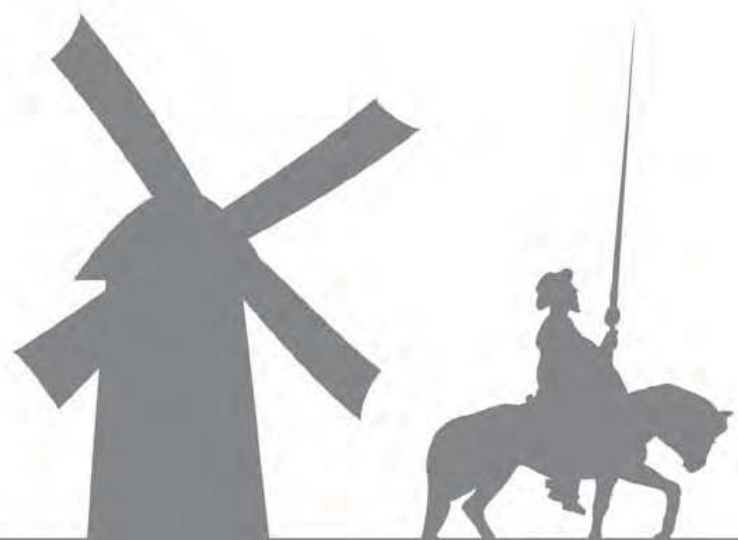


ANNUAL ACTIVITIES REPORT

2013



INCT OF DRUGS AND MEDICINES

INCT-INO FAR

ANNUAL ACTIVITIES REPORT

2013

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SUPPORT



INCT-INO FAR

ANNUAL ACTIVITIES REPORT

2013

ABOUT THE COVER

“Fear is what makes you not see, or hear, because one of the effects of fear is to dull the senses, and make things look like things they are not!”

(Excerpt from Don Quixote).

SUMMARY

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EVENTS

52

OUTREACH ACTIVITIES

88

PUBLICATIONS

126



ANNUAL ACTIVITIES REPORT 2013



EDITORIAL

It's the 5th edition of the Annual Activities Reports of **INCT-INO FAR**, describing our activities during the year of 2013. In this issue are described our major accomplishments and achievements during this period. It is difficult to highlight any, so I hope that reading the book is enlightening in itself.

The **INCT-INO FAR** noted significant progress on both sides of innovation in pharmaceuticals and medicines. As part of radical innovation, i.e. invention of new molecules, significantly advanced in relevant sub-projects that have improved us further in achieving interinstitutional and interdisciplinary research, as the drug discovery and development process demand it. Concerning the incremental innovation, the **INCT-INO FAR** achieved relevant results. It was possible during this period to conclude the studies of synthetic route of three relevant generic drugs as atorvastatin, fluoxetine, and sunitib, performed under supervision of Professors Luiz Carlos Dias of Institute of Chemistry of UNICAMP - the first two drugs - and Angelo da Cunha Pinto from Institute of Chemistry of Federal University of Rio de Janeiro, for the last one, respectively.

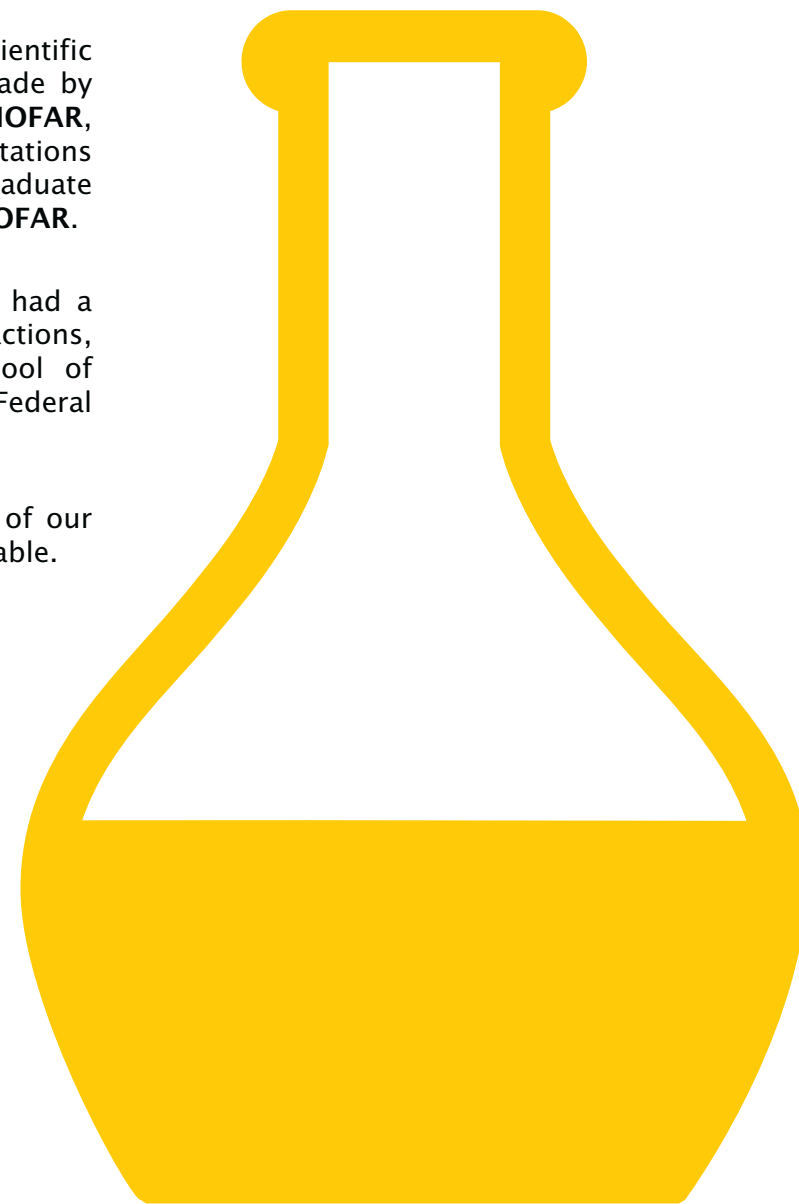
This period had significant scientific output with 255 publications made by researchers members of **INCT-INO FAR**, 22 PhD Thesis and 27 MSc dissertations completed by different graduate programs aggregates to **INCT-INO FAR**.

During 2013, the **INCT-INO FAR** had a significative number of outreach actions, including the XIX Summer School of Medicinal Chemistry held at Federal University of Rio de Janeiro.

I hope that reading this edition of our AAR can be instructive and enjoyable.

Rio de Janeiro, May 29, 2014.

ELIEZER J. BARREIRO
Scientific Coordinator
of **INCT-INO FAR**



ANNUAL ACTIVITIES REPORT 2013



INCT-INO FAR

ANNUAL ACTIVITIES REPORT

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VICE-COORDINATOR

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MANAGING COMMITTEE

Angelo da Cunha Pinto (UFRJ) - CV-Lattes

Heloisa de Oliveira Beraldo (UFMG) - CV-Lattes

Luiz Carlos Dias (UNICAMP) - CV-Lattes

Marco Aurelio Martins (FIOCRUZ-RJ) - CV-Lattes

Vanderlan da Silva Bolzani (UNESP - Araraquara) - CV-Lattes

SCIENTIFIC SUPERINTENDENCE

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SECRETARY OF COMMUNICATION

Douglas Rodrigues - CV-Lattes

EXECUTIVE SECRETARY

Ana Carla dos Santos - CV-Lattes

SECRETARY OF EXTENSION

Ana Cristina da Mata Silva - CV- Lattes

SECRETARY OF FINANCES

Edson de Almeida Naccor - CV-Lattes

NATIONAL INSTITUTES OF SCIENCE AND TECHNOLOGY

BRIEF HISTORY

In 2008, the Brazilian government issued public notice MCT/ CNPQ no014/2008 with a goal of recruiting scientists to work in networks, in research areas strategic to the sustainable development of the country. The edit remains the one that has most encouraged Science and Technology in Brazil.

At the time, part of the scientists associated with the Millenium Institute of Innovation and Development of Drugs and Medicines (IM-INO FAR) accepted the challenge and submitted a new project for the edit of the National Institutes of Science and Technology (INCTs). And then the INCT of Drugs and Medicines was created (**INCT-INO FAR**).

Following the example of **INCT-INO FAR**, a total of 126 National Institutes of Science and Technology (INCTs) were created. Articulating groups of laboratories or associated research groups in different parts of Brazil, the INCTs have the mission of acting in areas strategic to the sovereignty of Brazil. **INCT-INO FAR** carries out research in the field of health, aiming at the discovery of new drugs and medicines.

INTRODUCTION



INCT OF DRUGS AND MEDICINES (INCT-INO FAR)

The National Institute of Science and Technology in Drugs and Medicines (**INCT-INO FAR**) is a research network that brings together renowned scientists of different research institutes and Universities in Brazil. Its missions is to act in the discovery of new drugs and medicines and in the search for new synthetic routes for generic drugs, cooperating for the professional graduate and undergraduate training in Medicinal Chemistry and Pharmacology, central disciplines in the process of pharmaceutical innovation.

Made up of almost a hundred scientists, coming from 31 research groups that focus on radical pharmaceutical innovation and incremental innovation in generic drugs, **INCT-INO FAR** is present in 16 research and teaching institutions, in 8 different Brazilian states.

With the goal of qualifying human resources capable of acting in important stages of the process in discovery/invention of new pharmaceuticals – from the election of the therapeutic target to the conclusion of bioassays in the pre-clinical stage - **INCT-INO FAR** contributes to identify and equate important bottlenecks in the chain of pharmaceutical innovation.

Parallel to laboratory research, **INCT-INO FAR** has a permanent action in society promoting the science it practices, encouraging the rational and responsible use of drugs. As well as maintaining the [Drugs Portal](#), a website created to promote Pharmaceutical Sciences, **INCT-INO FAR** also carries out Health Education initiatives that educate the population on the rational use of drugs.



MISSION



TO ORGANIZE NATIONAL SCIENTIFIC COMPETENCES INTO AN EFFECTIVE AND PRODUCTIVE NETWORK OF RESEARCH IN DRUGS AND MEDICINES;

TO SUPPORT SCIENTIFIC RESEARCH SUBPROJECTS AIMED AT THE CHAIN OF RADICAL INNOVATION IN DRUGS AND MEDICINES;

TO ACT IN INCREMENTAL INNOVATION IN DRUGS THROUGH GENERIC DRUGS;

TO STUDY AND DEVELOP TOTAL SYNTHESIS ROUTES FOR CURRENT AND FUTURE GENERIC DRUGS, AS WELL AS ADVANCED INTERMEDIATES AND STRATEGIC RAW MATERIALS FOR THE SECTOR;

TO CONTRIBUTE TO QUALIFIED SCIENTIFIC EDUCATION OF PERSONNEL IN MEDICINAL CHEMISTRY & PHARMACOLOGY;

TO PROMOTE SCIENCES RELATED TO DRUGS AND MEDICINES, AS WELL AS CONTRIBUTING IN AN EFFECTIVE WAY TO THEIR RATIONAL AND SAFE USE.

PHARMACEUTICAL INNOVATION



With the contribution of its entire research network, **INCT-INO FAR** studies and develops several subprojects in radical innovation and it also acts in incremental innovation, studying new total synthesis routes for generic pharmaceuticals.

In the field of radical innovation, the Institute aims at the discovery/invention of original substances, active in *in vivo* pharmacological models that are widely validated and that are capable of originating new pharmaceutical candidates in different therapeutic classes. The research areas that interest **INCT-INO FAR** are: inflammation, pulmonary diseases, pain, central nervous system, cardiovascular system and chemotherapy of cancer and of the so-called neglected diseases, leishmaniasis in particular.

In the area of incremental innovation, **INCT-INO FAR** leads projects which are focused on the search for new synthetic routes, efficient and accessible, for generic pharmaceuticals already in the market – and that represent important instruments in the public health policies and of pharmaceutical care of the population – as well as of those drugs that are about to have their patents expire, representing new business opportunities for the national pharmaceutical sector.



GENERIC DRUGS

Despite the advances due to the 14 years since the Law of Generics (no 9.787/1999) was created in Brazil, unfortunately, so far national pharmaceutical companies have mostly kept to formulating and packaging active principles imported from distant markets like China, India, and Korea.

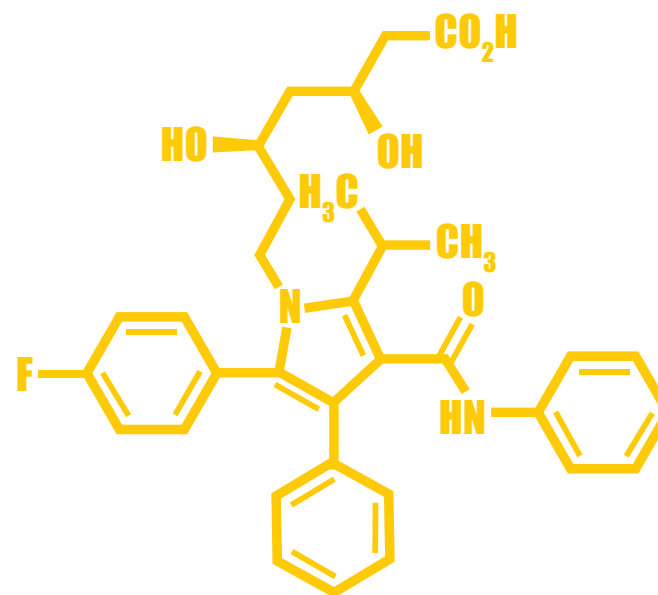
Making an effort to try to reverse this “Indian Pathway” process, **INCT-INO FAR** tries to study and develop total synthetic routes for generic medications, with the goal of transferring the technology acquired to the local industry.

By studying and developing total synthetic routes of generic drugs, advanced intermediates and raw materials strategic to the sector, **INCT-INO FAR** research paves the way to the production of active principles at a reduced price in Brazil.

Since it was created in 2009, **INCT-INO FAR** has already developed new synthetic routes for atorvastatin, sunitinib, and fluoxetine.



ATOR VASTA TIN

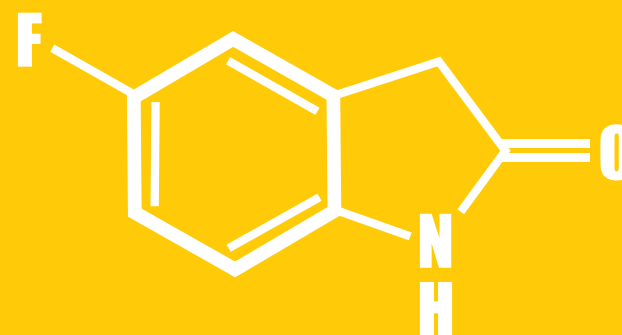


In the same month where the patent for Lipitor™/ Pfizer expired in Brazil (December 2010), **INCT-INO FAR** researchers announced the discovery of a new synthetic route for the production of its active principle, atorvastatin. A continuous use medication to reduce cholesterol that is widely used, Lipitor was the bestselling pharmaceutical in the world history, reaching US\$ 150 billion in sales during the time of its patent (1991-2011).

The people in charge of the research, which had a lot of repercussion in the press both locally and overseas throughout 2011, were Prof. Luiz Carlos Dias and Dr. Adriano Siqueira Vieira of the Institute of Chemistry of the State University of Campinas (Unicamp), the latter as an **INCT-INO FAR** scholar. The synthesis route of atorvastatin has been patented and it represents an important technological asset for **INCT-INO FAR**. Since then, **INCT-INO FAR** has been trying to negotiate the production of this generic with a local company.

GENERICS

SUNITINIB



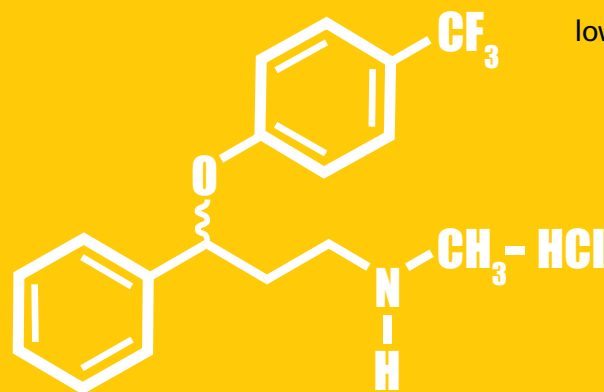
Recommended to fight certain types of stomach cancers, sunitinib is the active principle of Sutent®/ Pfizer, a high cost medication – around 11 thousand Brazilian Reais per box with 28 pills – which, unfortunately, is not yet available in the Public Health System (SUS) and that because of that is the target of many lawsuits since it is the primary recommended drug in these cases.

The synthetic route for sunitinib was finished in September 2011 by Prof. Angelo da Cunha Pinto and Dr. Barbara Vasconcellos da Silva, of the Institute of Chemistry of the Federal University of Rio de Janeiro (UFRJ). With the discovery of new sunitinib synthesis route, Brazil can preemptively prepare to produce the medication, reducing its production cost when its patent expires here.



Antidepressant from the selective serotonin reuptake inhibitors, fluoxetine used to be marketed by Eli Lilly under the name of Prozac™, until the patent for the medication expired in August 2001, making way for the production of generics. Fluoxetine is part of National List of Essential Medications (RENAME) and is made available through the Popular Pharmacy Program. The technological knowledge of the synthesis of fluoxetine is an important **INCT-INO FAR** has achieved.

Considering the controlled medication with the highest demand in the public health care system, most of the fluoxetine consumed in Brazil is imported. Due to the social and market impact of this medication in the country, **INCT-INO FAR** has made efforts in the discovery of a new synthetic route to produce generic fluoxetine. Until now, the group led by Prof. Luiz Carlos Dias of Unicamp has prepared 2g of the active principle, using a new and efficient methodology, so that the drug can be prepared in larger amounts, in a faster, more practical, cheaper way, and with lower environmental impact.



INCT-INO FAR



MULTIDISCIPLINARY RESEARCH NETWORK

The pharmaceutical innovation process has characteristics that are clearly inter and multidisciplinary, which demand competencies in distinct areas of the Health Sciences environment.

INCT-INO FAR brings together research groups of academic-scientific excellence into a network, from different areas, covering all the stages of the process of invention of new drugs, going from the election of the therapeutic target to the conclusion of pre-clinical stage bioassays, quantitative and qualitative analytical methods, as well as clinical pharmacology.

The **INCT-INO FAR** multidisciplinary team is made up of experts in different fields like medicinal chemistry, pharmacology, organic chemistry, toxicology, organic synthesis, computational chemistry, structure biology, spectroscopy, chemistry of natural products, among other related areas.





SCIENTIFIC EXCHANGE

Present in 16 teaching and research institutions in 8 different Brazilian states, **INCT-INO FAR** has been actively cooperating to reduce the regional scientific imbalance present in Brazil, as well as contributing to strengthen local expertise in a sector strategic to the country.

By making it possible for researchers from different institutions, in several geographic regions, to work in association, **INCT-INO FAR** promotes exchange between larger centers and emerging research groups.

Cooperative action is a way for **INCT-INO FAR** to contribute to the increase of the scientific and technological production of the emerging centers, especially in the Midwest and Northeast, benefitting the professional qualification at the undergraduate and graduate levels in this field. Throughout these four years, **INCT-INO FAR** has seen notable benefits in the advancement of these emerging scientific groups.

INCT-INO FAR RESEARCH GROUPS

LABORATORIES AND PEOPLE IN CHARGE

NETWORK SCIENTIFIC COORDINATOR

Prof. Eliezer J. Barreiro (LASSBio/UFRJ) [CV-Lattes](#)

RIO DE JANEIRO

1. FIOCRUZ

Laboratory of Inflammation (IOC)

Marco Aurélio Martins [CV-Lattes](#)

Laboratory of Environmental Toxicology (ENSP)

Francisco José Roma Paumgarten [CV-Lattes](#)

2. UERJ

Department of Pharmacology (IBRAG)

Theresa Christina Barja-Fidalgo [CV-Lattes](#)





LABORATORIES AND PEOPLE IN CHARGE

3. UFRJ

Laboratory of Evaluation and Synthesis of
Bioactive Substances – LASSBio (ICB)

Carlos Alberto Manssour Fraga [CV-Lattes](#)

Lidia Moreira Lima [CV-Lattes](#)

System of Information on the Chemical
Industry – SIQUIM (EQ)

Adelaide Maria de Souza Antunes [CV-Lattes](#)

Laboratory of Pulmonary Investigation
(IBCCF)

Patrícia Rieken Macedo Rocco [CV-Lattes](#)

Laboratory of Biochemical and Molecular
Pharmacology (ICB)

François Germain Noel [CV-Lattes](#)

Laboratory of Cardiovascular
Pharmacology (ICB)

Gisele Zapata Sudo [CV-Lattes](#)

Laboratory of Muscular Excitation-
Contraction Coupling (ICB)

Roberto Takashi Sudo [CV-Lattes](#)

Laboratory of Natural Products and
Chemical Transformations (IQ)

Ângelo da Cunha Pinto [CV-Lattes](#)

Laboratory of Support to Technological
Development (IQ)

Francisco Radler de Aquino Neto [CV-Lattes](#)

Laboratory of Pharmacology of
Inflammation and of Nitric Oxide (ICB)

Patricia Dias Fernandes [CV-Lattes](#)

4. UFRRJ

Institute of Exact Sciences (IQ)

Carlos Maurício Rabello de Sant'Anna
[CV-Lattes](#)

5. LNCC-MCTI

Group of Molecular Modelling of Biological
Systems (Department of Computational
Mechanics)

Laurent Emmanuel Dardenne [CV-Lattes](#)

SÃO PAULO

6. USP-RP

Laboratory of Pain and Inflammation
(Faculty of Medicine)

Fernando de Queiroz Cunha [CV-Lattes](#)

7. UNESP ARARAQUARA

Nucleus of Bioassays, Biosynthesis, and
Ecophysiology of Natural Products - NUBBe (IQ)

Vanderlan da Silva Bolzani [CV-Lattes](#)

8. UNICAMP

Laboratory of Synthetic Organic Chemistry (IQ)

Luiz Carlos Dias [CV-Lattes](#)

MINAS GERAIS

9. UFMG

Group of Innovation in Organic and
Inorganic Compounds with Pharmacological
Activity (Department of Chemistry)

Heloísa de Oliveira Beraldo [CV-Lattes](#)

10. UNIFAL

Laboratory of Phytochemistry and Medicinal
Chemistry (Faculty of Pharmacy)

Cláudio Viegas Junior [CV-Lattes](#)

Agency of Innovation and Entrepreneurship
(Dean of Graduate Studies and Research)

Marcia Paranho Veloso [CV-Lattes](#)

RIO GRANDE DO SUL

11. UFRGS

Laboratory of Experimental
Psychopharmacology (Faculty of Pharmacy)

