SBFTE

53 Anos

1966 - 2019

51st Brazilian Congress of Pharmacology and Experimental Therapeutics

Ruth Cardoso Convention Center
September 24-27, 2019
Maceió, AL

Program

Sociedade Brasileira de Farmacologia e Terapêutica Experimental (SBFTE)
Executive Secretary
http://www.sbfte.org.br
sbfte@sbfte.org.br

Welcome Letter

Dear Friends and Colleagues,

On behalf of the board of directors of SBFTE and the members of the Organizing Committee, it is my great pleasure to welcome you to the beautiful Maceió and to our 51st Brazilian Congress of Pharmacology and Experimental Therapeutics!

We dedicated all efforts to repeat in the 51st Congress the great success attained in our 46st Congress, which was held in Fortaleza, CE, 2014. This is because the 51st Congress will be only the second Brazilian Pharmacology Congress organized by SBFTE to be held in the Northeast part of Brazil, a region renowned by a lively pharmacology and with top-notch pharmacologists.

The Scientific Committee of the 51st Congress carefully prepared a rich Scientific Program to provide a comprehensive overview of the latest research developments in varied areas of pharmacology. An outstanding group of speakers from Brazil and abroad will take part in the 51st Congress and share with us the most significant advances in our conferences, lectures, symposia and round tables. Nearly 500 posters with inspiring scientific material were carefully selected and will be exhibited in our two 2-days sections assuring that the meeting will be a major scientific event for all of us.

We would like to express our thanks to *Capes*, *CNPq* and *Fapesp* for providing the financial support for our 51st Congress, despite the major budget cuts that have been recently imposed to them. We also must express our gratitude to the Alagoas State locals, which provided us a very opportune support: *Fundação de Amparo à Pesquisa do Estado de Alagoas* (Fapeal) Universidade Federal de Alagoas (UFAL), *Instituto de Ciências Biológicas e da Saúde* (ICBS-UFAL) Programa de Pós-Graduação em Ciências da Saúde (PPGCS-ICBS-UFAL), and *Instituto Hemerson Casado Gama***.** Special acknowledgements must be made to *Biolab Sanus Farmacêutica* for our long-time partnership sponsoring the José Ribeiro do Valle Award, and to *Aché Laboratórios* for the 2nd edition of the Senior Pharmacologist Award. Also noteworthy is the strong presence of our Commercial Exhibitors, who bring to our Congress the latest technologies in terms of equipment, methodologies, materials, protocols and services in the field. We are very thankful for their participation. Our Annual meetings have traditionally combined great scientific content with a fantastic opportunity to see old friends, make new ones and boost our network of collaborations. We are certain we will keep this tradition this year in the paradisiac Maceio, and we hope you all have spared some days to enjoy the city and the surroundings, either before or after our Congress. We truly appreciate all SBFTE members, Colleagues, Invited Speakers and Collaborators and hope we all have a great time during our 51st Congress.

We look forward to welcoming all of you to Maceió!

André S. Pupo
Congress President

Emiliano Barreto
Local Organizing Committee Coordinator

Sociedade Brasileira de Farmacologia e Terapêutica Experimental (SBFTE)
Executive Secretary
http://www.sbfte.org.br
sbfte@sbfte.org.br

Index

SBFTE Board of Directors (2018-2020)

President:

André Sampaio Pupo (Unesp-Botucatu)

Vice President:

Cristoforo Scavone (USP)

Executive Director:

Patrícia M. Rodrigues e Silva (Fiocruz)

Administrative Director:

Roberto Cesar Pereira Lima Junior (UFC)

Financial Director:

Soraia Katia Pereira Costa (USP)

Deliberative Council

Carlos Fernando de Mello (UFSM)
Cláudia Lúcia Martins da Silva (UFRJ)
Emiliano de Oliveira Barreto (UFAL)
Maria Christina W. de Avellar (Unifesp-EPM) (Past President)
Paulo César Ghedini (UFG)
Rui Daniel Schröder Prediger (UFSC)
Thiago Mattar Cunha (USP)

Financial Council

Cristiano Gonçalves Ponte (IFRJ)
Marcelo N. Muscará (USP)
Vinicius de Frias Carvalho (Fiocruz)

Past Board of Directors and Deliberative Council Members

2015-2017

President: Maria Christina W. Avellar
Vice President: Letícia V. Costa Lotufo
Executive Director: Fernando de Q. Cunha
Administrative Director: Patrícia M. R. e Silva
Financial Director: Rosely O. Godinho

Council Members (2015-2017)

Carlos Fernando de Mello (UFSM)
Emiliano de Oliveira Barreto (UFAL)
François G. Noël (UFRJ)
Mauro M. Teixeira (UFMG)
Teresa Cristina T. Dalla Costa (UFRGS)
Thereza Christina Barja-Fidalgo (UERJ)
Thiago Mattar Cunha (USP)

2012-2014

President: Mauro M. Teixeira
Vice-President: Fernando de Q. Cunha
Executive Director: Letícia Costa Lotufo
Adminsitrative Director: Yara Cury
Financial Director: Maria Christina W. Avellar

Council Members (2012-2014)

Carlos Fernando de Mello (UFSM)
Cristoforo Scavone (USP-SP)
Emiliano de Oliveira Barreto
François G. Noël (UFRJ) (Presidente
Jamil Assreuy (Ex-Presidente)
Lusiane Bendhack (USP-RP)
Marcelo N. Muscará (USP-SP)
Rosely O. Godinho (Unifesp-EPM)
Teresa Cristina T. Dalla Costa (UFRGS)

2009-2011

President: Jamil Assreuy
Vice-President: Mauro M. Teixeira
General Secretary: Rosely O. Godinho
First-Secretary: Teresa C. T. Dalla Costa
Treasurer: Ronaldo de A. Ribeiro

Council Members (2009-2011)

Cristoforo Scavone (USP-SP)
Edson Antunes (Unicamp)
Francisco Silveira Guimarães (USP-RP)
Lusiane M Bendhack (USP-RP)
Maria Christina W. Avellar (Unifesp-EPM)
Regina P. Markus (USP) (ex-presidente)
Thereza Christina Barja-Fidalgo (UERJ)
Yara Cury (Instituto Butantan)

2006-2008

President: Regina P. Markus
Vice-President: Jamil Assreuy
General Secretary: Marco A. Martins
Secretary: Mauro M. Teixeira
Treasurer: Maria Elisabeth A. de Moraes

Council Members (2006-2008)

Aron Jurkiewicz (Unifesp-EPM)
Emer Suavinho Ferro (USP-SP)
Fernando de Queiroz Cunha (USP-RP)
Giles A. Rae (UFSC) (ex-presidente)
Iolanda M. Fierro (UERJ)
Jamil Assreuy (UFSC)
Maria Christina W. Avellar (Unifesp-