Stela Maris Kuze Rates [CV-Lattes](#)

12. UNIPAMPA

Laboratory of Pharmacology - LABFAR
(Faculty of Pharmacy)

Sandra Elisa Haas [CV-Lattes](#)



LABORATORIES AND PEOPLE IN CHARGE

GOIÁS

13. UFG

Laboratory of Bioconversion (Faculty of Pharmacy)

Valéria de Oliveira [CV-Lattes](#)

Laboratory of Pharmacology and Cellular
Toxicology (Faculty of Pharmacy)

Marize Campos Valadares Bozinis [CV-Lattes](#)

Laboratory of Medicinal Pharmaceutical Chemistry
(Faculty of Pharmacy)

Ricardo Menegatti [CV-Lattes](#)

Laboratory of Cardiovascular Pharmacology (Faculty
of Pharmacy)

Matheus Lavorenti Rocha [CV-Lattes](#)

ALAGOAS

14. UFAL

Laboratory of Pharmacology and Immunity
(Institute of Biological and Health Sciences)

Magna Suzana Alexandre Moreira [CV-Lattes](#)

CEARÁ

15. UFC

Unit of Clinical Pharmacology (Faculty of Medicine)

Manoel Odorico de Moraes [CV-Lattes](#)

Laboratory of Pharmacology of Inflammation and
Cancer (Faculty of Medicine)

Ronaldo de Albuquerque Ribeiro [CV-Lattes](#)

Department of Physiology and
Pharmacology
Claudia do Ó Pessoa CV-Lattes

PARAÍBA

16. UFPB

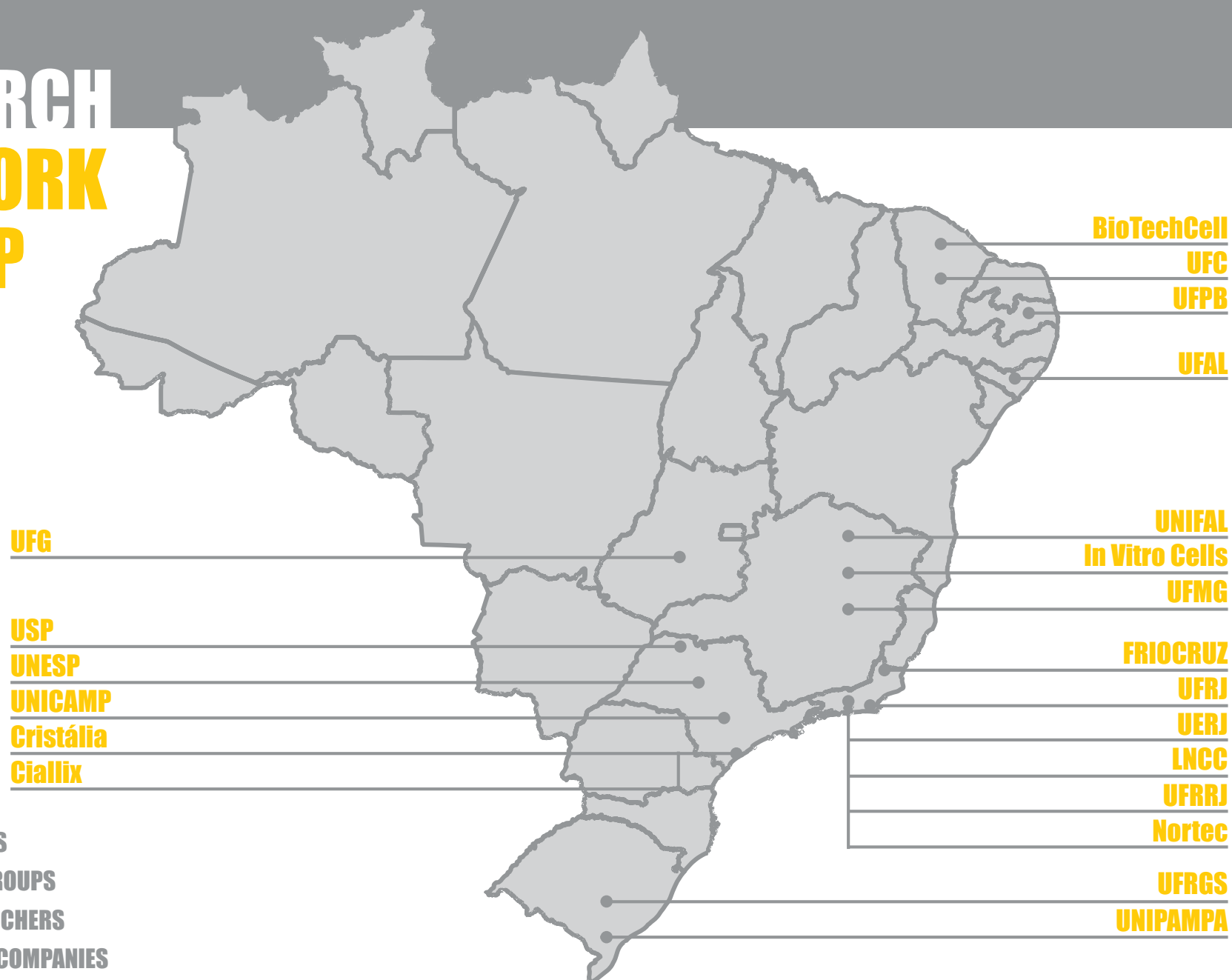
Laboratory of Toxicological Assays –
LABETOX (Department of Pharmaceutical
Sciences)

Margareth de Fátima Formiga Melo Diniz
CV-Lattes





RESEARCH NETWORK MAP



08 | STATES

16 | INSTITUTIONS

31 | RESEARCH GROUPS

33 | CNPq RESEARCHERS

05 | ASSOCIATED COMPANIES

04 | INTERNATIONAL INSTITUTIONS

HUMAN RESOURCES EDUCATION

So that a truly innovative medication can be discovered, it is fundamental to have a diverse and extremely qualified personnel to carry out, successfully, all the stages in the chain of innovation.

Cooperating to perfect Brazilian expertise in the discovery/invention of new drugs and medicines, **INCT-INO FAR** strongly acts in the education of human resources in the different research centers to which it is associated.

At **INCT-INO FAR**, scientific qualifications are improved at all different academic levels: undergraduate, graduate, doctoral, and post-doctoral. As part of this qualification, graduate students connected to the subprojects under study are encouraged to take part in academic exchange between participating laboratories with scientific expertise, so as to make the agreed upon goals achievable in the deadlines adequate to the project.

Through scientific exchanged promoted and encouraged by **INCT-INO FAR**, the Institute not only contributes to the education of new researchers, but also for the recycling and updating of senior researchers. The retention of renowned talented professionals in the country is also one of the premises under which **INCT-INO FAR** operates.

INCT-INO FAR researchers have actively participated in education and qualification of human resources activities, through the connection to 18 Graduate Programs of recognized academic merit throughout Brazil.

Over half of the Graduate Programs that have the participation of **INCT-INO FAR** researchers are classified at excellent levels with ratings 6 and 7 (out of 7).

PREMISES

EDUCATION OF HUMAN RESOURCES

ACADEMIC-SCIENTIFIC EXCHANGE

RECYCLING AND UPDATING OF SENIOR RESEARCHERS

RETENTION OF RENOWNED TALENTED PROFESSIONALS IN THE COUNTRY

GRADUATE PROGRAMS WITH INCT-INO FAR RESEARCHERS

**(USP/RP) PROGRAM OF GRADUATE STUDIES IN BIOLOGICAL SCIENCES
(PHARMACOLOGY) M / D - CAPES - 7**

[HTTP://WWW.RADIORIBEIRAO.CCRP.USP.BR/POS_GRADUACAO.ASP](http://www.radioribeirao.ccrp.usp.br/pos_graduacao.asp)

(UNICAMP) PROGRAM OF GRADUATE STUDIES IN CHEMISTRY – M / D - CAPES 7

[HTTP://WWW.IQM.UNICAMP.BR/POSGRADUACAO/](http://www.iqm.unicamp.br/posgraduacao/)

(UFRJ) PROGRAM OF GRADUATE STUDIES IN CHEMISTRY M / D – CAPES 7

[HTTP://WWW.PGQU.NET/](http://www.pgqu.net/)

(UNESP/ARARAQUARA) PROGRAM OF GRADUATE STUDIES IN CHEMISTRY M / D- CAPES 7

[HTTP://FI.COM.BR/PROJETOS/UNESP/](http://fi.com.br/projetos/unesp/)



(FIOCRUZ) PROGRAM OF GRADUATE STUDIES IN CELLULAR AND MOLECULAR BIOLOGY M / D – CAPES 7
[HTTP://WWW.FIOCRUZ.BR/IOCENSINO/CGI/CGILUA.EXE/SYS/START.HTM?SID=6](http://www.fiocruz.br/iocensino/cgi/cgilua.exe/sys/start.htm?sid=6)

(UFMG) PROGRAM OF GRADUATE STUDIES IN CHEMISTRY M / D – CAPES 7
[HTTP://WWW.QUI.UFMG.BR/PG](http://www.qui.ufmg.br/pg)

(UFRGS) PROGRAM OF GRADUATE STUDIES IN PHARMACEUTICAL SCIENCES M / D - CAPES 7
[HTTP://WWW.UFRGS.BR/PPGCF/](http://www.ufrgs.br/ppgcf/)

(UERJ) PROGRAM OF GRADUATE STUDIES IN BIOSCIENCES M / D - CAPES 6
[HTTP://WWW.PGBIOLOGIA.UERJ.BR/](http://www.pgbiologia.uerj.br/)

(UFC) PROGRAM OF GRADUATE STUDIES IN PHARMACOLOGY F - CAPES 6
[HTTP://WWW.FISFAR.UFC.BR/POSGRAD/](http://www.fisfar.ufc.br/posgrad/)

(UEPB) PROGRAM OF GRADUATE STUDIES IN BIOACTIVE NATURAL AND SYNTHETIC PRODUCTS M / D – CAPES 6
[HTTPS://SITES.GOOGLE.COM/A/LTF.UFPB.BR/PGPNSB/](https://sites.google.com/a/ltf.ufpb.br/pgpnsb/)

(LNCC) GRADUATE PROGRAM IN COMPUTATIONAL MODELING M/D – CAPES 6
[HTTP://WWW.LNCC.BR/POSGRADUACAO/HOMEPOSGRAD.PHP?VMENU=&VDEPTO=7&VCABECALHO=POS](http://www.lncc.br/posgraduacao/homeposgrad.php?vmenu=&vdepto=7&vcabecalho=pos)

(UFRJ) PROGRAM OF GRADUATE STUDIES IN BIOLOGICAL SCIENCES (PHARMACOLOGY AND MEDICINAL CHEMISTRY) M / D – CAPES 5
[HTTP://WWW.FARMACO.UFRJ.BR/POSGRADUACAO/INDEX.HTML](http://www.farmac.ufrj.br/posgraduacao/index.html)

(UNIFAL) PROGRAM OF GRADUATE STUDIES IN CHEMISTRY M / D – CAPES 4
[HTTP://WWW.UNIFAL-MG.EDU.BR/PPGQUIMICA/](http://www.unifal-mg.edu.br/ppgquimica/)

(UFRRJ) PROGRAM OF GRADUATE STUDIES IN CHEMISTRY M / D - CAPES 4

[HTTP://WWW.ICE.UFRRJ.BR/POSGRAD/](http://www.ice.ufrrj.br/posgrad/)

(UFAL) PROGRAM OF GRADUATE STUDIES IN HEALTH SCIENCES M / D – CAPES 4

[HTTP://WWW.UFAL.EDU.BR/UNIDADEACADEMICA/ICBS/POS-GRADUACAO/CIENCIAS-DA-SAUDE](http://www.ufal.edu.br/unidadeacademica/icbs/pos-graduacao/ciencias-da-saude)

(UNIFAL) PROGRAM OF GRADUATE STUDIES IN PHARMACEUTICAL SCIENCES M / D – CAPES 4

[HTTP://WWW.UNIFAL-MG.EDU.BR/PPGCIENCIASFARMA/](http://www.unifal-mg.edu.br/ppgcienciasfarma/)

(UFG) PROGRAM OF GRADUATE STUDIES IN PHARMACEUTICAL SCIENCES M - CAPES 4

[HTTP://MESTRADO.FARMACIA.UFG.BR/PAGES/23204](http://mestrado.farmacia.ufg.br/pages/23204)

(UNIPAMPA) GRADUATE PROGRAM IN PHARMACEUTICAL SCIENCES M – CAPES 3

[HTTP://CURSOS.UNIPAMPA.EDU.BR/CURSOS/PPGCF/](http://cursos.unipampa.edu.br/cursos/ppgcf/)

SOURCE: TRIENNIAL EVALUATION REPORT 2013

REFERENCE 2010 – 2012, CAPES.

KEY:: D (DOCTORATE);

M (MASTER DEGREE);

F (PROFESSIONAL MASTER DEGREE)

SEE THE FULL LIST OF COMPLETE MASTER AND DOCTORAL THESES GUIDED BY INCT-INO FAR RESEARCHERS AND FINISHED IN 2013 AT CHAPTER 5 IN THIS PUBLICATION.



CAPE S THESES AWARD 2013 | CHEMISTRY

Every year the Coordination for the Improvement of Higher Education Personnel (Capes) awards prizes for the best doctoral theses in several areas of knowledge – the Capes Theses Award. In 2013, **INCT-INO FAR** was the winner of the Prize in Chemistry.

TITLE: *“Total synthesis of (-)-goniotrionin. Theoretical study of the stereoelectronic influence in the 1,5 selectivity in aldolic reactions involving beta-alkoxy methylketones”*

AUTHOR: Marco Antonio Barbosa Ferreira

ADVISOR: Prof. Luiz Carlos Dias

INSTITUTION: Program of Graduate Studies in Chemistry - UNICAMP

DEFENSE: 2012

AREA: Chemistry

Aside from the Capes Theses Award in Chemistry, the research has also been awarded a prize by the Paulo Gontijo Institute.

**ACCESS THE ARTICLE ON THE AWARDED THESIS
AT THE FOLLOWING LINK:**

**[HTTP://WWW.INCT-INO FAR.CCS.UFRJ.BR/
RELEASE_PREMIOCAPES2013.HTML](http://www.inct-ino far.ccs.ufrj.br/release_premiocapes2013.html)**



ORGANIZATIONAL STRUCTURE

The organizational structure of **INCT-INO FAR** is made up of a Coordinator, a Vice-Coordinator, and the Management and Follow-up Committee (CGA). The CGA is a consulting and deliberating collegiate that acts in the strategic planning of **INCT-INO FAR** activities.

The Scientific Superintendence supports the Coordination, acting in the technical-scientific evaluation of the projects under study, including in the timely meeting of previously agreed upon deadlines.

INCT-INO FAR has the participation, under confidentiality, of specialist consultants who provide scientific support in the evaluation of the projects under study, to optimize the research activities. In some projects consultants also suggest possible necessary route deviations to meet the ultimate goal of the Institute, which is contributing for the discovery of new national drugs. .

The **INCT-INO FAR** scientific competence network is made up of 31 research groups, located in 16 institutions, throughout 8 Brazilian states. Each research group

associated to **INCT-INO FAR** is led by an expert, responsible for the scientific interaction of his or her team among itself as well as with other teams that are part of the Institute.

The Financial, Executive, Communication, and Extension Secretaries provide the necessary support to the full development of **INCT-INO FAR** research and scientific awareness activities, and they are physically located in the Center for Health Sciences (CCS) at UFRJ the administrative headquarters for the Institute.



INCT-INO FAR ORGANIZATIONAL CHART

MANAGING COMMITTEE (CGA)

Prof. Vanderlan Bolzani (UNESP)
 Prof. Heloísa Beraldo (UFMG)
 Prof. Ângelo C. Pinto (UFRJ)
 Prof. Luiz Carlos Dias (UNICAMP)
 Prof. Marco Aurélio Martins (FIOCRUZ)

COORDINATOR

Prof. Eliezer J. Barreiro
 (UFRJ)

VICE-COORDINATOR

Prof. Fernando de Q. Cunha
 (USP-RP)

SCIENTIFIC CONSULTING

Prof. Francisco S. Guimarães (USP-SP)
 Prof. Vitor F. Ferreira (UFF)
 Dr. Antonio Monge (Espanha)
 Dr. Camile G. Wermuth (França)
 Dr. Simon Campbell (UK)

SCIENTIFIC SUPERINTENDENT

Prof. Lidia Moreira Lima (UFRJ)

FINANCIAL SECRETARY

Edson de Almeida Naccor

SECRETARY OF COMMUNICATION

Douglas Rodrigues
 Fabrício Maia da Silva Salvador

ASSOCIATED RESEARCH GROUPS

8 States/16 Institutions/31 Research Groups/33 CNPq Researchers/
 05 Associated Companies/
 04 International Institutions

EXECUTIVE SECRETARY

Ana Carla dos Santos

EXTENSION SECRETARY

Ana Cristina da Mata Silva

SECRETARIES

ASSOCIATED COMPANIES

INCT-INO FAR has the support, even if informal, of pharmaceutical and related companies such as In Vitro Cells Technological Research S.A., Cristalia Chemical Pharmaceutical Products Ltd., Ciallyx Laboratories & Consultancy, BiotechCell, and Nortec Chemistry.

CRISTÁLIA CHEMICAL PHARMACEUTICAL PRODUCTS

www.2cristalia.com.br

Cristália Chemical Pharmaceutical Products Ltd. is a pharmaceutical company associated to **INCT-INO FAR**, capable of supporting the conduction, at an onus, of eventual stages of the pharmacotechnical development of new prototype compounds that have reached this advanced stage of the chain of innovation in drugs and medicines. Under terms of non-disclosure and confidentiality, Cristalia will benefit, if so interested, of the information on the studied projects, by expressing an interest at the adequate deadlines to internalize the technologies developed by **INCT-INO FAR**. So that the technology is transferred, the UFRJ Innovation Agency and its equivalent at another **INCT-INO FAR** research institution will negotiate directly with the parts interested, including financial backers.

IN VITRO CELLS

In Vitro Cells – Toxicological Research S.A. is a technology based company located in Biominas Foundation (Belo Horizonte, MG). Its founders are professors at the Federal University of Minas Gerais (UFMG) in the fields of Toxicology and Biochemistry. The company is a **INCT-INO FAR** partner to conduct *in vitro* bioassays for the evaluation of safety and efficacy of new drug candidates developed by the Institute.

CIALLYX LABORATORIES & CONSULTANCY

Ciallyx Laboratories & Consultancy is a company created within CIETEC (Center for Creation of Technology Companies) that carries out efficacy studies (concept proofs) and safety studies (toxicological studies and assays) for new molecules, drugs, and formulations. Ciallyx generates results following national and international protocols under strict quality parameters using the international rules for Good Laboratory Practices – GLP. The company is an **INCT-INO FAR** partner to carry out *in vivo* bioassays for evaluating the safety and efficacy of new pharmaceutical candidates developed by the Institute.

BIOTECHCELL

www.biotechcell.com.br

The term Biotechnology refers to a wide range of enabling and potentializing technologies that involve the use, the controlled change and the optimization of live organisms or their derived products, such as cells and molecules, for the generation of processes and services. A BiotechCell® is a biotechnology entrepreneurial company from the Northeast region, born out of the scientific community from an ideal shared by young researchers who intended to align their wide academic experience to technological innovation and services. It is an **INCT-INO FAR** partner company that acts in research and providing pre-clinical pharmacology services, human biomonitoring, toxicogenetics, and applied toxicology.

NORTEC CHEMISTRY

<http://www.nortecquimica.com.br/>

In the process of pharmaceutical innovation, the active principle is fundamental for the construction of new synthesis routes. Nortec Chemistry is a 100% pharmaceutical company that can act in partnership with **INCT-INO FAR** in the production of pharmaceutical active principles. Nortec Chemistry, created in the 1980s, is headquartered in Rio de Janeiro (RJ) and has, for several years in a row, received the Excellence Award for Supplying Raw Materials, awarded by SINDUSFARMA – Pharmaceutical Industries

INTERNATIONAL AGREEMENTS



INCT-INO FAR has been making efforts to internationalize its research network, through the signature of international cooperation agreements. This internationalization is due to the recommendations from the National Council of Scientific and Technological Development (CNPq) and it follows the philosophy of the Science Without Borders program.

The goal is to make activities of Science, Technology and Innovation in Brazil internationally visible. It will also allow, through this internationalization, that new cooperation networks can be created, which may offer training opportunities for undergraduate and graduate students abroad. Currently, **INCT-INO FAR** cooperates with 04 Teaching and Research Institutes abroad, allowing the exchange between its researchers with experts in Germany, Portugal, Italy, and Uruguay.

INCT-NO FAR INTERNATIONAL COOPERATION NETWORK

GERMANY



Interdisciplinary Center for Pharmacogenomics and Pharmaceutical Research (ICEPHA)
University of Tübingen, Germany.
 Researcher in Charge: Prof. Stefan Laufer

ITALY



Department of Pharmaceutical Science
University of Ferrara, Italy.
 Researcher in Charge: Prof. Pier G. Baraldi

PORTUGAL



Department of Chemistry
University of Aveiro, Portugal.
 Researcher in Charge: Prof. Jose A. F. Cavaleiro

URUGUAY



Department of Organic Chemistry,
National University of the Republic, Uruguay.
 Researcher in Charge: Prof. Hugo Cerecetto and Prof. Mercedes Gonzalez



INTERNATIONAL AGREEMENTS

Among the main objectives of the international agreements are the development of joint research projects, the organization of academic and scientific activities, the exchange of researchers and/or students, as well as the exchange of materials and relevant publications in the field.

OTHER INTERNATIONAL ACTIONS

In parallel to other international agreements, **INCT-INO FAR** makes efforts towards punctual cooperation between their researchers and renowned international scientists. Under confidentiality, **INCT-INO FAR** has the participation of international consultants who provide scientific support in the evaluation of the projects under study. Currently, the Institute has 03 international consultants:

INCT-INO FAR International Assistance

- Prof. Antonio Monge (University of Navarra, Pamplona, Spain)
- Dr. Camille G. Wermuth (Prestwick Chemical, Ilkirch, France)
- Dr. Simon Campbell (*Royal Academy of Science*, London, England)



CURRENTLY STUDIED INCT-INOVAR SUBPROJECTS

RADICAL INNOVATION

INFLAMMATION (Pulmonary Diseases)

1. Study of the potential anti-inflammatory effect of LASSBio 897 compound, in silicosis and asthma compounds

Prof. Patricia Machado Rodrigues e Silva (FIOCRUZ - RJ) [CV-Lattes](#)
Prof. Marco Aurelio Martins (FIOCRUZ - RJ) [CV-Lattes](#)

2. Impact of therapy with nanoparticles with the thymuline gene in a chronic allergic asthma model

Prof. Patricia Rieken Macedo Rocco (UFRJ) [CV-Lattes](#)

3. Study for identification of new sulfonamide compounds effective in the control of pulmonary inflammation caused by silica in mice

Prof. Patricia Machado Rodrigues e Silva Martins (FIOCRUZ-RJ) [CV-Lattes](#)

4. Development of new antiasthmatic pharmaceutical prototypes (LASSBio-596)

Prof. Patricia Rieken Macedo Rocco (UFRJ) [CV-Lattes](#)
Prof. Lidia Moreira Lima (UFRJ) [CV-Lattes](#)

INFLAMMATION AND PAIN

5. New 5-aryl-2-furfuryl-N-acylhydrazones compounds functionalized with potent anti-inflammatory and analgesic activity: LASSBio-1609 e LASSBio-1636

Prof. Carlos Alberto Manssour Fraga (UFRJ) [CV-Lattes](#)

6. Development of new antiarthritic pharmaceutical candidates, MAPK p-38 modulators

Prof. Lidia Moreira Lima (UFRJ) [CV-Lattes](#)

7. Benzaldehyde semicarbazone (BS)

Prof. Heloisa de Oliveira Beraldo (UFMG) [CV-Lattes](#)

8. Planning, synthesis, structural characterization, and pharmacological evaluation of new anti-inflammatory, anti-infectious, and neuroactive drug candidates

Prof. Claudio Viegas Junior (UNIFAL) [CV-Lattes](#)

9. Development of new anti-inflammatory and analgesic pharmaceutical candidates from safron

Prof. Lidia Moreira Lima (UFRJ) [CV-Lattes](#)

10. Planning of structural changes aimed at the optimization of the affinity of the selective inhibitor of IKK2 enzyme, LASSBio-1524

Prof. Laurent Emmanuel Dardenne (LNCC) [CV-Lattes](#)

CURRENTLY STUDIED INCT-INO FAR SUBPROJECTS

CHEMOTHERAPY

- 11. Evaluation of antiparasitic activity of a series of semicarbazone and hydrazine-N-acylhydrazones derivatives (Leishmanicidal)**
Prof. Magna Suzana Alexandre Moreira (UFAL) [CV-Lattes](#)
- 12. Discovery of new antitumoral pharmaceutical candidates analog to combrestatin A4 (Antineoplastic)**
Prof. Lidia Moreira Lima (UFRJ) [CV-Lattes](#)
- 13. Theoretical investigation of the action mechanism of dialkylphosphorilhydrazones as inhibitors of the ribose 5-phosphate isomerase enzyme of trypanosoma cruzi and plasmodium falciparum (Trypanomicidal)**
Prof. Carlos Mauricio R. de Sant'Anna (UFRRJ) [CV-Lattes](#)

CENTRAL NERVOUS SYSTEM

- 14. Study of N-phenylpiperazine derivatives functionalized as prototypes for the development of new atypical antipsychotics (antipsychotic)**
Prof. Stela Maris Kuze Rates (UFRS) [CV-Lattes](#)
Prof. Carlos Alberto Manssour Fraga (UFRJ) [CV-Lattes](#)
- 15. Pharmacological evaluation of new neuroactive Zolpidem neuroactives (neuropathic pain)**
Prof. Roberto Takashi Sudo (UFRJ) [CV-Lattes](#)
- 16. Planning, synthesis, and pharmacological evaluation of vectorized and self-organized neuroactive pharmaceutical prototypes**
Prof. Ricardo Menegatti (UFG) [CV-Lattes](#)

CARDIOVASCULAR SYSTEM

- 17. Therapeutic potential of new vasodilator (LASSBio 1289) in arterial and pulmonary hypertension**
Prof. Gisele Zapata Sudo (UFRJ) [CV-Lattes](#)
- 18. Pharmacological and toxicological evaluation of new pharmaceutical candidates for the prevention and treatment of miocardiopathy and neuropathy caused by diabetes mellitus**
Prof. Gisele Zapata Sudo (UFRJ) [CV-Lattes](#)

INCREMENTAL INNOVATION

GENERIC DRUGS

19. Synthesis of sunitinib

Prof. Eliezer J. Barreiro (UFRJ) [CV Lattes](#)

Prof. Angelo da Cunha Pinto (UFRJ)

[CV Lattes](#)

Prof. Barbara Vasconcelos (UFRJ)

[CV Lattes](#)

20. Synthesis of fluoxetine

Prof. Eliezer J. Barreiro (UFRJ) [CV Lattes](#)

Prof. Luiz Carlos Dias (UNICAMP)

[CV Lattes](#)

Dr. Adriano V. Siqueira (UNICAMP)

[CV Lattes](#)

21. Synthesis of atorvastatin

Prof. Eliezer J. Barreiro (UFRJ)

[CV Lattes](#)

Prof. Luiz Carlos Dias (UNICAMP)

[CV Lattes](#)

Dr. Adriano V. Siqueira (UNICAMP)

[CV Lattes](#)





2013 HIGH LIGHTS

PARTNERSHIP BETWEEN INCT- INOFAR & INCT- IDN

In compliance with a recommendation by the Federal Government for the National Institutes of Science and Technology (INCTs) to develop projects in a network, in 2013, **INCT-INO FAR** established a partnership with the INCT of Innovation in Neglected Diseases (INCT-IDN) to develop an innovative treatment against infections caused by fungi.

Immunosuppressed patients submitted to organ and marrow transplants, to chemotherapy or who use the anti-HIV cocktail, due to being the most vulnerable to fungal infections, may be the most benefitted by the partnership between the two INCTs.

The INCT of Innovation in Neglected Diseases (INCT-IDN) is an international network of research groups created to study, foster and promote innovation in health, with a focus on neglected diseases considered to be sanitary priorities in Brazil. The institute is coordinated by Dr. Carlos Medici's Morel and is hosted at the Center for Technological Development (CDTS) of the Oswaldo Cruz Foundation (Fiocruz), located in the Manguinhos campus, in Rio de Janeiro.

2013 HIGHLIGHTS



inct-idn
instituto nacional de
ciência e tecnologia
de inovação em
doenças negligenciadas

While studying fungal microbiology, researcher Marcio Lourenco Rodrigues, of INCT-IDN, discovered that if a specific gene of these fungi were to be knocked out, it would lose its pathogenic properties and would become inoffensive. From that concept proof, it was necessary to then test substances that were capable of inactivating these genes, breaking the infectious process started by fungi.

Due to the bureaucratic complexity involved in having access to libraries of compounds abroad, INCT-IDN has established a partnership with **INCT-INO FAR** to test compounds of the Laboratory of Evaluation and Synthesis of Bioactive Substances (LASSBio). LASSBio is a laboratory at the Federal University of Rio de Janeiro (UFRJ) associated to **INCT-INO FAR**, that has over 1,500 prototype compounds (ligands) in its chemical library, synthesized and pharmacologically tested in its own laboratory.

**FOR FURTHER
INFORMATION GO TO:**

WWW.CDTS.FIOCRUZ.BR/INCT-IDN

In case the partnership between the INCTs INOFAR & IDN is successful, identifying a compound capable of inactivating the pathogenic gene of fungi, it will no longer be necessary to identify the fungus before treatment, because most fungi have this specific gene. This way, the partnership between INCTs may originate an innovative wide spectrum treatment to fight fungal infections.

For further details on the partnership, please go to the following article in the Drugs Portal: http://www.inct-inofar.ccs.ufrj.br/release_inct_idn.html

LAUNCH OF THE DOCKTHOR-LNCC/MCTI PORTAL

Developed by **INCT-INOVAR** associated researchers and from the National Laboratory of Scientific Computation (LNCC/MCTI), the DockThor portal was launched in July 2013. The portal is completely free to access, and it is the first in Brazil and the Southern Hemisphere dedicated to the evaluation of small ligand molecules. The Portal has a goal of reducing costs and optimizing the time of development for research in the discovery of new drugs in Brazil.

The DockThor portal allows that any researcher in computational biology simulate the interaction between a ligand molecule and a protein related to the disease being treated. The portal allows the automatic preparation of the protein and the ligand without the need for experts in molecular modelling.

The program uses a genetic algorithm to investigate several possibilities and predict the ligation mode and strength between the protein and the ligand. The stronger the affinity between two molecules, the more likely that the ligand molecule under study is a good candidate for the process of development of a new drug.



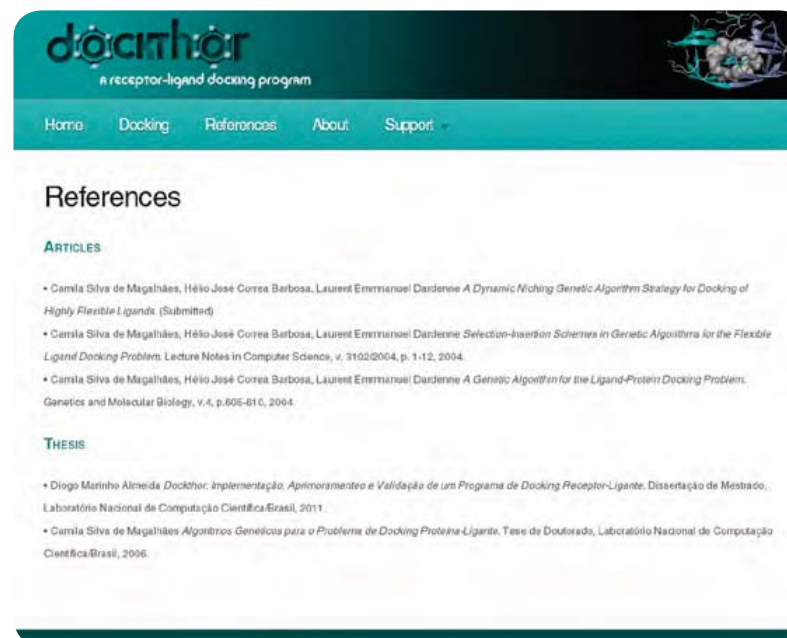
DOCKTHOR PORTAL:
[HTTP://DOCKTHOR.LNCC.BR](http://dockthor.lncc.br)



To use the DockThor portal, the researcher needs only to send a file with information on the ligand molecule and the protein he or she wishes to research. When the simulation is done, the researcher can access the results through a specific link sent to his or her email. Usually, the results are sent to the users in less than 24 hours.

The program is then executed from the infrastructure provided by the National System of High Performance Processing (Sinapad), a network of high performance computing centers created by the Ministry of Science, Technology, and Innovation (MCTI), where the portal is hosted.

2013 HIGHLIGHTS



The DockThor portal project is supported by **INCT-INO FAR** and it is coordinated by Prof. Laurent Emmanuel Dardenne, expert in Biophysics from LNCC. In the future, the Portal will allow **INCT-INO FAR** researchers to have access to simulations with its database of ligands and with the target proteins used, in their specific studies for the development of drugs.

INCT-INO FAR RESEARCH INSPIRES EDITORIAL IN CLINICAL AND EXPERIMENTAL PHARMACOLOGY AND PHYSIOLOGY (CEPP)



“Antihyperalgesic effects of a novel muscarinic agonist (LASSBio-873) in spinal nerve ligation in rats”

Clinical and Experimental Pharmacology and Physiology (CEPP) 2013, 40, 404-411
(doi: [10.1111/1440-1681.12090](https://doi.org/10.1111/1440-1681.12090))

AUTHORS: Thaiana da Cunha Ferreira Mendes, Fernanda Antunes, Margarete Manhaes Trachez, Nailton Monteiro Nascimento Junior, Carlos Alberto Manssour Fraga, Eliezer J. Barreiro, Gisele Zapata-Sudo and Roberto Takashi Sudo.

The article “*Antihyperalgesic effects of a novel muscarinic agonist (LASSBio-873) in spinal nerve ligation in rats*”, produced by researchers associated to INCT-INO FAR of the Federal University of Rio de Janeiro (UFRJ), inspired an editorial published at the periodical *Clinical and Experimental Pharmacology and Physiology* (CEPP). The article and the editorial titled “*Muscarinic agonists in the treatment of neuropathic pain: a novel finding*” were published in July 2013, in volume 40 of the print version of CEPP. (doi: [10.1111/1440-1681.12090](https://doi.org/10.1111/1440-1681.12090)).

The article produced by **INCT-INO FAR** researchers deals with research to develop new drugs to fight neuropathic pain. The disease, which is caused by lesion or somatosensory nervous system diseases like diabetes, nervous compression and herpes, generally affects the quality of life of patients.

The current treatment for neuropathic pain is based on the use of antidepressants, anticonvulsives, and opioids, drugs associated with several side effects. The fact that most patients using combined therapeutics show no improvement of the pain situation has motivated the group of researchers to seek alternatives for the treatment of neuropathic pain.

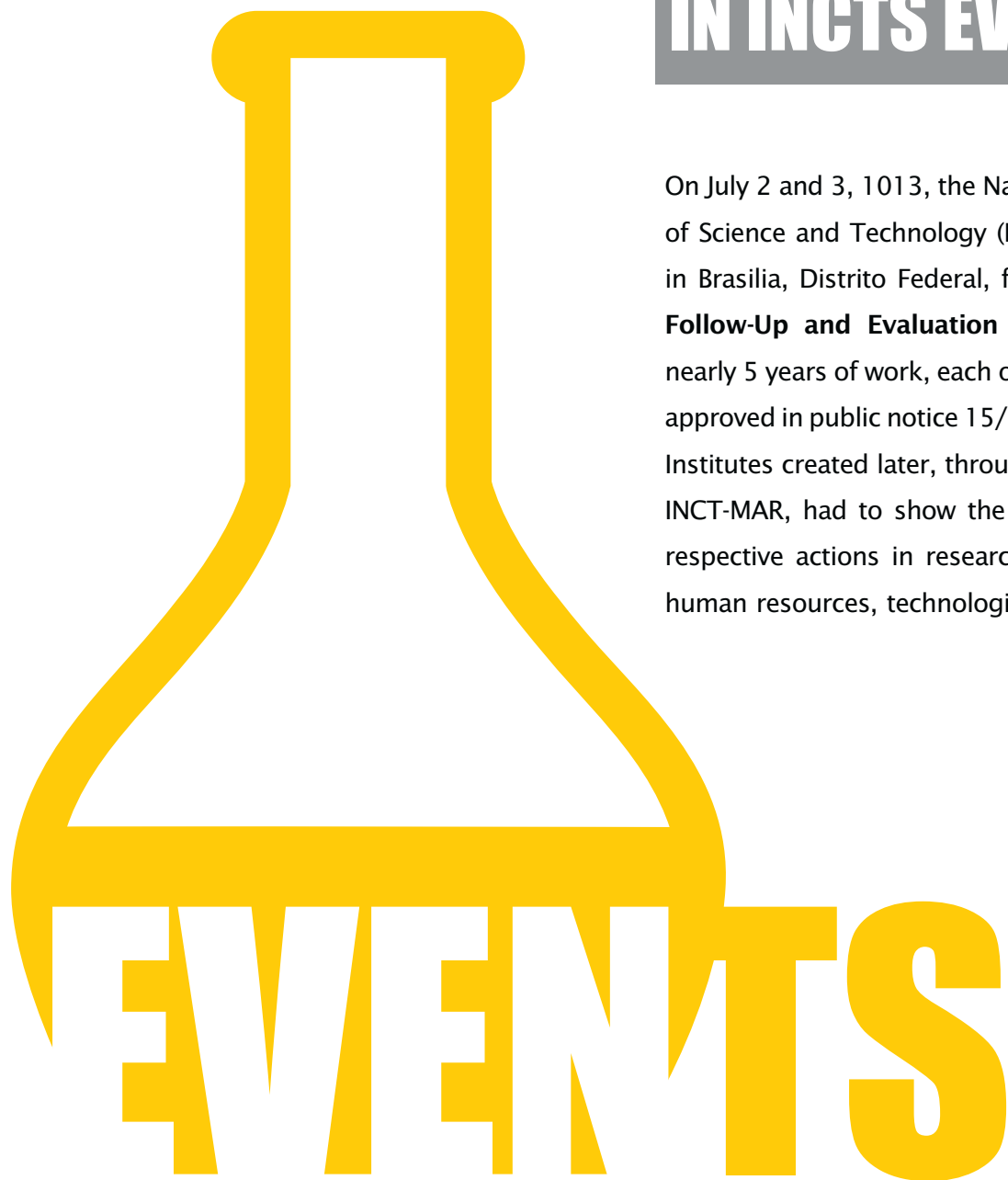
The article led by professors Gisele Zapata-Sudo and Roberto Takashi Sudo shows improvement of neuropathic pain in an animal model through the activation of muscarine receptors. The presentation of the new substance in an alternative therapeutic target has piqued the interest of the editorial team to publicize the news to medical professionals.

INCT-INO FAR SURPRISES IN INCTS EVALUATION MEETING

On July 2 and 3, 2013, the National Institutes of Science and Technology (INCTs) gathered in Brasília, Distrito Federal, for the **II INCTs Follow-Up and Evaluation Seminar**. After nearly 5 years of work, each of the 122 INCTs approved in public notice 15/2008, plus the 4 Institutes created later, through the so-called INCT-MAR, had to show the results of their respective actions in research, education of human resources, technological transfer and

scientific awareness and promotion. **INCT-INO FAR** surprised the evaluators and the audience with its strong presence in each of the 4 areas evaluated.

CNPq promoted the II INCTs Follow-Up and Evaluation Seminar in partnership with the Center for Management and Strategic Studies (CGEE) of MCTI. The evaluation was conducted by an excellent team made up by national and foreign consultants. To assess the 126 INCTs, 11 theme groups were created, which dealt with 8 different breakthrough research areas in science and technology, in themes strategic for the sustainable development of the country. The event also had a booth area (hall and exposition) where representatives for each INCT could present promotion materials and interact with researchers from other Institutes.



The health sector represents today around 35% of the Brazilian scientific production, and this is reflected in the INCTs, where a third of the Institutes are in health. For the Secretary of Science, Technology and Strategic Materials of the Ministry of Health (MS), Carlos Gadelha, it is fundamental to put the knowledge developed in the INCTs at the service of the health system, so that the constitutional mandate is fulfilled. *“Science can help sustainability of incorporating new technologies to the [healthcare] system, which establishes universal, full, and equal access”* – observed the secretary.

In his opening speech at the event, Gadelha suggested another variable for the evaluation of INCTs: the contribution for the wider health policies: *“The scientific community must have the commitment of cooperating with the construction of a more solid and sustainable*

health system in the country.” According to the Secretary, today the purchase of drugs represents over 10% of the Ministry of Health’s budget.

INCT-INOVAR at the II INCTs Follow-Up and Evaluation Seminar: Eliezer J. Barreiro (Coordinator), Lidia Lima (Scientific Superintendent) and Ana Cristina da Mata (Secretary of Extension)



INCT-INO FAR SURPRISES IN INCT'S EVALUATION MEETING

REVERSING THE “INDIAN PATHWAY”

Aware that Brazil has a deficient pharmaceutical industry and that it is extremely dependent on the importation of active principles, medications, and pharmacotechnical adjuvants, the National Institute of Science and Technology of Drugs and Medicines (**INCT-INO FAR**) makes efforts to revert the “Indian Pathway” of drugs in the country. With a mission to act in the discovery of new drugs and medicines and in the search for new synthetic routes for generics that have a large impact on the Brazilian trade balance, **INCT-INO FAR** helps build a more efficient health care system in the country.

To call attention to the need to develop public policy that encourages the production of Brazilian drugs, **INCT-INO FAR** researchers go public with the issue, providing criticism and suggesting solutions. Through the publication of editorials, the participation in debate forums, the publicizing of their discoveries in the press, among other actions, the Institute highlights the idea that, without a strong national pharmaceutical and pharmaceutical industry, that is capable of establishing partnerships for the primary scaling of molecules discovered in academia, Brazil will hardly be able to develop a fully national drug, and will remain dependent on importation.

According to the speech by the president of the Coordination for Improvement of Higher Education Personnel (CAPES), Jorge Guimaraes, one of the largest contributions by INCTs was the development of the new graduate courses focused on the networks. Considering that there is no way to make a truly national drug available compatible with the main health demands of our population without good Medicinal Chemistry professionals, **INCT-INO FAR** researchers have helped created, at the Institute of Biomedical Sciences in the Federal University of Rio de Janeiro (UFRJ), a new graduate course in Latin America, that combines Pharmacology and Medicinal Chemistry.



OPENING CEREMONY OF THE II INCTS FOLLOW-UP AND EVALUATION SEMINAR, IN BRASILIA

INCT-INO FAR SURPRISES IN INCT'S EVALUATION MEETING

INCT-INO FAR INSPIRING FELLOW INCT'S

Out of the 126 INCTs, 38 are health focused. To make the evaluation logistics easier, the Health INCTs were divided in 3 groups. Each Institute had the challenge of, in thirty minutes, presenting the result of their actions in four areas of equal importance in the evaluation: research, education of human resources, transfer of technology, and scientific awareness and promotion.

INCT-INO FAR was part of the 3rd Health Group, and was evaluated by Dr. Osvaldo Yantorno of the *Universidad Nacional de La Plata*, by Dr. Walter Colli of the University of Sao Paulo (USP) and by Dr. Paola Minoprio of the *Institut Pasteur de Paris*. Impressed by the graphic quality of the Annual Activities Report that she received previously to evaluate, Paola Minoprio made sure to visit the **INCT-INO FAR** booth. At the occasion, the evaluator from the *Institut Pasteur* in Paris was surprised by the diversity of actions in scientific awareness and health education and complimented the Institute thusly:

At her visit to the **INCT-INO FAR** booth, the evaluator took home the full kit of **INCT-INO FAR** scientific awareness materials. With a stylized Brazilian flag on the cover to remind everyone of the importance of the work towards a national medication, the **INCT-INO FAR** kit had, among other materials, the digital content of four annual reports produced by the Institute, from 2009 to 2012, and a catalog with the summarized portfolio of **INCT-INO FAR** actions in science promotion.

"It is really exemplary work that INCT-INO FAR has developed throughout the years. Beside scientific research at the highest level, the Institute also carries out activities in schools, making children look at science making"

Dr. Paola Minoprio
Institut Pasteur de Paris

When questioned by the evaluator and by other INCT representatives about the secret to developing so many projects at once, both in scientific research and in science promotion, the **INCT-INO FAR** coordinator explained that this is only possible due to team work.

*“Having qualified professionals in their respective areas to carry out each action is fundamental. To support the multidisciplinary work of **INCT-INO FAR** researchers, we have administrators, educators, and journalists.”* - observed Barreiro, who was happy to know that coordinators of other INCTs look up to **INCT-INO FAR** for inspiration, to develop better work with each passing day.



INCT-INO FAR in the spotlight: Prof. Eliezer J. Barreiro (coordinator) presents the Institute to three evaluators



Ana Carla dos Santos (Executive Secretary) and Ana Cristina da Mata (Secretary of Extension) at the INCT-INO FAR booth at the II INCTs Follow-Up and Evaluation Seminar

EVENTS

INCT-INO FAR FOLLOW-UP AND EVALUATION EVENTS

INCT-INO FAR organizes, from time to time, internal follow-up and evaluation events with the goal of strengthening scientific cooperation among its research network, and to discuss internally the results achieved by their subprojects that are most advanced in the chain of innovation in drugs and medicines.

In 2013, **INCT-INO FAR** organized two internal events, with the VII **INCT-INO FAR** Follow-Up and Evaluation Workshop taking place in the first half of the year, and the **INCT-INO FAR** Strategic Planning Meeting on the second half of 2013.



VII INCT-INO FAR FOLLOW-UP AND EVALUATION WORKSHOP

With an innovative format that had consultants for each theme block, the VII **INCT-INO FAR** Follow-Up and Evaluation Workshop (VII WSAA) took place in Rio de Janeiro, on April 24 and 25, 2013. The first day of the event dealt with the results of incremental innovation, especially those related to generic drugs, and with the results of radical innovation projects referring to new candidates for leishmanicidal and antipsychotic drugs. Anti-inflammatory, antihypertensive, and pharmaceutical candidates for the treatment of diabetes were presented on the second day of the event.

In the dynamic planned for the **INCT-INO FAR** Follow-Up and Evaluation event, after the presentation of each research project, **INCT-INO FAR** external consultants had the floor so they could add their considerations. At the VII WSAA, **INCT-INO FAR** had the cooperation of 05 external consultants and the moderation of members of the **INCT-INO FAR** Managing and Evaluation Committee (CGA).

EXTERNAL CONSULTANTS



Prof. Frederico Guilherme Graeff (USP-RP) CV lattes

Prof. Giles Alexander Rae (UFSC) CV lattes

Prof. Hugo C. Castro Neto (Fiocruz-RJ) CV lattes

Prof. Manoel Barral (UFBA) CV lattes

Prof. Vitor F. Ferreira (UFF) CV Lattes

INCT-INO FAR STRATEGIC PLANNING MEETING

With a goal of evaluating the research and education trajectory of **INCT-INO FAR** and of establishing new goals for the future, the Institute gathered the leaders of its research network on August 12, 2013 in its headquarters at the Federal University of Rio de Janeiro (UFRJ). Prior to the **INCT-INO FAR** Strategic Planning Meeting, the 20th Managing and Evaluation Committee meeting took place.

Around 30 researchers, leaders of research laboratories associated to **INCT-INO FAR** of different Science and Technology Institutions in Brazil took part in the Strategic Planning Meeting. For the first time, representatives from the Financial, Executive, and Extension Secretaries were able to formally present their work routines to Institute researchers, who were surprised by the many tasks undertaken by the three secretaries to make the **INCT-INO FAR** machine work.

Continuing the presentations, the Scientific Superintendence talked about their strategic job in the Institute, of being the bridge between the associated researchers and the **INCT-INO FAR** coordinator, as well as between the CGA. For Prof. Lidia M. Lima (UFRJ), responsible for the area, as well as keeping up with the scientific production of members of the Institute, one of the main jobs performed by the Scientific Superintendence is to try to standardize the scientific language so that all areas can understand one another, considering that **INO FAR** is a hybrid INCT, with multidisciplinary research.

During the event, the floor was open to the associated researchers so that they can balance the positive and negative aspects of **INCT-INO FAR**, from its creation. It is expected that this collective brainstorm, promoted and encouraged by the coordination at this Strategic Planning Meeting, is the basis for the construction of a future project for the new INCT public notice, focused on the excellence of the **INCT-INO FAR** research network.

The INCT-INO FAR Strategic Planning Meeting was carried out at UFRJ



PROMOTION AND PARTICIPATION IN EVENTS

As a part of its institutional routine, **INCT-INO FAR** organizes, promotes, supports and takes part in events in their research area dealing with innovation in drugs and medicines. A form of actively contributing to the diffusion of knowledge in the academic-scientific community, cooperating for Brazil to improve its human resources and to advance in studies for new medications.

Periodically, **INCT-INO FAR** researchers take part in Congresses, Meetings, Seminars, Symposiums, and Workshops, teaching courses, lecturing at conferences, being part of round tables, among other activities. Parallel to these actions, **INCT-INO FAR** also supports courses and conferences on drugs and medicines. Always mindful of the importance of partnerships, **INCT-INO FAR** also invests in events that have the cooperation of companies, NGOs, and other institutions.



EVENTS

XIX SUMMER SCHOOL IN MEDICINAL PHARMACEUTICAL CHEMISTRY



http://www.evqfm.com.br/xix_evqfm/

Traditionally organized by the Laboratory of Evaluation and Synthesis of Bioactive Substances (LASSBio™), the Summer School in Medicinal Pharmaceutical Chemistry (EVQFM) has been incorporated to **INCT-INO FAR** as an extension activity. The event, which always takes place at UFRJ during the summer school vacation, offers 5 consecutive days of courses and conferences with renowned national and foreign experts in the field of Medicinal Pharmaceutical Chemistry. In 2013, from March 18 to March 22, the event took place for the 19th year in a row.



Since its creation, in 1995, the School has had over 2,800 participants from different parts of the country and abroad, and has received celebrity scientists, responsible for the development of innovative medications, who have personally recounted their discoveries.

Planned to deal with a multidisciplinary and interdisciplinarity of topics, the XIX Summer School presented 06 courses, with 01 of them being a tutorial, and 05 conferences on topics related to Medicinal Pharmaceutical Chemistry. At the press coverage for the 2013 edition, as well as daily reports, special reports on each of the five conferences were published.

XIX SUMMER SCHOOL IN MEDICINAL PHARMACEUTICAL CHEMISTRY

XIX EVQF COURSES

Introduction to Medicinal Pharmaceutical Chemistry

Prof. Dr. Eliezer J. Barreiro (LASSBio/UFRJ)

Drug Metabolism and Medication Interactions

Prof. Dr. Lidia Lima (LASSBio/UFRJ)

Highlights in Medicinal Chemistry

Prof. Bruce Cassels (University of Chile)

Principles of Pharmacology

Prof. Bagnolia Araujo (UFPB)

Contribution of Subtle Structural Effects in the Discovery of Drugs

Prof. Carlos Alberto Manssour Fraga (LASSBio/UFRJ)

Tutorial: Computational Chemistry and Molecular Modelling

Prof. Nelilma Romeiro (UFRJ) and
Prof. Carlos Mauricio Sant'Anna (UFRRJ)

XIX EVQFM CONFERENCES

“Halogen Bonds in Medicinal Chemistry”

Prof. Bruce Cassels (University of Chile)

“Opportunities for innovation in drugs and medicines: INCT-INO FAR”

Prof. Dr. Eliezer J. Barreiro (LASSBio/ UFRJ)

“Challenges and Opportunities in the Development of New Chemotherapeutic Drugs: LASSBio Contributions”

Prof. Dr. Lidia Lima (LASSBio/UFRJ)

“Approaches of Inorganic Chemistry for the development of new anti-Alzheimer drugs”

Prof. Heloisa Beraldo (LASSBio/UFRJ)

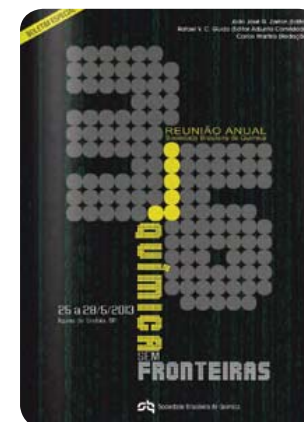
“Opportunity for the development of a new analgesic”

Prof. Thiago Mattar Cunha (LASSBio/UFRJ)



36TH ANNUAL MEETING OF THE BRAZILIAN SOCIETY OF CHEMISTRY

<http://www.s bq.org.br/36ra/>



Helping enrich the discussions in the realm of Chemistry aimed at the development of new drugs and medicines, **INCT-INO FAR** took part of the 36th Annual Meeting of the Brazilian Society of Chemistry (RASBQ). The event took place from May 25 to 28 in the city of Aguas de Lindoia in Sao Paulo.

At the event, considered the largest Chemistry event in Latin America, **INCT-INO FAR** researchers were highlighted in the scientific programming. As well as giving lectures in theme sessions and panels, **INCT-INO FAR** was also present at the 36th RASBQ Fair.

Those who had the opportunity of visiting the booth were able to see and be surprised by the work done by **INCT-INO FAR** in the search for new synthetic routes to achieve generic drugs, as well as having the opportunity to take home a kit with the Scientific Awareness & Health Education published by **INCT-INO FAR**. Around 400 people visited the Institute's booth during the three days of the 36th RASBQ fair. With very important visitors like the President of the Brazilian Society of Chemistry (SBQ), Prof. Vitor Francisco Ferreira, among several other professionals, like the President of the American Chemical Society (ACS, Washington, USA), Dr. Marinda Li Wu.

36TH ANNUAL MEETING | BRAZILIAN SOCIETY OF CHEMISTRY



**INCT-INO FAR booth
at the 36th RASBQ**

INCT-INO FAR IN THE SCIENTIFIC PROGRAMMING

Prof. Claudio Viegas Junior (UNIFAL-MG)

Presented a lecture at the “New Frontiers in the identification, synthesis and evaluation of bioactive molecules” Workshop.

Prof. Carlos Maurício Rabello de Sant’Anna (UFRRJ)

Coordinated the Session “Biological Chemistry/Medicinal Chemistry”

Prof. Lidia Moreira Lima (LASSBio-UFRJ)

Presented a paper at Session “Biological Chemistry/Medicinal Chemistry”

Doctoral Candidate Marina Amaral

Alves (IQ, LASSBio - UFRJ)

Presented a paper at Session “Biological Chemistry/Medicinal Chemistry”

Prof. Carlos Alberto Manssour Fraga (UFRJ)

Prof. Vanderlan da Silva Bolzani (UNESP)

Coordinators of Theme Session

“Translational research in the development of drugs and medicines”

Prof. Marco Aurelio Martins (FIOCRUZ)

Presented a paper at Theme Session

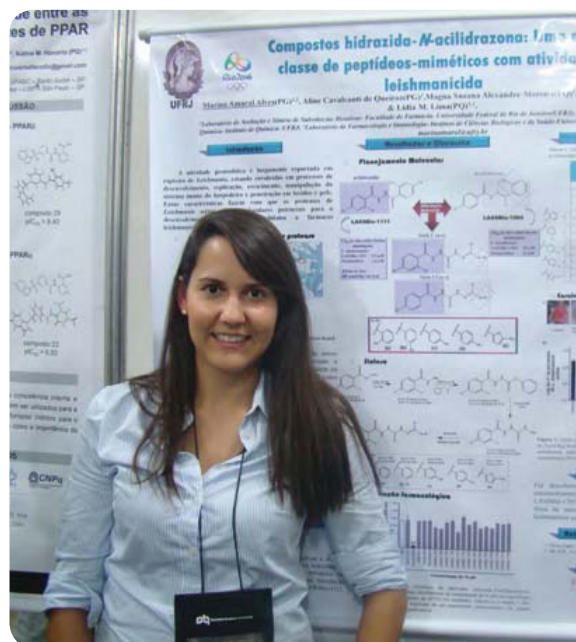
“Translational research in the development of drugs and medicines”



36TH ANNUAL MEETING BRAZILIAN SOCIETY OF CHEMISTRY

INCT-INOVAR PANELS ARE AWARDED AT 36TH RASBQ

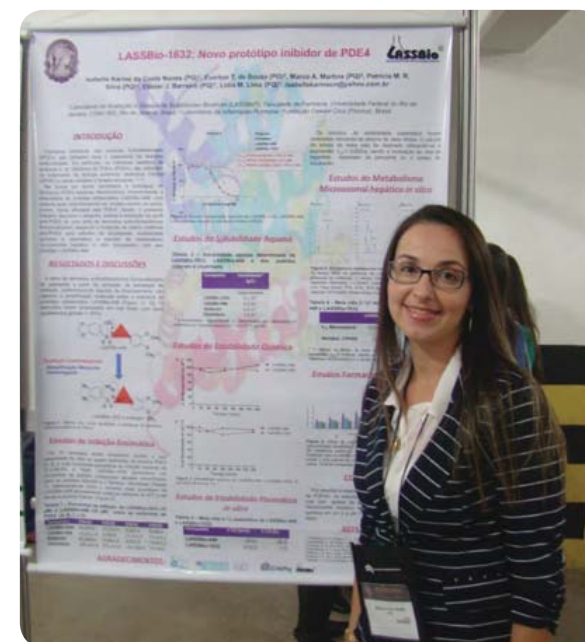
INCT-INOVAR had two displays awarded by the Chemistry Division in the 36th RASBQ. Both works were advised by Prof. Lidia M. Lima of LASSBio/UFRJ and dealt with research to reach new therapeutic alternatives that are safe and effective for the treatment of neglected diseases, in particular Leishmaniasis, and the treatment of chronic pulmonary obstructive disease and asthma. The authors of the work are respectively doctoral candidate Marina Amaral Alves of the Graduate School in Chemistry (IQ-UFRJ) and Dr. Isabelle Nunes of the Graduate School in Pharmacology and Medicinal Chemistry (ICB-UFRJ).



MARINA AMARAL ALVES (UFRJ)

"Hydrazide-N-acylhydrazone compounds: a new class of peptide-mimetic with leishmanicidal activity."

Alves, M. A. (PG); Queiroz, A. C. (PG); Alexandre-Moreira, M. S. (PQ); Barreiro, E. J. (PQ); Lima, L. M. (PQ) - UFRJ



ISABELLE NUNES (UFRJ)

"LASSBio-1632: new PDE4 inhibitor prototype"

Nunes, I. K. da C. (PG); de Souza, E. T. (PG); Martins, M. A. (PQ); Silva, P. M. R. (PQ); Barreiro, E. J. (PQ); Lima, L. M. (PQ) - UFRJ.

7TH ENIFarMed

INCT-INO FAR took part, on August 20 and 21, 2013, of the seventh edition of the National Meeting in Innovation in Drugs and Medicines (7th ENIFarMed). ENIFarMed is a consolidated forum to encourage interaction between professionals in Research, Development and Innovation in companies in the production chain of the pharmaceutical sectors with researchers in Institutes of Science and Technology (ICTs) and Universities. The event gathered academia, industry, and representatives of government agencies to discover a common agenda for the advancement of technological innovation in drugs and medicines in Brazil.

With a goal of developing the projects under study in its network of research in drugs and medicines, as well as getting closer to the productive sector and government agencies, **INCT-INO FAR** was part of the 5th ExpoFarMed, a business fair connected to the 7th ENIFarMed. With a green and yellow booth, the Institute called attention to the importance of investing in the Brazilian scientific expertise, so that Brazil can start producing drugs with genuinely national technology. This was the Institute's third time at the ENIFarMed business fair.



7TH ENIFarMed

INCT-NOFAR IS AWARDED 3 TIMES AT THE 7TH ENIFARMED



INCT-INO FAR had a booth at the 7th ENIFarMed business fair

Three **INCT-INO FAR** research projects were awarded the Technical Recognition Prize promoted by the event. The winners of the first and third places focused on incremental innovation, presenting the development of new synthetic routes for the production of generic versions of drugs that have a high impact on the Public Health Care System (SUS) and on the Brazilian trade balance. The research awarded the 4th place was about radical innovation, dealing with an innovative molecule for the treatment of severe asthma, chronic obstructive pulmonary disease, and silicosis.

Among the criteria for the selection of the winners of the Technical Recognition Prize at the 7th ENIFarMed were the adequacy of the project to the market focus; conceptual and practical basing, related to incremental innovation or to invention, and social relevance of the theme.

Authored by Prof. Dr. Barbara Vasconcellos da Silva and by Prof. Dr. Angelo da Cunha Pinto from the Institute of Chemistry of UFRJ, the research “Synthesis of Sunitinib” was awarded the first place at the Technical Recognition Award at the 7th ENIFarMed. The work awarded summarizes the efforts of **INCT-INO FAR** in the discovery of a new synthetic route for sunitinib (Sutent®), a high cost medication for fighting kidney, stomach, and intestinal caners.

Under the supervision of Prof. Dr. Luiz Carlos Dias, of the Institute of Chemistry of UNICAMP, the synthetic methodology developed by Dr. Adriano Siqueira for the “Total synthesis of fluoxetine chloridate” is an innovative method to obtain the generic for Prozac®. The research developed at **INCT-INO FAR** received the 3rd place at the 7th ENIFarMed Technical Recognition Award.

Making efforts in radical innovation, Dr. Isabelle Karine da Costa Nunes, advised by Prof. Dr. Lidia Moreira Lima of the Laboratory for Evaluation of Bioactive Substances (LASSBio) of UFRJ, has dedicated part of her doctoral thesis to the research “LASSBio-1632: a new PDE4 inhibitor prototype”. The study in question received the 4th place at the Technical Recognition Award and it represents a therapeutic hope for patients with severe asthma, silicosis, and chronic obstructive pulmonary disease.

INCT-INO FAR also took part of the 7th ENIFarMed during the theme session “Innovation in Chemical Synthesis”, being represented by its coordinator, Prof. Dr. Eliezer J. Barreiro (UFRJ).

7TH ENIFarMed



BARBARA VASCONCELLOS – 1ST PLACE



ADRIANO SIQUEIRA – 3RD PLACE



ISABELLE NUNES – 4TH PLACE



TRIPLE CELEBRATION FOR INCT-INO FAR IN THE 7TH ENIFARMED



EVENTS

The National Health Surveillance Agency (ANVISA), in partnership with the Oswaldo Cruz Foundation (Fiocruz) and the Secretary of Science and Technology of the Ministry of Health promoted, on October 09, 2013, in Brasilia, the seminar Evaluation of the Brazilian Pharmaceutical Sector: Technological and Productive Qualification". **INCT-INO FAR** was part of the event, being represented by its Scientific Superintendent, Prof. Dr. Lidia Moreira Lima.

At the opening table, the vice-president of Production and Innovation in Health, Jorge Bermudez, presented the results of the study carried out on the technological and productive capacity of the Brazilian pharmaceutical. Out of the 36 companies present in Brazil and visited by researchers, 23 have an actual pharmaceutical profile. Out of these, 89% are of fully national capital 4% are of mixed capital, and 7% are multinational.

EVALUATION OF THE BRAZILIAN PHARMACEUTICAL SECTOR: TECHNOLOGICAL AND PRODUCTIVE QUALIFICATION

According to the study, titled “Evaluation of the Brazilian pharmaceutical productive sector – technological and productive capacity”, and which represents the 2nd census of the Brazilian pharmaceutical industry, there was a small retraction in the work force when compared to the previous evaluation of the sector, referent to years 2004-2007, in spite of the increase in specialization. The hiring of qualified personnel at a graduate level made up around 7% of company employees.

The study produced by Fiocruz came up with a diagnosis of the Brazilian pharmaceutical industry and showed that, in spite of the country having doubled the production of synthetic drugs since 2006, from 760 to 1,318 tons/year in 2011, it still produces less than 1% of the imported quantity (173 thousand tons/year). The importance of Brazil taking charge of the production of active principles for drugs was highlighted by Jorge Bermudez at the event.

According to Bermudez, the report generated shows that local pharmaceutical companies, mostly located at the Southeast region, have a low degree of innovation, primarily producing IFAs (i.e. active pharmaceutical raw materials) of synthetic origin, based on non-complex chemical transformations. Although, the data gathered indicates availability for verticalization, the sector needs efforts made in that direction.

Among the frailties pointed out by the study are the lack of investment to consolidate production of oncological drugs, the need to increase the production of drugs for cardiovascular diseases, neglected diseases, and central nervous system diseases, and the lack of production of raw materials for antibiotics.





EVENTS

Chosen to host the XIV Regional Meeting of the Brazilian Society of Chemistry – Rio de Janeiro (SBQ-Rio), Federal Fluminense University (UFF) was the stage to discuss teaching and research in Chemistry in the state of Rio de Janeiro. The event took place in the city of Niteroi – RJ, between December 02 and December 05, 2013, and was supported by **INCT-INOVAR**.

To award personalities that have provided a unique contribution to the development of Chemistry in Brazil, the Walter B. Mors award and the Virtual Chemistry Magazine (RVq) were delivered during the opening ceremony of the XIV Regional SBQ-Rio Meeting.

XIV REGIONAL SBQ-RIO MEETING

http://www.uff.br/sbqrio/xiv_ersbq/index.html

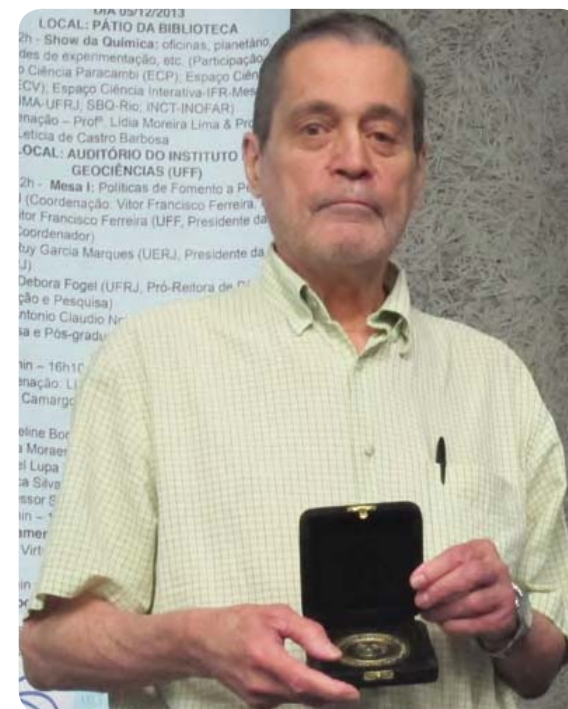


WALTER BAPTIST MORS MEDAL

Ricardo Bicca de Alencastro, Full Professor and Professor Emeritus at UFRJ, was awarded the Walter Baptist Mors Medal. Prof. Bicca was a pioneer in paving the construction of knowledge of computational Chemistry, particularly the molecular modeling of drugs, at UFRJ. This area of knowledge has recently had its importance recognized by humankind by the Nobel Prize in Chemistry 2013, awarded to the team of researchers Martin Karplus, Michael Levitt and Arieh Warshel.

Pointed out as one of the most active members of the Brazilian Society of Chemistry (SBQ) since its creation, Bicca has already served as elected director of the Rio Regional and of the Division of Medicinal Chemistry for SBQ. In 1999, Bicca became a Full Professor at UFRJ and recently he was elevated to Professor Emeritus at UFRJ.

The Virtual Chemistry Magazine (**RVq**) was created by SBQ-Rio in 2009. It is a non-profit electronic publication that has as its mark the publication of original works in Chemistry from the Latin American continent. Created in 2011, the RVq Medal, in 2013, was awarded to Professor Oswaldo Luiz Alves of the Institute of Chemistry of Unicamp.



Prof. Ricardo Bicca de Alencastro

MEDALHA RVq

Being the president of SBQ during a difficult moment, where Brazil faced a serious crisis in Science investments, Professor Oswaldo Luiz Alves had a strong leadership and an entrepreneurial spirit. It was during his management that the idea for the creation of SBQ Publishing came about. As a legacy for the Institution, he left all his steps as president of SBQ recorded in a book. Awarded with the RVq Medal for his important contributions to Chemistry in Brazil, the Unicamp professor received the “challenge” of speaking at the opening conference for the event, titled “Chemistry and the XXI Century”.

During the days of the XIV Regional SBQ-Rio Meeting, INCT-INO FAR was present at the exposition fair of the event, publicizing its actions of Science promotion and health education.



Prof. Oswaldo Luiz Alves and Eliezer J. Barreiro

“SCIENCE, TECHNOLOGY, AND INNOVATION AT SUS – INTEGRATION BETWEEN SCIENTIFIC KNOWLEDGE AND HEALTH POLICIES” MEETING

At the invitation of the Director of the Department of Science and Technology of the Ministry of Health (DECIT/SCTIE/MS), **INCT-INO FAR** members were present on December 03 and 04, 2013, at the International Convention Center for Brazil – Brasília, at the Meeting: “Science, Technology, and Innovation at SUS – Integration between Scientific Knowledge and Health Policies”. The event had the participation of great names of the scientific community and of managers connected to the field of Public Health Care.

As goals for this Meeting, the following actions were listed: Discussing structures and institutional processes to support the use of scientific knowledge for decision making at SUS; encouraging the culture of production and use of scientific knowledge in health policy; defining priority themes for the fostering of health research; and identifying and promoting innovation and successful management practices for the use of scientific knowledge at SUS.

The motto at this innovation event, according to the Secretary of Science and Technology and Strategic Raw Materials for the Ministry of Health (SCTIE/MS), Dr. Carlos Augusto Graboys Gadelha. However, as he himself emphasized at his opening speech, this innovation is not limited to trying to find new ways of doing things; it requires special attention to the priority needs for the advancement of Public Health. He also highlighted that the importance of advancing in all fields, from scientific studies to their applicability, so that the knowledge is not only generated, but also properly used.



EVENTS

In a meeting with several activities and extensive programming, **INCT-INO FAR** was one of the 10 INCTs invited to have a booth at the event. At the area designated for the Institute, **INCT-INO FAR** was able to show the results of its research and innovation actions, as well as a summary of its actions in Scientific Awareness and Popularization of Science.

The audience who visited the booth was able to take home a portfolio folder with information on the **INCT-INO FAR** research network and the health education materials developed by their researchers for activities in schools and at the community at large.



**Prof. Carlos Alberto Manssour Fraga (INCT-INO FAR) and
Prof. Antônio Carlos Campos de Carvalho, DECIT/MS Director**



INCT-INO FAR DELIVERS DOCTOR SERGIO HENRIQUE FERREIRA AWARD FOR THE BEST THESIS

As a result of the effort of **INCT-INO FAR** associate researchers, a new graduate program in Latin America that combines Pharmacology and Medicinal Chemistry, was created at the Institute of Biomedical Sciences (ICB) at the Federal University of Rio de Janeiro (UFRJ). With a goal of celebrating the best thesis of 2013 in this Program, **INCT-INO FAR** created the Doctor Sergio Henrique Ferreira Award for the Best Doctoral Thesis in the Graduate Program in Pharmacology and Medicinal Chemistry (PPGFQM/UFRJ).

The awards ceremony took place on December 19, 2013, at the Pharmacology Auditorium at the Center for Health Sciences (CCS) at UFRJ. Before the announcement of the awarded thesis, Prof. Ângelo da Cunha Pinto (IQ/UFRJ), who was also part of the judging panel for the award, presented the lecture “Brazil of travelers and Brazilian Chemistry of Natural Products”. At the occasion, Prof. Cunha Pinto was honored for his scientific history.



EVENTS



Prof. Angelo da Cunha Pinto was a lecturer at the ceremony for the Dr. Sergio Henrique Ferreira Award for Best Doctoral Thesis

In 2013, the Award for the Best Thesis went to Dr. Arianne Renno Brogliato. Advised by Prof. Claudia Farias Benjamim (ICB, UFRJ), the new Doctor was awarded with the thesis titled “Evaluation of the participation of the 5-LO way in the healing of wounds and the implications for oxidative stress”. In her graduate studies, Dr. Brogliato had the opportunity to take part in academic exchange at the *University of South Florida*, being advised by Prof. Lisa Goud while in the United States. The researcher received a CAPES scholarship to develop her doctorate at ICB/UFRJ.

With experience in experimental models of sepsis and healing of cutaneous wounds in mice, Dr. Arianne Brogliato dedicates herself to Immunopharmacology and develops research in projects that mainly involve sepsis, inflammation, and tissue repair.



DR. SERGIO HENRIQUE FERREIRA AWARD BEST THESIS

THESIS: "Evaluation of the participation of the 5-LO way in the healing of wounds and the implications for oxidative stress"

AUTHOR: Arianne Renno Brogliato

ADVISOR: Prof. Claudia Farias Benjamim

INSTITUTION: Graduate Program in Pharmacology and Medicinal Chemistry (ICB/UFRJ)



EVENTS WHERE INCT

DECEMBER 03 TO 06, 2013

XIV REGIONAL MEETING OF THE
BRAZILIAN SOCIETY OF CHEMISTRY

Federal Fluminense University – RJ

Lecture: “New trends in drugs discovery”

Mini-course: “Science Writing”

DECEMBER 09, 2013

I SCIENCE MEETING OF THE DIRECTOR OF
METROLOGY APPLIED TO LIFE SCIENCES

(DIMAV)

National Institute of Metrology, Quality,
and Technology

*Lecture: “The National Institute of Science
and Technology in Drugs and Medicines
(INCT-INO FAR): opportunities for drug
innovation”*

NOVEMBER 27 TO 29, 2013

V MEETING OF THE GRADUATE
PROGRAM IN PHARMACEUTICAL
SCIENCES AT UFRGS

Federal University of Rio Grande do Sul
– Porto Alegre – RS

*Lecture: “New trends in drugs discovery
for treatment of multifactorial diseases”*

NOVEMBER 13, 2013

GREATER DOURADOS UNIVERSITY CENTER
UNIGRAN – Dourados – MS

Lecture: “Drug Planning”

NOVEMBER 06 AND 07, 2013

III ACADEMIC EXPO OF THE
RORAINOPOLIS CAMPUS

State University of Roraima –
Rorainopolis Campus – RR

*Mini-course: “The creation and the value of
scientific knowledge”*

*Lecture: “The efficiency of science in the
construction of critical consciousness”*

OCTOBER 30, 2013

45TH BRAZILIAN CONGRESS OF
PHARMACOLOGY AND EXPERIMENTAL
THERAPEUTIC

Ribeirao Preto Convention Center – SP

*Lecture: “ INCT-INO FAR: A Brazilian
network for drug discovery, design &
development”*

OCTOBER 22 TO 27, 2013

NATIONAL SCIENCE AND TECHNOLOGY
WEEK

“INCT-INO FAR at the Vessels circuit”

OCTOBER 11, 2013

“DRUG DISCOVERY MEETING” SEMINAR

National Public Health School – FIOCRUZ – RJ

INO FAR WAS PRESENT*

OCTOBER 10 TO 12, 2013

III FAPERJ FAIR OF SCIENCE,
TECHNOLOGY, AND INNOVATION
Cultural Center for Citizenship Action –
Rio de Janeiro – RJ
INCT-INO FAR Booth

OCTOBER 08, 2013

110 YEARS OF THE FACULTY OF
PHARMACEUTICAL SCIENCES
Federal University of Paraiba – PB
*Master Lecture: "Pharmaceutical Sciences:
research and development of drugs in Brazil"*

OCTOBER 06, 2013

XVII SAO PAULO CONGRESS OF
PHARMACEUTICALS
Transamerica Hotel Expo Center – Sao
Paulo – SP
*Round Table: "Development of drugs:
interactions between University and the
productive sector"*

SEPTEMBER 24, 2013

I IBEROAMERICAN SYMPOSIUM OF
CANCER INVESTIGATION
Federal University of Campinas – Campinas – SP
*Round Table: "New aspects of cancer
therapy: multitarget pharmaceuticals"*

SEPTEMBER 21, 2013

IV SYMPOSIUM IN MEDICINAL PLANTS IN
THE SAO FRANCISCO VALLEY
Federal University of the Sao Francisco
Valley – Juazeiro – BA
*Lecture: "INCT-INO FAR and Medicinal
Chemistry"*

AUGUST 20 AND 21, 2013

7TH NATIONAL MEETING IN
INNOVATION IN DRUGS AND MEDICINES
(ENIFARMED)
Reboucas Convention Center – Sao
Paulo – SP
INCT-INO FAR Booth

AUGUST 15, 2013

ACADEMIC PHARMACY WEEK
State University of Campinas –
Campinas – SP
*Lecture: "Opportunities in drug innovation:
INCT-INO FAR"*

JULY 24, 2013

III INTERNATIONAL SYMPOSIUM ON
DRUG DISCOVERY
Araraqua International Convention
Center – SP
Lecture: "Challenges on Drug Discovery"

JULY 22, 2013

65TH ANNUAL MEETING OF THE
BRAZILIAN SOCIETY FOR THE PROGRESS
OF SCIENCE
Federal University of Pernambuco –
UFPE – Recife Campus – PE
*Lecture: "New opportunities for Innovation
in Pharmaceuticals"*

EVENTS WHERE INCT

JULY 01 TO 04, 2013

2ND INCTS FOLLOW-UP AND
EVALUATION SEMINAR

Hotel Royal Tulip Brasilia - DF

Lecture: "INCT-INO FAR"

JUNE 17, 2013

20 YEARS OF THE BACHELOR IN
PHARMACY COURSE - UNIVALI
University of Itajai Valley - UNIVALI

*Lecture: "The effect of methyl in the action
of drugs"*

JUNE 07, 2013

V IBEROAMERICAN CONGRESS OF
PHARMACEUTICAL SCIENCES

Hotel Nacional - Brasilia - DF

*Theme Session: "Innovation and
Intellectual Property in Pharmaceutical
Research"*

JUNE 04, 2013

NUPEM LECTURE CYCLE

NUPEM - UFRJ - MACAE CAMPUS - RJ

*Lecture: "The Process of Discovery in the
Invention of Drugs"*

MAY 24 TO 28, 2013

36TH ANNUAL MEETING OF THE
BRAZILIAN SOCIETY OF CHEMISTRY
Hotel Monte Real Resort - Aguas de
Lindóia - SP

MAY 13, 2013

CYCLE OF LECTURES: "FRONTIERS OF
CHEMISTRY RESEARCH"

Department of Chemistry at PUC- Rio de
Janeiro - RJ

*Conference: "The National Institute of
Science and Technology in Drugs and
Medicines (INCT-INO FAR): opportunities and
innovation in drugs."*

FROM MAY 06 TO 10, 2013

II EDUCATION AND SCIENCE MEETING
State University of Roraima - Boa Vista -
Roraima

*Conference: "The efficiency of science in
the construction of a critical conscience"
Mini-course: The Creation and the Value of
Scientific Knowledge*

MARCH 08, 2013

WORKSHOP "THE CONTRIBUTIONS
OF PROF. TIMOTHY J. BROCKSOM TO
ORGANIC SYNTHESIS IN BRAZIL"

Federal University of Sao Carlos -
UFSCar - SP

*Lecture: "The incredible feats of methyl in
Medicinal Chemistry"*

INO FAR WAS PRESENT*

FEBRUARY 27 TO MARCH 01, 2013

**XII NATIONAL MEETING OF
PHARMACEUTICAL CHEMISTRY
PROFESSORS**

Papillon Hotel – Setor Oeste – Goiania - GO

*Lecture: “The adventures of methyl in
Medicinal Chemistry”.*

*through the presence of its coordinator,
Eliezer J. Barreiro (LASSBio/UFRJ).





OUTREACH ACTIVITIES

SCIENTIFIC AWARENESS AND PROMOTION

Parallel to the research developed at the laboratory, **INCT-INO FAR** coordinates several Scientific Awareness & Health Education initiatives, for believing that the promotion and popularization of Science, Technology, and Innovation represent an important factor in the construction of the critical evaluation of the contemporary globalized world.

Aware of the potential of children to multiply the knowledge acquired to their friends and family, **INCT-INO FAR** invests in Health Education initiatives that try to make young people aware of the rational and safe use of drugs.

Periodically, **INCT-INO FAR** produces new scientific awareness content in the area of health and produces educational materials focused on the right use of drugs. By cooperating to publicize scientific knowledge inherent to Pharmaceutical Sciences, **INCT-INO FAR** allows that new vocations are displayed in the youth, including those that are unrelated to their family experiences.





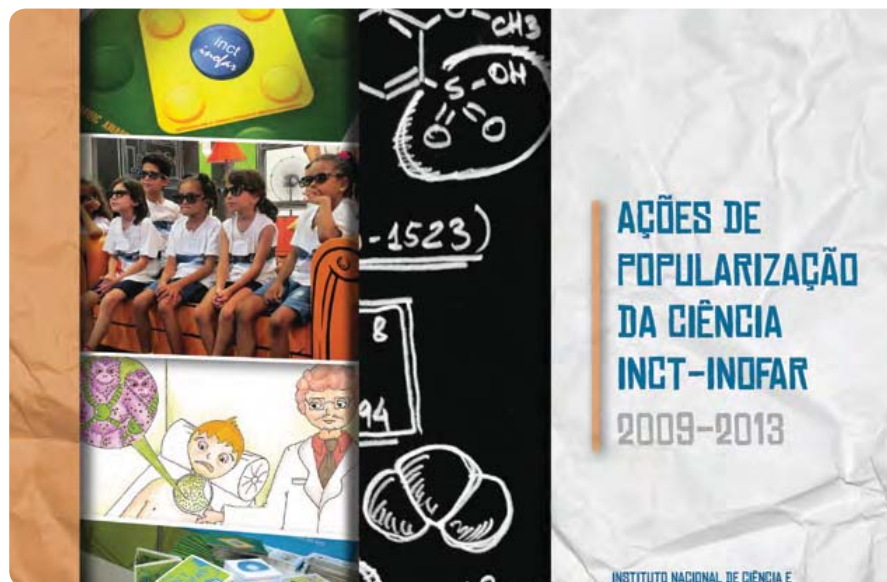
SCIENTIFIC AWARENESS AND PROMOTION

With the responsibility of making the **INCT-INO FAR** Health Education projects spread, taking the discussion on the correct use of medications to schools, the Secretary of Extension acts with the other Secretaries – Communication, Executive, and Financial – of the Institute, to widen the awareness and promotion actions of Pharmaceutical Sciences within the community.

As permanent projects of awareness and promotion of Science by **INCT-INO FAR** are the Drugs Portal <www.portaldosfarmacos.ccs.ufrj.br> and the “**INCT-INO FAR** in Schools” project, with the first one being coordinated by the Secretary of Communication and the second one by the Secretary of Extension.

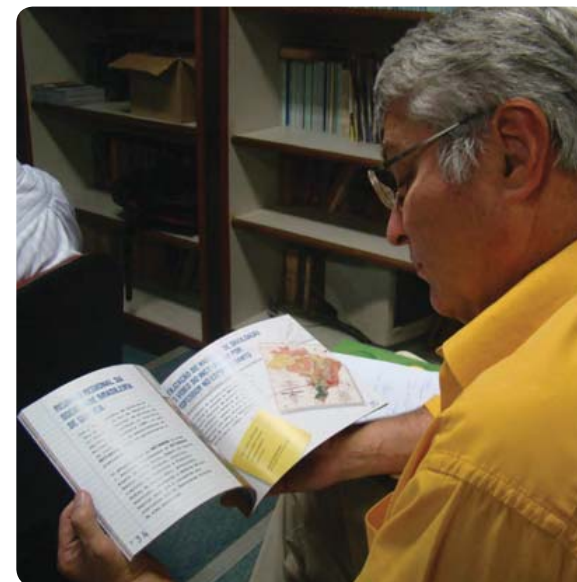


“INCT-INO FAR SCIENCE PROMOTION ACTIONS” BOOK



In 2013, **INCT-INO FAR** updated its portfolio of actions in extension and scientific awareness and launched, in the month of August, a publication that gathers, chronologically, the main activities of the Institute, since its creation in 2009. The publication, in an yearbook format was titled “**INCT-INO FAR Science Promotion Actions: 2009=2013**” and is available online and in print version.

**INCT-INO FAR Science Awareness
actions 2009-2013**



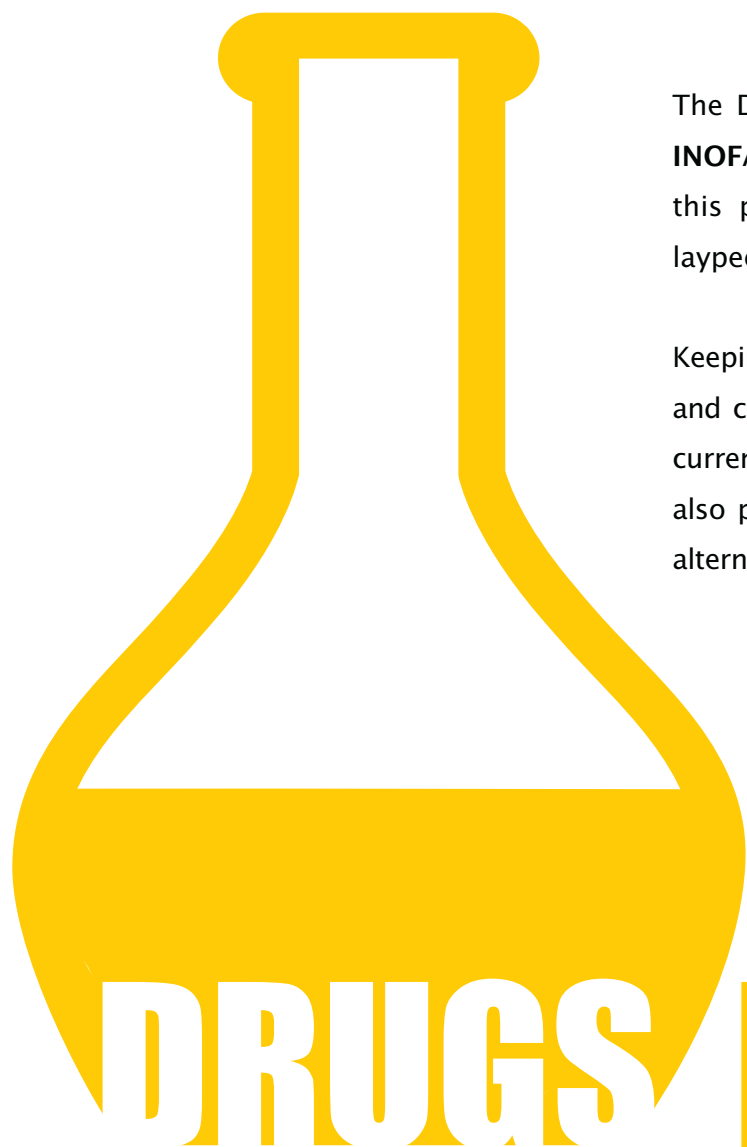
**The online version of the INCT-INO FAR
yearbook is available for download at:**

**[http://www.inct-inofar.ccs.ufrj.br/
download/almanaque2013.pdf](http://www.inct-inofar.ccs.ufrj.br/download/almanaque2013.pdf)**

OUTREACH ACTIVITIES

The Drugs Portal <www.portaldosfarmacos.ccs.ufrj.br> is a website maintained by **INCT-INO FAR** aimed at the publicizing and popularization of Pharmaceutical Sciences. Through this portal, **INCT-INO FAR** publicizes its research activities in a language accessible to laypeople, and makes its own materials in Health Education available.

Keeping in sync with new trends in scientific journalism, the Drugs Portal provides the schedule and covers relevant scientific events. Periodically, it publishes new articles and interviews on current themes related to the innovation in drugs and medicines and to health as a whole. It also produces comics that criticize the irrational use of drugs, as well as suggest conscious alternatives to their use.



www.portaldosfarmacos.ccs.ufrj

PORTAL





More than one hundred articles and interviews in the pharmaceutical area have been published in the Drugs Portal since the creation of INCT-INOVAR, in 2009. In 2013, the Institute invested in updating its website and joined social networks, creating a Drugs Portal on Facebook.



- PUBLICIZING INCT-INOVAR RESEARCH ACTIVITIES IN A LANGUAGE ACCESSIBLE TO LAYPEOPLE;
- PUBLICATION OF NEW ARTICLES ON THEMES OF INNOVATION IN DRUGS AND MEDICINES AND HEALTH;
- SCHEDULE AND COVERAGE OF THE MAIN SCIENTIFIC EVENTS IN THE FIELD;
- DOWNLOAD OF INCT-INOVAR EDUCATIONAL BOOKLET ON THE RIGHT USE OF DRUGS.

“INCT-INO FAR IN SCHOOLS” PROJECT

With a goal of taking content that is poorly approached in school curriculum to classrooms – the importance of the safe and correct use of drugs - **INCT-INO FAR** created in 2011 the “**INCT-INO FAR** in schools” project.

In 2012, through the Secretary of Extension, the project received the approval of the Municipal Secretary of Education of the City Hall of Rio de Janeiro, to be conducted in partnership with the 4th Regional Coordination of Education/4th CRE (Ilha do Governador region). The area was chosen due to the proximity to the UFRJ Campus, where **INCT-INO FAR** is headquartered. With this approval, **INCT-INO FAR** was formally authorized to develop its work in Health Education at schools of the municipal education network in the area of the 4th CRE.

Parallel to other activities developed with the community for scientific awareness, **INCT-INO FAR** visited 04 municipal schools in Rio de Janeiro to bring information on the correct use of drugs.



CONEGO FERNANDES PINHEIRO MUNICIPAL SCHOOL

Address: Rua Sebastian Bach, S/Nº

Neighborhood: Jardim América

Cep: 21240-370

Phone: (21) 3372-5400

E-mail: emconego@rioeduca.net

May 17

ANITA GARIBALDI MUNICIPAL SCHOOL

Address: Estr. Maracajás, 1294

Neighborhood: Galeão

Cep: 21941-390

Phone: (21) 3975-9461

E-mail: emgaribaldi@rioeduca.net

July 10

LEONEL DE MOURA BRIZOLA CIEP

Address: Av. Brasil, S/Nº

Neighborhood: Ramos

Cep: 21030-001

Phone: (21) 3105-9934

E-mail: ciepbrizola@rioeduca.net

August 27

EMBAIXADOR BARROS HURTADO MUNICIPAL SCHOOL

Address: Rua General Carvalho, 702

Neighborhood: Cordovil

Cep: 21250-240

Phone: (21) 2482-7736

E-mail: emhurtado@rioeduca.net

September 25

The activities of the “INCT-INO FAR in Schools” project are always programmed to take place in 02 classes. On average, a total of 90 children take part in the action at the school visited by the project. Considering an appropriate age range for the understanding of content and themes, “INCT-INO FAR in Schools” works with children aged 10 and up.

The classes are in Junior High and range from the 5th to the 9th grade. Usually, they are supported by teachers, staff, and pedagogical coordinators who take part in the activities with the students, reaching the entire school community with the guidance on the safe and correct use of drugs.

There is still the concern by INCT-INO FAR to make these guidelines reach their homes, so that they are spread to the family environment by the children. That way, each student takes home a kit with the Health Education materials produced by the Institute.

“INCT-INO FAR IN SCHOOLS” PROJECT



The “INCT-INO FAR in Schools” project promotes the importance of correctly using drugs through playful-educational activities in which the students learn as they play, remembering that drugs are serious. To reinforce the issue, the **INCT-INO FAR** Secretary of Extension created the subproject “Drugs are not toys”, creating a human board game in a 12 square meter tarp (4mx3m), where the students become pawns and as they roll the die travel through a circuit with information on the use of drugs. The game titled “Drugs are not toys” was launched as a celebration of the International Day for the Rational Use of Drugs, celebrated on May 05, 2013.

Students of Barros Hurtado Municipal School with the INCT-INO FAR kits

ACTIVITIES AT MUNICIPAL SCHOOLS

The playful-educational activities of the “**INCT-INO FAR** in Schools” project are always developed in two shifts and conducted by two pharmacists alongside the pedagogical coordinator of the project, and an **INCT-INO FAR** journalist.

To introduce the subject to students, at the first part of the activities there is the presentation, in a projector screen, of an animated booklet on the “**Commandments of the Right Use of Drugs**”. With colorful illustrations and a simple and dynamic language, the booklet provides guidelines about labels, talks about where and how to store drugs at home, and mentions the risks of taking drugs without a prescription.

Now familiar with the topic, the students are invited to ask questions to the team of **INCT-INO FAR** pharmacists. Using age-appropriate terms to express themselves, the children were inspired by their everyday experiences to ask questions on the right use of drugs.



CHILDREN'S QUESTIONS

Can I take drugs with milk?

My cousin chews pills. Is that dangerous, or can we do that?

Do vaccines act faster than pills?

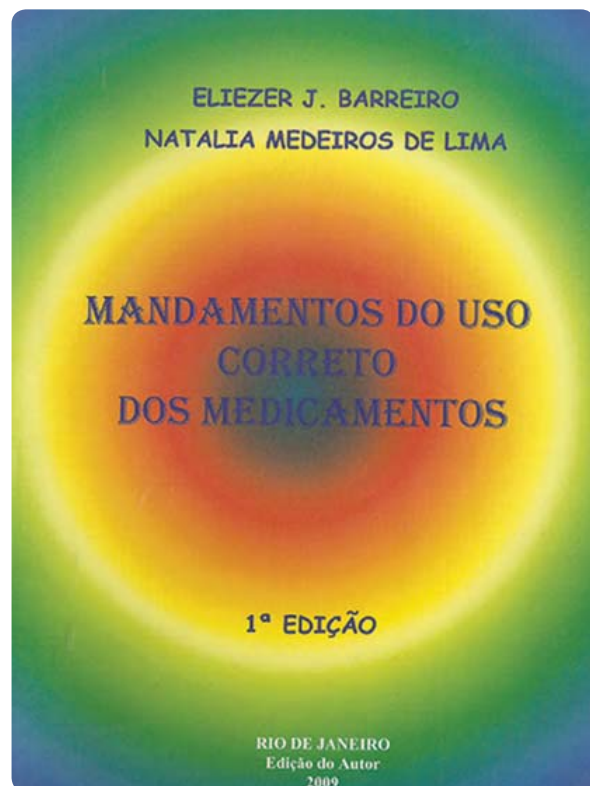
Are black label drugs for people with mental problems?

My father takes pills by placing them under his tongue, why? Does it act faster when taken that way?

If I take a drug and then eat lunch, is it a problem?

I take medication to be hungrier and I think it makes me sleepy. Are there drugs that make you sleepy?

My grandma takes medication with a black label. If she doesn't take it at the right time, can there be side effects?



The booklet “Commandments of the Right Use of Drugs” is available at:
http://www.portaldosfarmacos.ccs.ufrj.br/download/cartilha_medicamento.pdf

AUTHORS:
 Eliezer J. Barreiro and
 Natalia Medeira de Lima

After answering the children’s questions on the right use of drugs, “**INCT-INO FAR in Schools**” hen shows a cartoon that tells the story of a little boy named Joey. In the narrative produced by **INCT-INO FAR** researchers, Joey has a fever, and his mother is very scared and asks her sister for advice. She mentions her own son had a similar problem. After taking the leftover drugs from his cousin, Joey has a sudden improvement, but suddenly gets sick again. After going to a doctor, the family learns of the dangers related to self-medicating and learns how to correctly use antibiotics.

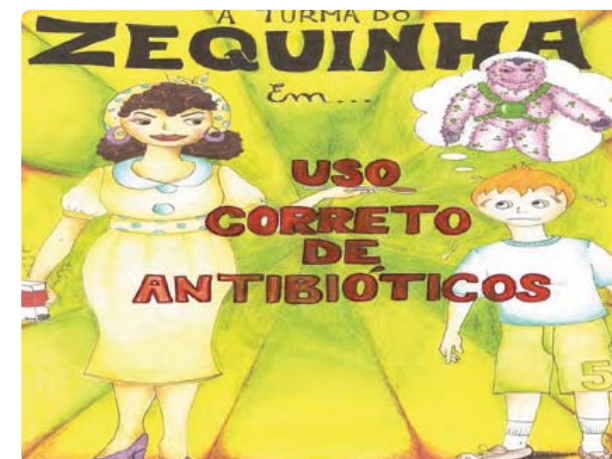
“JOEY’S CREW: CORRECT USE OF ANTIBIOTICS

In a playful and figurative way, through the story of the illness that Joey has, **INCT-INO FAR** explains, in a scientific language that is easily understood, how and why bacteria become resistant to antibiotics. It also calls attention to the importance of seeing a doctor and, most of all, of rigorously following the treatment prescribed. The material is approved by the National Health Surveillance Agency (ANVISA).

AUTHORS:
 Lidia Moreira Lima and
 Angelo da Cunha Pinto (UFRJ)

LINK FOR DOWNLOAD – COMICS
http://www.portaldosfarmacos.ccs.ufrj.br/inct/cartilhas/cartilha_antibiotico.pdf

LINK TO WATCH THE CARTOON ON YOUTUBE
<http://www.youtube.com/watch?v=GGIkKwcau-U>



“INCT-INO FAR IN SCHOOLS” PROJECT

After showing the cartoon (12 minutes), children are separated in two groups, which take turns to perform the activities. While a group of students exercises their creativity, putting on paper what they have learned from **INCT-INO FAR** about drugs, the other group takes part of the game in the human board game.



The class is divided in two groups to take part in the playful education activities promoted by **INCT-INO FAR**

**TIME FOR PLAYING
AND THINKING**



Reflecting on what he had learned

“INCT-INO FAR IN SCHOOLS” PROJECT

HUMAN BOARD GAME “DRUGS ARE NOT TOYS”

“GO AHEAD FOR TWO SPOTS, COME BACK A SPOT, MISS A TURN”

The luck of the die shows the children some common situations in the use of drugs. “Congratulations, you have never self-medicated – jump 3 spots”, “You took antibiotics on your own – miss a turn”. Like in the game of life, at the circuit created by INCT-INO FAR, children go back or forth depending on the information in each spot. The goal is for children to learn in a playful way basic notions on the safe and correct use of drugs.



The children approved of the INCT-INO FAR visit

“I WOULD REALLY LIKE FOR THESE PEOPLE TO RETURN SOON. JOEY’S CREW TAUGHT ME A LOT ABOUT THE RIGHT DRUGS, AT THE RIGHT TIMES. WHEN YOU COME BACK, I WILL SING YOU A SONG!”

**Marcos Paulo, 11 Years Old
Leonel de Moura Brizola CIEP**

PUZZLES

The story that generated the cartoon “**Joey’s Crew in: The correct use of antibiotics**” was published, originally, as a comic. At the end of the activities, the students receive an **INCT-INO FAR** kit containing the comic book with Joey’s Crew and a theme puzzle, with the commitment to inform their friends on the correct use of drugs.



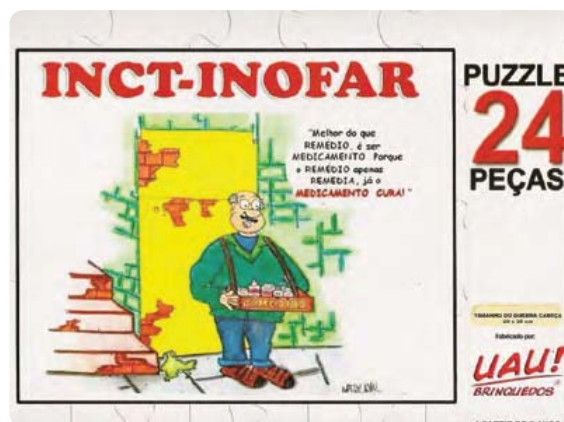
The comic strips published in the Drugs Portal have been made into puzzles. A total of ten different versions of these educational toys have been produced. The goal is for the theme puzzles to promote thinking, creating a more conscious attitude when faced with drug use.

ACCESS THE COMICS AT:

<http://www.portaldosfarmacos.ccs.ufrj.br/charges.html>

AUTHOR:

Natalia Medeiros Lima



TEAM OF THE “INCT-INO FAR IN SCHOOLS” PROJECT

SUPERVISION:

Eliezer J. Barreiro
(INCT-INO FAR Coordinator)

PEDAGOGICAL COORDINATOR:

Ana Cristina da Mata Silva

PHARMACISTS:

Daniel Nascimento do Amaral, Roberta
Tesch, Natalia Lima and Ciro Gonçalves

JOURNALISTS:

Douglas Outeiro and Fabricio Salvador

INCT-INO FAR IN THE NATIONAL SCIENCE AND TECHNOLOGY WEEK (SNCT)

INCT-INO FAR IN THE KNOWLEDGE VESSELS

PARTNERSHIP



In 2013, **INCT-INO FAR** formalized a partnership with the Special Secretary of Science and Technology of the City of Rio de Janeiro to conduct activities in the Knowledge Square and Vessels, during the X National Science and Technology Week. The goal of **INCT-INO FAR** was to be closer to the community, bringing information on the correct use of medications to a wider age group, ranging from children to the elderly.

The Vessels and the Knowledge Square were created by the Rio de Janeiro City Hall to bring digital inclusion to needy areas of the city of Rio de Janeiro. Currently, the city has the project in 06 different neighborhoods: Vila Alianca, Penha, Irajá, Madureira, Padre Miguel and Santa Cruz.

Between October 22 and 27, the time of the X National Week of Science and Technology, **INCT-INO FAR** was present in one of the Vessels each day, and also at the Knowledge Square, conducting its activities of Health Education focused on the promotion of the correct use of medications.

Through the partnership with the Special Secretary of Science and Technology of Rio de Janeiro, **INCT-INO FAR** was able to include its educational materials, made up of videos, booklets, cartoons, comic books, and puzzles with guidelines on the rational use of medication, as part of the permanent content of all Vessels.

INCT-INO FAR prepared special programming for the Knowledge Vessels Circuit, based on the theme of the SNCT: Science, Health, and Sports. With the presentation of lectures and the development of playful-educational activities at the external area of the Knowledge Vessels, INCT-INO FAR saw approximately 1,000 people, when all 06 days of the project are added up.

In sync with the project of social and digital inclusion of the Knowledge Vessels, **INCT-INO FAR** promoted a draw for 01 tablet at the end of each activity day at the Knowledge Vessels. The full report of activities can be found at: http://www.inct-inofar.ccs.ufrj.br/download/relatorio_finalsnct2013.pdf



INCT-INO FAR IN THE NATIONAL SCIENCE AND TECHNOLOGY WEEK (SNCT)







SNCT PROGRAMMING

“INCT-INO FAR IN THE KNOWLEDGE VESSELS CIRCUIT”

DAY	KNOWLEDGE VESSEL	INCT-INO FAR
10/22	VILA ALIANÇA VESSEL <i>“Abadias do Nascimento”</i> Rua Antenor Correia, no 1 – Vila Aliança	<i>“The importance of vitamins and minerals in sports practice”</i> Lecturer: Ciro G. Sa
10/23	IRAJÁ VESSEL <i>“Prof. Claudia Martin Augusto de Jesus”</i> Praça N. S. da Apresentação – Irajá	<i>“Dangers of the Abusive Use of Drugs in Sport”</i> Lecturer: Prof. Lidia Moreira Lima
10/24	PENHA VESSEL <i>“Jornalista Joelmir Beting”</i> Rua Santa Emiliana – Penha	<i>“From Medicinal Plants to Drugs”</i> Lecturer: Prof. Hellio Mattos
10/25	MADUREIRA VESSEL <i>“Compositor Silas de Oliveira”</i> R. Manoel Marques – Parque de Madureira	<i>“Drugs and Quality of Life: When and How to Use Them?”</i> Lecturer: Prof. Carlos A. Manssour
10/26	PADRE MIGUEL SQUARE <i>“Repórter Cinematográfico Gelson Domingues”</i> Av. Marechal Marciano esquina com Rua Açafrão – Padre Miguel	<i>“The use of steroids and doping in sports: health dangers for athletes and young people”</i> Lecturer: Daniel Amaral
10/27	SANTA CRUZ VESSEL <i>“Jornalista Tim Lopes”</i> Rua Álvaro Alberto com Rua Barão de Loreto, Largo do Bodegão – Santa Cruz	<i>“Marathon of correct use of drugs”</i> Lecturer: Natalia de Medeiros Loma

FIXED ACTIVITIES

Human Board Game “*Drugs are not toys*”

External area of Knowledge Square and Vessels

INCT-INOVAR Lectures

Facts on the Right Use of Drugs and Sports
(see programming above)

“Tour” through INCT-INOVAR content

Presentation of educational material available at the wall of knowledge and at the digital gallery

Delivery of INCT-INOVAR kits

02 cartoons featuring Joey’s Crew and “Toys are not drugs” board game”

Drawing of tablet

At the end of activities in each Knowledge Vessel and Square, 01 tablet was drawn



INCT-INO FAR IN THE NATIONAL SCIENCE AND TECHNOLOGY WEEK (SNCT)

RECORDING OF VIDEO “INCT-INO FAR AT THE KNOWLEDGE VESSELS CIRCUIT”

A recording crew, coordinated by journalist Lucia Beatriz Torres, followed the daily activities of **INCT-INO FAR** at the Knowledge Vessels Circuit. As well as being responsible for the audiovisual recording of the actions of the Institute within the X National Science and Technology Week, the team was also responsible for conducting interviews whenever possible with the audience present, recording their impressions on the content presented by **INCT-INO FAR**. Researchers. Questions on the use of drugs were also approached in the interviews.

INTERVIEWS

Lucia Beatriz Torres

Camera

Enrico Alario Rubin

Sound

Bruno Frene

Script

Lucia Beatriz Torres

Editing

Marina Muricy

VIDEO (10 MINUTES LONG)

“INCT-INO FAR at the Knowledge
Vessels Circuit”

YOUTUBE:

http://m.youtube.com/watch?v=L_C_ZGa4w3w



RELEASE OF THE PORTABLE VERSION OF THE “DRUGS ARE NOT TOYS” BOARD GAME

Considering the success achieved with the human board game: “Drugs are not toys”, **INCT-INO FAR** launched, during the activities of the National Science and Technology Week, the “table” version of the same board game. This way, **INCT-INO FAR** made it possible for children to keep playing at home, sharing the knowledge gained at the game with their friends and families.

GAME: “DRUGS ARE NOT TOYS” PORTABLE VERSION

The game is made up of a board in the A3 format, a die, and 04 characters to be assembled, which are represented by different drugs and their ratings. After choosing their pawn (miniature drugs), each player tries his chance at the die to find out who goes first. After the playing order is established, each player throws the die to go through the game circuit until the finish. At each stop, the player faces a daily situation that refers to the use of drugs, and the answer makes them go forward or backwards. The goal is to make children aware of what is right and wrong in the use of drugs.

AUTHORS:

Ana Cristina da Mata and Natalia Medeiros de Lima



INCT-INO FAR IN THE NATIONAL SCIENCE AND TECHNOLOGY WEEK (SNCT)

RELEASE: "JOEY'S CREW IN: THE CORRECT USE OF ANTI-INFLAMMATORIES"

AUTHORS:

**Lídia M. Lima and Ana Cristina da Matta
(collaborator)**

During the "INCT-INO FAR in the Knowledge Vessels Circuit" activities, there was the launch of the second issue of the educational booklet with the characters of Joey's crew. On this new comic, Joey learns how to correctly use anti-inflammatory drugs. At the end of the comic, there are activities to teach the content of the booklet, making children think about what they learned in the reading of the booklet with their guardians.

INCT-INO FAR used soccer and the interest of young people in social networks to talk about the correct use of anti-inflammatories.

In the comics, Joey discovers that his friend, Peter, is taking anti-inflammatories of his own accord, before soccer games. Concerned, Joey tells his parents. Conscious of the dangers connected to self-medication, Joey's parents recommend that their son talk to Peter, to convince him to talk to the club doctor. So Joey asks his friend to chat to him online and says that his grandmother, Isaura, had become very ill from spending some time taking drugs without a prescription. Scared, Peter decides to look for the club doctor, and at the office, the friends find out about the risks and benefits of the anti-inflammatories and learn how to use this class of drugs correctly.



INCT-INO FAR ENCOURAGES SCIENCE AWARENESS IN RORAIMA

As a result of a project created by Prof. Angelo da Cunha Pinto, an **INCT-INO FAR** associated researcher from the Institute of Chemistry of UFRJ, the Portable Chemistry Laboratory has a goal of improving the quality of Chemistry teaching in public schools in Brazil. As part of the **INCT-INO FAR** actions and of the Brazilian Society of Chemistry (SBQ) to promote science in the Northern region of the country, Portable Chemistry Laboratory kits were sent to Boa Vista, Roraima. By sheer coincidence, they arrived at their final destination at the same week where we celebrate the Chemist Day in Brazil, on June 18.

Responsible for the office of the Brazilian Society of Chemistry in Roraima (SBQ-RR), professor Cleria Mendonca from the State University of Roraima (UERR) is a person who does not measure efforts in fighting for a cause. Aware that it is impossible to elevate the level of Chemistry produced at UERR without first thinking of the scientific background that each student brings from his or her respective schools, professor Cleria Mendonca, who is the coordinator for the course of Licentiate in Chemistry at the State University of Roraima,

promotes the improvement of Science teaching in public schools in the region, not only in Brazil but also in Guyana, a country that shares a border with the city of Boa Vista.

On June 15, 2013, the professor and her students were part of the “IV Traveling Circuit of Sciences in School: beyond the school borders”, in the city of Bonfim. Located 2h away from Boa Vista, it is near the border with the British Guyana.

INCT-INO FAR ENCOURAGES SCIENCE AWARENESS IN RORAIMA

A total of 13 future Science teachers took part in this project, which seeks to connect the student with the universe of basic scientific education. During the event, the academics conducted a few experiments that they develop at the State University of Roraima at the Aldebaro Jose Alcantara State School. At the occasion, professor Cleria took the opportunity to promote the “Chemistry Everyday” collection, published by SBQ during the International Year of Chemistry in 2011. There are in total 7 theme books that may be downloaded online for free. INCT-INO FAR researchers are the authors of the edition that talks about “Chemistry in Health”.

IV Traveling Circuit of Science in Schools



“CHEMISTRY IN HEALTH”

The e-book “**Chemistry in Health**” tries to explain at a molecular level the chemical reactions present in various health situations, bringing up everyday topics and explaining them chemically. The subjects are in a logical sequential order and go from the fecundation of the egg by the spermatozoid to breastfeeding to the explaining of puberty phenomena through chemical reactions.

THE “CHEMISTRY IN HEALTH” E-BOOK IS AVAILABLE AT:
<http://quimica2011.org.br>

AUTHORS:
Eliezer J. Barreiro,
Carlos Manssour Fraga and
Lidia Moreira Lima



OUTREACH ACTIVITIES

INCT-INO FAR TAKES PART IN THE 30 YEAR LIVE SCIENCE CELEBRATION



INCT-INO FAR was part, on September 26, 27, and 28, 2013 of the **II International Meeting of Science Promoters – 30 years of scientific awareness in Brazil**. The event, which brought together journalists, researchers, students, and other interested parts to discuss the trajectory of scientific awareness in Brazil and in the world, was part of the 30 year celebration of the Live Science Space.

Live Science Space is the first interactive science museum in Brazil. It was founded by a group of scientists, researchers, and educators interested in bringing these areas to the general public. Created in 1982, the

museum works in a 1,600 m² warehouse, loaned by the Government of the State of Rio de Janeiro, located at Saens Pena Square, in Tijuca. The Live Science Space is part of the Rio de Janeiro Technology Network, of the Network for the Popularization of Science in Latin America and the Caribbean (RedePop), and of the Brazilian Association of Science Centers and Museums (ABCMC).

The event, which took place at the House of Science, had room for the presentation of posters, and **INCT-INO FAR** took the opportunity to share its experiences in scientific awareness and health education with the public, focused on the safe and rational use of medications.

INCT-INO FAR ON THE 3RD FAPERJ FAIR

For the third time in a row, **INCT-INO FAR** was present at the **III FAPERJ Fair of Science, Technology & Innovation**. The event, which has the goal of presenting to society the project funded by the Foundation for Research Support in the State of Rio de Janeiro (FAPERJ), took place on October 10, 11, and 12, 2013, at the Cultural Center for Citizenship Action, in downtown Rio de Janeiro.

As a recognition of the continuous efforts of the Institute to promote Pharmaceutical Sciences and to inform the population on the safe and correct use of medications, FAPERJ highlighted the **INCT-INO FAR** booth, placing it in the main alley of the Fair.

With a 16 square meter booth that was enlightening, educational, and illustrative, INCT-INO FAR presented its “edutainment” work, showing its playful pedagogical tools developed for its actions of Education & Health in schools. The booth got a lot of attention from the public present, who took advantage of being there to ask questions on the correct use of drugs with the **INCT-INO FAR** pharmacists.



INCT-INO FAR ON THE 3RD FAPERJ FAIR



Students took the time to ask questions and take photos at the INCT-INO FAR booth



The INCT-INOVAR booth received the visit of the FAPERJ director Prof. Jerson Lima Silva (in the tie)

EVENTS WITH INCT-INO FAR BOOTH PARTICIPATION

With a goal of being closer to society, publicizing its research and extension activities to the academic community and to the public at large, the Institute makes efforts to participate in events where there are exposition fairs. In 2013, **INCT-INO FAR** had the opportunity to set up its booth in 06 different occasions. Most times, **INCT-INO FAR** was part of exposition fairs by invitation from the event organizers.



INCT-INO FAR BOOTHS:

36TH ANNUAL MEETING OF THE BRAZILIAN SOCIETY OF CHEMISTRY - RASBQ

May 25 to 28, 2013

Aguas de Lindoia, Sao Paulo.

II INCTS FOLLOW-UP AND EVALUATION SEMINAR

July 2 and 3, 2013

Brasilia, Distrito Federal.

7TH NATIONAL ENCOUNTER FOR INNOVATION IN DRUGS AND MEDS (ENIFARMED)

August 20 and 21, 2013

Sao Paulo

III FAPERJ FAIR

October 10 to 12, 2013

Rio de Janeiro

“SCIENCE, TECHNOLOGY AND INNOVATION IN SUS” MEETING

December 03 and 04, 2013

Brasilia, Distrito Federal.

XIV SBQ – RIO

December 02 to 05, 2013

Niteroi, Rio de Janeiro.





**CLIPPING:
INCT-INO FAR IN
THE MEDIA**

In 2013, **INCT-INO FAR** was highlighted in the mass media at different times. The following are the pieces with the highest repercussion:

INCT-INO FAR IS THE THEME OF THE “GLOBO UNIVERSITY”

The research network of INCT-INO FAR was the theme of the “Globo University” show on April 20, 2013, by Globo Television Network. The program visited the headquarters of **INCT-INO FAR**, located at the Center for Health Sciences (CCS) of the Federal University of Rio de Janeiro (UFRJ) and talked with some of its researchers about the challenge to produce new drugs and medicines in Brazil.

TO WATCH THE PROGRAM, PLEASE GO TO:

<http://globo.tv/globo.com/rede-globo/globo-universidade/v/>



CLIPPING: INCT-INO FAR IN THE MEDIA

globo-universidade-20042013-farmacos-integra/2524746/

INCT-INO FAR AT THE JOURNAL EXTRA BLOG

The INCT-INO FAR action during the X National Science and Technology Week, at the Vessels and Knowledge Square, generated a series of pieces at the online version of Jornal Extra. Through the project “Future Reporter”, the monitors themselves and the audience at the Vessels were able to record the visit to the Institute and to write articles about what they learned from the activities carried out.

“Future Reporter” is a partnership between Jornal Extra and the Vessels of Knowledge.

TO READ ALL THE ARTICLES, PLEASE GO TO:

<http://www.inct-inofar.ccs.ufjf.br/naves.html>



INCT-INOVAR AT THE SCIENCE JOURNAL - SBPC

Through interviews published at the edition from October 25 2013 at the Science Journal, **INCT-INOVAR** researchers went public to deal with issues regarding animal testing, particularly dogs of the beagle breed. The series of articles in the Science Journal was published after the break in at the Royal Institute, in Sao Roque – SP, by animal right activists. The **INCT-INOVAR** coordinator, Prof. Eliezer J. Barreiro (UFRJ), was a source for the article “Beagles are necessary for the development of drugs”, and Prof. Marco Aurelio Martins (Fiocruz) was interviewed for the article “Attacking scientific experiments: irresponsibility”.

TO READ THE ARTICLES, PLEASE GO TO:

<http://www.jornaldaciencia.org.br/impresso/JC748.pdf>

Desafio é desenvolver métodos alternativos

Para especialista, ainda não há previsão de tempo para que se possa substituir a experimentação *in vivo* por técnicas *in vitro*

Viviane Monteiro

Embora a área científica tenha dado um passo significativo no desenvolvimento de métodos alternativos em substituição ao uso de animais nos experimentos científicos, há ainda um longo caminho a percorrer para substituir 100% dos ensaios com animais. A análise é de José Mauro Granjeiro, membro do Conselho Nacional de Controle de Experimentação Animal (Concea).

No Brasil, os métodos alternativos estão previstos na Lei Arouca, em vigor há cinco anos. A legislação reflete uma tendência mundial como a que ocorre no Centro Europeu de Validação de Métodos Alternativos (ECVAM), existente há mais de duas décadas e que visa a promover a aceitação científica e regulatória de testes livres de animais.

Os métodos alternativos buscam contribuir com os objetivos dos três Rs, ou seja, Refinar, Reduzir ou Substituir (do inglês: Refinement, Reduction, Replacement) o uso de animais para experimentação. Esses métodos são baseados em técnicas *in vitro*, por exemplo, utilizando células, mas também se vem estudando estratégias para simulação em computadores.

Desafios - Apesar de a comunidade científica internacional ter avançado nos estudos e pesquisas, as análises dos fármacos, ainda, dependem de testes com animais. Por exemplo, segundo Granjeiro, não é possível fazer testes de sensibilidade, de poten-

cialmente desenvolver ainda uma ciência de ponta, avançada, para melhorar os métodos alternativos. Isto é, a substituição completa dos ensaios *in vivo* (animais) pelos ensaios *in vitro* ainda depende de muito estudo”, destaca ele, sem dar previsão de data.

Validação - Granjeiro destaca que o Ministério da Ciência, Tecnologia e Inovação (MCTI) vem atuando fortemente nos métodos alternativos. Criou em 2012, via a portaria nº 491 (de 03.07.2012), a Rede Nacional de Métodos Alternativos (Renama) para proporcionar ao país “uma condição adequada para desenvolver e validar esses métodos alternativos”.

Além de investir recursos financeiros para a implantação da Rede, o MCTI, através de uma chamada pelo CNPq, apoiou grupos de pesquisa para implementar métodos alternativos validados e para o desenvolvimento de um equivalente de pele.

Em paralelo, uma cooperação entre a Anvisa e a Fundação Osvaldo Cruz (Fiocruz) resultou também em 2012 na criação do Centro Brasileiro de Validação de Métodos Alternativos (BraCVAM), coordenado por Octavio Presgrave, pesquisador da Fiocruz. A Renama e o BraCVAM atuam em conjunto para o desenvolvimento e validação de métodos alternativos. Neste momento, o Concea e o BraCVAM vão estruturar esse processo e, certamente, acelerar o avanço nessa área.

de testes *in vitro* realizados no Brasil e no mundo em experimentos científicos. Dessa forma, ser “gigantesco” dado o avanço tecnológico.

Invasão ao Instituto Royal - O membro do Concea avalia como “negativa” a invasão de ativistas ao Instituto Royal, pois se trata de crime. “Não é por esse caminho, nem através da violência, nem pela destruição do trabalho realizado que será resolvido o desafio de promover a substituição do uso de animais nas pesquisas”, destaca. “A retirada dos animais que estavam em experimentação destruiu os estudos em andamento”. Ele informa desconhecer quais os estudos que es-

tavam em andamento.

Segundo ele, os pesquisadores do Brasil trabalham com muita atenção e ética no âmbito do uso de animais. “Lógico que sempre há espaço para melhoria, e o Concea e a própria comunidade científica vêm promovendo avanço por meio da regulamentação da Lei Arouca. Para a pesquisa com animais não é a solução”.

Para ele, o “único caminho possível” é o da ciência, com ética no uso dos animais, e com pesquisa de qualidade que, efetivamente, transforme o trabalho realizado em resultado confiável. “A ciência é fundamental para que possamos inovar nos métodos alternativos”.

Beagles são necessários para o desenvolvimento de fármacos

Raça é importante porque sua fisiologia aproxima-se da humana

Edna Ferreira

Nas pesquisas que desenvolvem fármacos e medicamentos, os ensaios em animais são fundamentais para avaliar a toxicidade desses produtos. De acordo com Eliezer J. Barreiro, coordenador do INCT-Inovar e professor de Química Medicinal da Universidade Federal do Rio de Janeiro (UFRJ), esse trabalho é feito para que o fármaco possa chegar a ser usado pelos seres humanos com segurança. Segundo Barreiro, o beagle é usado pelos laboratórios nos testes de toxicidade por ser a raça de cães cuja fisiologia mais



Cães contribuem para a pesquisa



INCT-INO FAR PUBLICATIONS

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SCIENTIFIC ARTICLES



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ACADEMIC PRODUCTION

FINISHED MASTER DISSERTATIONS 2013

1. Allan Kardec Nogueira Alencar. Study of the pharmacological mechanism of N-acylhydrazone derivatives. 2013. Dissertation (Master in Pharmacology and Medicinal Chemistry) – Federal University of Rio de Janeiro, Coordination of Improvement of Higher Education Personnel. Advisor: Eliezer Jesus de Lacerda Barreiro.
2. Sonia Oliveira. Management of industrial property in an open innovation model: the case of PETROBRAS. Dissertation (Master in Professional Master in Industrial Property and Innovation) – National Institute of Industrial Property. Advisor: Adelaide Maria de Souza Antunes.
3. Luiz Augusto da Silva Mieiro. Management of engineering projects: the importance of the communication process. 2013. Dissertation (Master in Technology of Chemical and Biochemical Processes) – School of Chemistry - UFRJ. Advisor: Adelaide Maria de Souza Antunes.
4. Andre Luiz de Souza Britto. Program of human resources of the National Agency of Oil, Gas, and Biocombustibles (PRH-ANP): The contribution for the scientific and technological development of the oil sector in Brazil. 2013. Dissertation (Master in Professional Master in Intellectual Property and Innovation) – National Institute of Industrial Property. Advisor: Adelaide Maria de Souza Antunes.
5. Rodrigo Negrelli Guzzo. Phytochemical study and evaluation of biological activity of *trema micrantha* (cannabaceae). 2013. Dissertation (Master in Chemistry) – Federal University of Rio de Janeiro, Coordination for the Improvement of Higher Education Personnel: Angelo da Cunha Pinto.
6. Roberta Tesch. Study of molecular modeling aiming at the identification of new ligands for adenosine receptors. 2013. Dissertation (Master in Biological Sciences (Pharmacology and Medicinal Chemistry)) – Federal University of Rio de Janeiro, Coordination for the Improvement of Higher Education Personnel. Advisor: Carlos Alberto Manssour Fraga.

7. Rosana Helena Coimbra Nogueira de Freitas. Synthesis and pharmacological evaluation of new N-acylhydrazone derivatives analog to the LASSBio-1524 prototype planned as IKK-beta Inhibitors kinase inhibitors. 2013. Dissertation (Master in Chemistry) – Federal University of Rio de Janeiro, Coordination for the Improvement of Higher Education Personnel. Advisor: Carlos Alberto Manssour Fraga.
8. Luis Felipe Baumotte Osorio. Planning, synthesis and evaluation of the trypanocidal activity of new nitroimidazole oxime ethers derivative replaced as potential anti-chagas agents. 2013. Dissertation (Master in Chemistry) – Federal University of Rio de Janeiro, Coordination for the Improvement of Higher Education Personnel. Advisor: Carlos Alberto Manssour Fraga.
9. Maria Cecilia Rodrigues Simoes. Synthesis and pharmacological evaluation of new pharmaceutical prototypes inhibitors of acetylcholinesterase planned from donepezil. 2013. Dissertation (Master in Graduate Program in Chemistry) – Federal University of Alfenas, Coordination for the Improvement of Higher Education Personnel. Advisor: Claudio Viegas Junior.
10. Italo Antonio Fernandes. Synthesis and evaluation of piperidine-benzodioxole derivatives planned as new leishmanicidal pharmaceuticals. 2013. Dissertation (Master in Graduate Program in Pharmaceutical Sciences) – Federal University of Alfenas, Coordination for the improvement of Higher Education Personnel. Advisor: Claudio Viegas Junior.
11. Vinicius Figueiredo Sardela. Evaluation of the use of derivatizing reagents in the study of agents stimulant of the central nervous system for analysis through gaseous chromatography of high resolution coupled with mass spectrometry. 2013. Dissertation (Master in Chemistry) – Federal University of Rio de Janeiro. Advisor: Francisco Radler de Aquino Neto.
12. Patricia Davies de Oliveira Sardela. Evaluation of the profile of urinary excretion of luteinizing hormone in Brazilian athletes. 2013. Dissertation (Master in Chemistry) – Federal University of Rio de Janeiro. Advisor: Francisco Radler de Aquino Neto.



ACADEMIC PRODUCTION

13. Filipe Costa. Development of new hypoglycemic and anti-inflammatory substances. 2013. Dissertation (Master in Biological Sciences (Pharmacology and Medicinal Chemistry)) – Federal University of Rio de Janeiro, Coordination for the Improvement of Higher Education Personnel. Advisor: Gisele Zapata-Sudo.
14. Luiza Magalhaes Fiuza Gomes. Schiff bases with potential applications in the treatment of Alzheimer's and Osteoporosis. 2013. Dissertation (Master in Chemistry) – Federal University of Minas Gerais, Coordination for the Improvement of Higher Education Personnel. Advisor: Heloisa de Oliveira Beraldo.
15. Filipe Pereira da Costa. New candidates for prototypes for hypoglycemic drugs with anti-inflammatory activity: LASSBio-1773 and LASSBio-1774. 2013. Dissertation (Master in Graduate Program in Pharmacology and Medicinal Chemistry) – Federal University of Rio de Janeiro. Advisor: Lidia Moreira Lima.
16. Clemilson Berto Junior. Evaluation of hypoglycemic effect of prototypes LASSBio-1773 and LASSBio-1774 in a zebra-fish model. 2013. Dissertation (Master in Biological Sciences (Pharmacology and Medicinal Chemistry)) – Federal University of Rio de Janeiro, Coordination for the Improvement of Higher Education Personnel. Advisor: Lidia Moreira Lima.
17. Isabelle Karine da C. Nunes. New inhibitors of phosphodiesterase-4: design, synthesis, determination of physical-chemical properties and study of hepatic microsomal metabolism. Thesis (Doctorate in Graduate in Studies in Pharmacology and Medicinal Chemistry) – Federal University of Rio de Janeiro, Coordination for the Improvement of Higher Education Personnel. Advisor: Lidia Moreira Lima.
18. Luiz Henrique Agra Cavalcante Silva. Mechanisms of spasmolytic action of caulerpine, a bisindolic alkaloid isolated from algae of the Caulerpa genus, in a guinea pig ileo. 2013. Dissertation (Master in Master of Health Sciences) – Institute of Biological and Health Sciences - AL, Foundation of Research Support in the State of Alagoas. Advisor: Magna Suzana Alexandre Moreira.

19. Morgana Vital de Araujo. Study of leishmanicidal activity of combrestatin A4 derivatives: a proposal for new strategies in the treatment of leishmaniasis. 2013. Dissertation (Master in Master of Health Sciences) - Institute of Biological and Health Sciences - AL, Foundation of Research Support in the State of Alagoas. Advisor: Magna Suzana Alexandre Moreira.
20. Maria Erivanda Franca Rios. Study of cytotoxic activity and antitumor potential of acetone extract of *Annona muricata* L. seeds (AMSA), in experimental *in vitro* and *in vivo* models. 2013. Dissertation (Master in Graduate Studies in Pharmacology) - Federal University of Ceara. Advisor: Manoel Odorico de Moraes Filho.
21. Caio Vitor Machado Franca do Nascimento. Evaluation of the antiasthmatic potential of 7-Epiclusianon and of metallic complex 7-Epiclusianon/Copper. 2013. Dissertation (Master in Cellular and Molecular Biology) - Oswaldo Cruz Foundation, National Council for Scientific and Technological Development. Advisor: Marco Aurelio Martins.
22. Diego de Sa Coutinho. Evaluation of anti-inflammatory and antiasthmatic effect of 15-Deoxy- $\Delta^{12,14}$ -Prostaglandin J2 in murine models of asthma. 2013. Dissertation (Master in Human and Experimental Biology) - State University of Rio de Janeiro. Advisor: Marco Aurelio Martins.
23. Eduardo Alves Gamosa de Oliveira. Molecular and functional characterization of protein-protein interaction in protein complexes related to the control of the cellular cycle of *Arabidopsis thaliana*. 2013. Dissertation (Master in PPG PRODBIO) - Federal University of Rio de Janeiro - Macae Campus, Carlos Chagas Filho Foundation of Research Support in the State of Rio de Janeiro. Advisor: Nelilma Correia Romeiro.
24. Fabiana Sellos. Analysis of antitumor activity of isatin analogs and convolutamidine A. 2013. Dissertation (Master in Biological Sciences (Pharmacology and Medicinal Chemistry)) - Federal University of Rio de Janeiro, Coordination for the Improvement of Higher Education Personnel. Advisor: Patricia Dias Fernandes.



ACADEMIC PRODUCTION

25. Yaskara Lessa Lisboa. Pharmacological profile of three new analogs of Convolutamidine A. 2013. Dissertation (Master in Biological Sciences (Pharmacology and Medicinal Chemistry)) - Federal University of Rio de Janeiro, Coordination for the Improvement of Higher Education Personnel. Advisor: Patricia Dias Fernandes.

26. Patricia da Silva Marques. Impact of exercise associated to gender in the remodeling of aerial pathways in a chronic allergic asthma model. 2013. Dissertation (Master in Biological Sciences (Physiology)) - Federal University of Rio de Janeiro, Carlos Chagas Filho Foundation of Research Support in the State of Rio de Janeiro. Advisor: Patricia Rieken Macedo Rocco.

27. Luciene Ruiz Baccini. Obtaining semisynthetic alkaloid derivatives (-) - cassine e(-) - spectraline and evaluation of their antimalarial potential. 2013. Dissertation (Master in Chemistry) - Institute of Chemistry - UNESP, Coordination for the Improvement of Higher Education Personnel. Advisor: Vanderlan da Silva Bolzani.



FINISHED DOCTORAL THESES 2013

1. Maria Leticia de Castro Barbosa. Planning, synthesis, and pharmacological evaluation of new pharmaceutical candidates antagonists of TLR-9 receptor for the treatment of sepsis. 2013. Thesis (Doctorate in Chemistry) – Federal University of Rio de Janeiro, Coordination for the Improvement of Higher Education Personnel. Advisor: Eliezer Jesus de Lacerda Barreiro.
2. Pedro Palmeira. CATCH UP of the national pharmaceutical industry and funding for innovation: the case of BNDES acting through PROFARMA. 2013. Thesis (Doctorate in Technology of Chemical and Biochemical Processes) – School of Chemistry - UFRJ. Advisor: Adelaide Maria de Souza Antunes.
3. Sabrina Teixeira Martinez. Chemical transformations of pyrrolizidine alkaloids monocrotaline and retronecin. 2013. Thesis (Doctorate in Chemistry) – Federal University of Rio de Janeiro, Coordination for the Improvement of Higher Education Personnel. Advisor: Angelo da Cunha Pinto.
4. Nailton Monteiro do Nascimento Junior. Planning synthesis and pharmacological evaluation of new ligands for chemokine receptors CC and CXC. 2013. Thesis (Doctorate in Chemistry) – Federal University of Rio de Janeiro, Carlos Chagas Filho Foundation of Research Support in the State of Rio de Janeiro. Advisor: Carlos Alberto Manssour Fraga.
5. Sabrina Schaaf Teixeira Costa Pereira. Diagnosis of phytotherapeutic drugs registered and recognized by the Ministry of Health in Brazil. 2013. Thesis (Doctorate in Public Health) – National School of Public Health Fiocruz, Coordination for the Improvement of Higher Education Personnel. Advisor: Francisco Jose Roma Paumgarten.
6. Jaqueline Soares da Silva. N-Acylhydrazones derivatives improve cardiovascular dysfunction in spontaneously hypertensive rats submitted to myocardial infarction. 2013. Thesis (Doctorate in Biological Sciences (Pharmacology and Medicinal Chemistry)) – Federal University of Rio de Janeiro, Carlos Chagas Filho Foundation of Research Support in the State of Rio de Janeiro. Advisor: Gisele Zapata-Sudo.



ACADEMIC PRODUCTION

7. Rafael Pinto Vieira. Study of the pharmacological profile of Schiff bases and their interactions with metals. 2013. Thesis (Doctorate in Chemistry) – Federal University of Minas Gerais, National Council for Scientific and Technological Development. Advisor: Heloisa de Oliveira Beraldo.
8. Jeferson Gomes da Silva. Modified derivatives of thiosemicarbazones and diclofenac: pharmacological profile and effect of coordination to metals. 2013. Thesis (Doctorate in Chemistry) – Federal University of Minas Gerais, National Council for Scientific and Technological Development. Advisor: Heloisa de Oliveira Beraldo.
9. Walfrido Bispo Junior. Study of antinociceptive and anti-inflammatory action of pharmaceutical prototypes. 2013. Thesis (Doctorate in RENORBIO) – Northeast Network of Biotechnology, Coordination for the Improvement of Higher Education Personnel. Advisor: Magna Suzana Alexandre Moreira.
10. Aline Bonfim Vieira. Effect of phytocompound mangiferin in isolated asthma and associated with obesity. 2013. Thesis (Doctorate in Cellular and Molecular Biology) – Oswaldo Cruz Foundation, Coordination for the Improvement of Higher Education Personnel. Advisor: Marco Aurelio Martins.
11. Carolina Uchoa Guerra Barbosa de Lima. Evaluation of acute and subchronic toxicity and antitumor activity of hydroalcoholic unprocessed extract of the leaves of *rollinia leptopetala*. 2013. Thesis (Doctorate in Natural and Bioactive Synthetic Products) – Federal University of Paraiba. Advisor: Margareth de Fatima Formiga Melo Diniz.
12. Bianca Torres Ciambarella. Effect of anti-TNF therapies on the chronic inflammatory pulmonary response induced by silica in mice. 2013. Thesis (Doctorate in Cellular and Molecular Biology) - Oswaldo Cruz Foundation, National Council for Scientific and Technological Development. Advisor: Patricia Machado Rodrigues e Silva Martins.

13. Tatiana Maron Gutierrez. Therapy with mesenchymal cells derived from bone marrow in an experimental model of acute pulmonary lesion of pulmonary and extrapulmonary etiology. 2013. Thesis (Doctorate in Biological Sciences (Physiology)) – Federal University of Rio de Janeiro, National Council for Scientific and Technological Development. Advisor: Patricia Rieken Macedo Rocco.
14. Mariana Alves Antunes. Impact of Therapy with Different Lineages of Mesenchymal Cells in a Murine Model of Emphysema Induced by Elastosis. 2013. Thesis (Doctorate in Biological Sciences (Physiology)) – Federal University of Rio de Janeiro, Carlos Chagas Filho Foundation of Research Support in the State of Rio de Janeiro. Advisor: Patricia Rieken Macedo Rocco.
15. Soraia Carvalho Abreu. Therapy with mononuclear cells derived from bone marrow in allergic asthma model. 2013. Thesis (Doctorate in Biological Sciences (Physiology)) – Federal University of Rio de Janeiro, National Council of Scientific and Technological Development. Advisor: Patricia Rieken Macedo Rocco.
16. Shirley Moreira Burburan. Evaluation of pulmonary effects of inhalatory anesthetics in a murine model of chronic allergic asthma. 2013. Thesis (Doctorate in Internal Medicine) – Federal University of Rio de Janeiro. Advisor: Patricia Rieken Macedo Rocco.
17. Fernanda Ferreira Cruz. Therapy with Mononuclear Cells Derived from Bone Marrow in a Murine Model of Pulmonary Emphysema Induced by Elastosis. 2013. Thesis (Doctorate in Biological Sciences (Physiology)) – Federal University of Rio de Janeiro, Coordination for the Improvement of Higher Education Personnel. Advisor: Patricia Rieken Macedo Rocco.
18. Deysi Viviana Tenazoa Wong. Mediation of TLR2 and NOD1 receptors, and of adaptor protein MyD88 in the modulation of Intestinal Mucositis induced by irinotecan. 2013. Thesis (Doctorate in Pharmacology) – Federal University of Ceara, National Council for Scientific and Technological Development. Advisor: Ronaldo de Albuquerque Ribeiro.



ACADEMIC PRODUCTION

19. Andresa Heemann Betti. Search for new chemical entities for the development of new antipsychotic drugs: pre-clinical evaluation of N-phenylpiperazine and imidazole derivatives. 2013. Thesis (Doctorate in Pharmaceutical Sciences) – Federal University of Rio Grande do Sul. Advisor: Stela Maris Kuze Rates.
20. Fernanda Barja Fidalgo Silva de Andrade. Study of the protein salivary profile of obese children with a focus on changes in metainflammation mediators. 2013. Thesis (Doctorate in Clinical and Experimental Physiopathology) – University of the State of Rio de Janeiro, Carlos Chagas Filho Foundation of Research Support in the State of Rio de Janeiro. Advisor: Thereza Christina Barja Fidalgo.
21. Marcos Marcal Ferreira Queiroz. Identification of acetylcholinesterase inhibitors in tetrapterys mucronata Cav. (Malpighiaceae) and qualitative and quantitative comparison of tryptamine derivatives present in the studied species and in Ayahuasca. 2013. Thesis (Doctorate in Chemistry) – Institute of Chemistry - UNESP, Foundation of Research Support in the State of Sao Paulo. Advisor: Vanderlan da Silva Bolzani.
22. Meri Emili Pinto Nascimento. Evaluation of cyclic peptides in species native to the Brazilian semiarid region and in a cultivated species: characterization and biological activity. 2013. Thesis (Doctorate in Chemistry) – Institute of Chemistry - UNESP, Foundation of Research Support in the State of Sao Paulo. Advisor: Vanderlan da Silva Bolzani.

INCT-INOVAR SCHOLARS

FIOCRUZ/RJ

Bianca Torres Ciabarella [CV-Lattes](#)

CNPq Junior Post-Doctorate Scholarship

Time: July 2013 to January 2014

Project: *"Studies of potential cellular targets and action mode of LASSBio-897 compound in control of experimental silicosis."*

Advisor: Prof. Dr. Patricia Machado

Rodrigues e Silva Martins

FIOCRUZ/RJ

Julio Beltrame Daleprane [CV-Lattes](#)

CNPq Technological Development

Scholarship – DTI-3

Time: March 2012 to April 2013

Project: *"Study of the potential anti-inflammatory effect of compound LASSBio 897, in models of silicosis and asthma."*

Advisor: Prof. Dr. Marco Aurelio Martins

FIOCRUZ/RJ

Vinicius Frias de Carvalho [CV-Lattes](#)

CAPES Post-doctoral Scholarship

Time: March 2010 to February 2012

Project: *"Study of pharmacological interaction of LASSBio-897 and LASSBio-294 with adenosine receptors in living cells."*

Advisor: Prof. Dr. Marco Aurelio Martins

FIOCRUZ/RJ

UNIFAL

Andre Victor Pereira [CV-Lattes](#)

CNPq Scientific Initiation Scholarship - IC

Time: June 2012 to May 2013 and

September 2013 to June 2014

Project: *"Technological foresight of intermediaries and synthetic chemical entities of interest in the scope of the INCT-INOVAR."*

Advisor: Prof. Dr. Marcia Paranho Veloso

UNICAMP

Adriano Siqueira Vieira [CV-Lattes](#)

CNPq Junior Post-Doctorate Scholarship

Time: August 2009 to July 2012

Project: *"Atorvastatin synthesis"*

Advisor: Prof. Dr. Luiz Carlos Dias

Institute of Chemistry

Elsa Moreno de Viguri [CV-Lattes](#)

CNPq Junior Post-Doctorate Scholarship

Time: April 2013 to March 2014

Project: *"New quinic acid derivatives as Trypanosoma cruzi trans-sialidase inhibitors"*

Advisor: Prof. Dr. Luiz Carlos Dias

Institute of Chemistry

Javier Ceras Aresse [CV-Lattes](#)

CNPq Junior Post-Doctorate Scholarship

Time: April 2013 to March 2014

Project: *"Synthesis of Valsartan"*

Advisor: Prof. Dr. Luiz Carlos Dias

Institute of Chemistry

INCT-INO FAR SCHOLARS

Leila de Souza Conegero CV-Lattes

CNPq Junior Post-Doctorate Scholarship

Time: July 2010 to January 2011

Project: *"Fluoxetine synthesis"*

Advisor: Prof. Dr. Luiz Carlos Dias

Institute of Chemistry

UFG

Bruno Coelho Cavalcanti CV-Lattes

CNPq Junior Post-Doctorate Scholarship

Time: May 2010 to December 2010

Project: *"In vitro evaluation of cytotoxic, genotoxic and mutagenic potential of samples provided by INCT-INO FAR."*

Advisor: Prof. Dr. Leticia Veras Costa Lotufo

Unity of Clinical Pharmacology

UFG

Ana Maria Calado Dos Santos CV-Lattes

CNPq Technical Support Scholarship – AT NM

Time: January to June 2011

Project: *"In silico prediction and in vitro production of pharmaceutical prototype candidates through bioconversion of human metabolites"*

Advisor: Prof. Dr. Valeria de Oliveira

Faculty of Pharmacy

Geovana Barbara Ferreira Mendes

CV-Lattes

CNPq Technical Support Scholarship – AT NM

Time: March 2013 to December 2013

Project: *"In silico prediction and in vitro production of pharmaceutical prototype candidates through bioconversion of human metabolites"*

Advisor: Prof. Dr. Valeria de Oliveira

Faculty of Pharmacy

Sarah da Silva Nunes CV-Lattes

CNPq Technical Support Scholarship – AT NM

Time: July 2011 to December 2012

Project: *"In silico prediction and in vitro production of pharmaceutical prototype candidates through bioconversion of human metabolites"*

Advisor: Prof. Dr. Valeria de Oliveira

Faculty of Pharmacy

UFMG

Carolina Neris Cardoso CV-Lattes

Technological Initiation – ITI A

Time: September 2011 to January 2012

Project: *"Semicarbazone Benzaldehyde (BS)"*

Advisor: Prof. Dr. Carlos Alberto Tagliatti

Faculty of Pharmacy

Manuela Lima Toccafondo VieiraCV Lattes

CNPq Junior Post-Doctorate Scholarship

Time: May to August 2013

Project: *"PBPK Modelling and Simulation of LASSBio-596 Compound"*

Advisor: Prof. Dr. Carlos Alberto Tagliatti

Faculty of Pharmacy

Marcus Vinicius dos Santos CV-Lattes

Technology Undergraduate Grant – ITI A

October 2009 to March 2010

Project: *"Benzaldehyde Semicarbazone (BS)"*

Advisor: Prof. Dr. Carlos Alberto Tagliatti

Faculty of Pharmacy

Nathalia Freitas Emiliano CV-Lattes

Technological Initiation – ITI A

Time: September 2011 to January 2012

Project: *"Semicarbazone Benzaldehyde (BS)"*

Advisor: Prof. Dr. Carlos Alberto Tagliatti

Faculty of Pharmacy

Samira de Sa e Souza CV-Lattes

Technological Initiation – ITI A

Time: September 2011 to January 2012

Project: *"Semicarbazone Benzaldehyde (BS)"*

Advisor: Prof. Dr. Carlos Alberto Tagliatti

Faculty of Pharmacy

Gabrielle Luck de Araujo CV Lattes

CNPq Junior Post-Doctorate Scholarship

Time: July to December 2011

Project: *"Semicarbazone Benzaldehyde (BS): toxicological aspects"*

Advisor: Prof. Dr. Carlos Alberto Tagliatti

Faculty of Pharmacy

Wallace Carvalho Ferreira CV-Lattes

CNPq Technical Support Grant– AT NM

August 2009 to January 2010

Project: *"Benzaldehyde Semicarbazone (BS)"*

Advisor: Prof. Dr. Marcio de Matos Coelho

Faculty of Pharmacy

UFRJ**Alan Kardec Nogueira de Alencar**CV-Lattes

CNPQ Technical Support Grant– AT NM

April to August 2010

Project: *Development of new substances for the reduction of ventricular dysfunction, caused by arterial and pulmonary hypertension.*

Advisor: Prof. Roberto Takashi Sudo

Institute of Biological Sciences (ICB)

Alan Rodrigues de Sousa CV-Lattes

CNPq Technological Development

Scholarship – DTI-3

Time: February 2012 to July 2012

CNPq Technological Support Scholarship – AT NM

Time: August 2012 to August 2013

Project: *"Scientific awareness and health education at INCT-INOVAR"*

Advisor: Prof. Dr. Eliezer J. Barreiro

LASSBio



INCT-INO FAR SCHOLARS

Alexandra Basilio Lopes [CV-Lattes](#)

CNPQ Technological Development Grant-DTI-3

June to September 2010

Project: *"Synthesis and evaluation of antinociceptive and anti-inflammatory activities of phenyl-pyridine-n-acylhydrazone compounds planned from imidazo [1,2-a] pyridine-n-acylhydrazone derivatives."*

Advisor: Prof. Eliezer J. Barreiro
LASSBio

Ana Carla Dos Santos [CV-Lattes](#)

CNPq Technological Development Scholarship – DTI-3

Time: July 2009 to June 2010

CNPq Technological Development Scholarship – DTI-2

Time: July to 2010 to June 2011

CNPq Technological Development

Scholarship – DTI-1

Time: July 2011 to March 2012

Project: *"Scientific awareness and health education at INCT-INO FAR"*

Advisor: Prof. Dr. Eliezer J. Barreiro
LASSBio

Ana Cristina da Mata Silva [CV-Lattes](#)

CNPq Technological Development Scholarship – DTI-3

Time: April 2012 to June 2013

Project: *"Scientific awareness and health education at INCT-INO FAR"*

Advisor: Prof. Dr. Eliezer J. Barreiro
LASSBio

Ana Gabriela de Almeida Silva [CV-Lattes](#)

CNPq Scientific Initiation Scholarship - IC
Time: March 2013 to August 2013

Project: "Implementation and validation of pre-clinical trial model for the evaluation of the teratogenic effect of bioactive

substances: evaluation of the LASSBio 468 and LASSBio 596 prototypes".

Advisor: Prof. Dr. Aloa Machado de Souza
LASSBio

Arthur Eugen Kümmerle [CV-Lattes](#)

Junior Post-Doctoral CNPQ Grant-PDJ
September 2009 to March 2010

Project: *"Study of the Inclusion of LASSBio-579 in cyclodextrin."*

Advisor: Prof. Eliezer J. Barreiro
LASSBio

Arthur Henrique Freitas do Prado

[CV-Lattes](#)

CNPq Technical Support Scholarship – AT NS

Time: May 2011 to February 2012

Project: *"Scientific awareness and health education at INCT-INO FAR"*

Advisor: Prof. Dr. Eliezer J. Barreiro
LASSBio

Barbara Assis Novak [CV-Lattes](#)

CNPq Scientific Initiation Scholarship - IC

Time: September 2012 to February 2013

Project: *"Implementation and validation of pre-clinical trial model for the evaluation of the teratogenic effect of bioactive substances: evaluation of the LASSBio 468 and LASSBio 596 prototypes"*

Advisor: Prof. Dr. Aloa Machado de Souza
LASSBio

Carlos Eduardo da Silva Monteiro
[CV-Lattes](#)

CNPq Technological Development
Scholarship – DTI-3

Time: May 2010 to February 2011

Project: *"Multitarget activation: strategy for symptomatic treatment of neuropathic pain"*

Advisor: Prof. Roberto Takashi Sudo
Institute of Biological Sciences (ICB)

Clemilson Berto Junior [CV-Lattes](#)

CAPES Master Scholarship

Time: October 2011 to January 2013

Project: *"Evaluation of teratogenic potential of LASSBio 596 and LASSBio 468 prototypes, antiasthma pharmaceutical candidates"*

Advisor: Prof. Dr. Aloa Machado
LASSBio

Daniel Nascimento do Amaral [CV-Lattes](#)

CAPES Master Scholarship

Time: March 2010 to February 2012

Project: *"Design, synthesis and pharmacological evaluation of new antitumor β -tubulin inhibitor prototypes"*

Advisor: Prof. Dr. Lidia Moreira Lima
LASSBio

Douglas Rodrigues Outeiro de Oliveira
[CV-Lattes](#)

CNPq Technological Development

Scholarship – DTI-3

Time: September 2013 to December 2014

Project: *"Scientific awareness and health education at INCT-INOVAR"*

Advisor: Prof. Dr. Eliezer J. Barreiro
LASSBio

Fanny Nascimento Costa [CV-Lattes](#)

CNPq Junior Post-Doctorate Scholarship

Time: July 2013 to December 2013

Project: *"The use of X ray diffraction by polycrystals in the structural determination of N-acylhydrazones derivatives, new drug candidates."*

Advisor: Prof. Dr. Eliezer J. Barreiro
LASSBio/RJ



INCT-INO FAR SCHOLARS

Fabricio Maia da Silva Salvador [CV-Lattes](#)

CNPq Technological Development

Scholarship – DTI-3

Time: October 2012 to June 2013

Project: *“Scientific awareness and health education at INCT-INO FAR”*

Advisor: Prof. Dr. Eliezer J. Barreiro

LASSBio

Givanildo Santos da Silva [CV-Lattes](#)

CAPES Doctoral Grant

October 2009 to August 2010

Project: *“Studies for the discovery of new anti-influenza, neuraminidase inhibitor prototypes.”*

Advisor: Prof. Dr. Lidia Moreira Lima

LASSBio

Hannah Carolina Tavares Domingos

[CV-Lattes](#)

CNPq Scientific Initiation Scholarship - IC

Time: September 2011 to February 2012

Project: *“Qnint”*

Advisor: Prof. Dr. Claudia Rezende

Institute of Chemistry

Jean Marcell Marcelino Pena [CV-Lattes](#)

CNPQ Technical Support Grant– AT NM

From November 2013 to June 2014

Project: *“Development of a new synthetic route for preparation of generic drugs clozapine and quetiapine”*

Advisor: Prof. Dr. Angelo da Cunha Pinto

Institute of Chemistry

Jessica Silva dos Santos [CV-Lattes](#)

CNPQ Technical Support Grant– AT NM

From October to December 2010

Project: *“Scientific awareness and health education at INCT-INO FAR”*

Advisor: Prof. Dr. Lidia Moreira Lima

LASSBio

Juliana Fatima Vilacha Madeira

Rodrigues dos Santos [CV Lattes](#)

CNPq Technical Support Scholarship – IC

Time: March 2012 to Mar 2013

Project: *“Planning, synthesis, and pharmacological evaluation of 1,2,3,4-tetrahydroacridine derivatives, acetylcholinesterase inhibitor prototypes.”*

Advisor: Prof. Dr. Eliezer J. Barreiro

LASSBio

Leandro Louback da Silva [CV-Lattes](#)

CAPES Doctoral Grant

October 2009 to August 2010

Project: *“Study of the effects of different N-acylhydrazones derivatives on the cell-to-cell interaction mechanisms and inflammatory mediators that are part of the atherosclerotic process.”*

Advisor: Prof. Dr. Ana Luisa Palhares de Miranda

LASSBio

Lidilhone Hamerski Carbonezi [CV-Lattes](#)

CNPq Junior Post-Doctorate Scholarship

Time: August 2010 to January 2011

Project: *“Sunitinib synthesis”*

Advisor: Prof. Dr. Angelo da Cunha Pinto

Institute of Chemistry (IQ)

Lucia Beatriz Torres [CV-Lattes](#)

CNPq Technological Development

Scholarship – DTI-2

Time: October 2010 to September 2011

CNPq Technological Development

Scholarship – DTI-1

Time: October 2011 to July 2012 and July 2013 to February 2014

Project: *“Scientific awareness and health education at INCT-INOVAR”*

Advisor: Prof. Dr. Eliezer J. Barreiro

LASSBio

Luciana Almeida Piovesan [CV-Lattes](#)

CNPq Junior Post-Doctorate Scholarship

Time: February 2009 to August 2009

Project: *“Design, Synthesis and Pharmacological Evaluation of Novel Anti-Cancer Drug-Candidate Prototypes”*

Advisor: Prof. Dr. Eliezer J. Barreiro

LASSBio

Luciano da Silva Santos [CV-Lattes](#)

CNPq Scientific Initiation Scholarship - IC

Time: August to October 2011

CNPq Technical Support Scholarship – AT NS

Time: November 2011 to February 2012

Project: *“Synthesis and pharmacological activity of new ferrocene-N-acylhydrazones derivatives”*

Advisor: Prof. Dr. Lidia Moreira Lima

LASSBio

Maria de Fatima do Nascimento Alfredo
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CNPq Technical Support Scholarship – AT NS

Time: January 2012 to June 2013

Project: *“Scientific awareness and health education at INCT-INOVAR”*

Advisor: Prof. Dr. Eliezer J. Barreiro

LASSBio



INCT-INO FAR SCHOLARS

Mariana Trad Rosner da Motta CV-Lattes

CNPq Scientific Initiation Scholarship - IC

Time: August to October 2011

Project: *"In vitro metabolism of new leishmanicidal and tripanomicidal pharmaceutical prototypes"*

Advisor: Prof. Dr. Lidia Moreira Lima

LASSBio

Marlon Daniel Tonin CV-Lattes

CNPq Technical Support Scholarship – DTI-3

Time: April 2012 to July 2012

Project: *"Novel 5-aryl-2-furfuryl-N-acylhydrazones derivatives with potent anti-inflammatory and analgesic activity: LASSBio-1609 and LASSBio-1636"*

Advisor: Prof. Dr. Carlos Alberto Manssour

Fraga

LASSBio

Nailton Monteiro Nascimento Junior

CV-Lattes

CAPES Exchange Doctorate Scholarship (Dsw)

Time: March to August 2012

Project: *"Virtual screening synthesis and pharmacological evaluation of GPCRs ligands"*

Advisor: Prof. Dr. Carlos Alberto Manssour

Fraga

LASSBio

Natalia Medeiros de Lima CV-Lattes

CNPq Technical Support Scholarship – AT NS

Time: August 2010 to July 2011

CNPq Technical Support Scholarship – DTI-2

July 2013 to December 2014

Project: *"Scientific awareness and health education at INCT-INO FAR"*

Advisor: Prof. Dr. Eliezer J. Barreiro

LASSBio

Pedro Gabriel Dias Lobato Pereira

CV-Lattes

CNPq Scientific Initiation Scholarship - IC

Time: August to October 2011

Project: *"Synthesis of cyclodextrin complexes of LASSBio-596 salts"*

Advisor: Prof. Dr. Lidia Moreira Lima

LASSBio

Priscila de Paula Cabral CV-Lattes

CNPq Technological Development

Scholarship – DTI-3

Time: May 2012 to June 2012

Project: *"Scientific awareness and health education at INCT-INO FAR"*

Advisor: Prof. Dr. Eliezer J. Barreiro

LASSBio

Raquel de Oliveira Lopes CV-Lattes

CNPq Technical Support Scholarship – DTI-3

Time: October 2010 to December 2010

Project: *"Metabolic studies of LASSBio-596"*

Advisor: Prof. Dr. Eliezer J. Barreiro

LASSBio

Roberta Tesch CV-Lattes

CNPq Technical Support Scholarship – AT NS

Time: June 2010 to November 2010

CAPES Master Scholarship

Time: March to April 2011

Project: *“Studies of molecular modeling and structural planning of new ligands to adenosine receptors”*

Advisor: Prof. Dr. Carlos Alberto Manssour

Fraga

LASSBio

Rodolfo do Couto Maia CV-Lattes

CAPES Exchange Doctorate Scholarship (Dsw)

Time: February to July 2011

Project: *“Synthesis and evaluation of antitumor activity of a new family of pyrazole-pyridone family”*

Advisor: Prof. Dr. Carlos Alberto Manssour

Fraga

LASSBio

Sabrina Teixeira Martinez CV-Lattes

CNPq Technical Support Scholarship – DTI-1

Time: September 2013 to January 2014

Project: *“Bibliographical review of methodologies of synthesis of clozapine and quetiapine”*

Advisor: Prof. Dr. Angelo da Cunha Pinto

Institute of Chemistry

Tais Rubia dos Santos CV-Lattes

CNPq Scientific Initiation Scholarship - IC

Time: September to November 2011, January to June 2012 and September 2012 to February 2013

Project: *“Planning, synthesis and pharmacological evaluation of new leflunomide analogs”*

Advisor: Prof. Dr. Lidia Moreira Lima

LASSBio

Thiago Stevanatto Sampaio CV-Lattes

CNPQ Technical Support Grant– AT NM

April 2009 to March 2010

Project: *Design, synthesis and evaluation of cytotoxic properties of new TK inhibitor pharmaceutical candidate prototypes.*

Advisor: Prof. Dr. Eliezer J. Barreiro

LASSBio

USP- RIBEIRAO PRETO**Giuliana Bertozi Francisco CV-Lattes**

CNPq Technical Support Scholarship – AT NM

Time: September 2010 to December 2011

Project: *“Semicarbazone Benzaldehyde (BS)”*

Advisor: Prof. Dr. Fernando de Queiroz Cunha

Faculty of Medicine of Ribeirao Preto

Ana Katia dos Santos CV-Lattes

CNPq Technical Support Scholarship – AT NM

Time: January 2012 to June 2014

Project: *“Semicarbazone Benzaldehyde (BS)”*

Advisor: Prof. Dr. Fernando de Queiroz Cunha

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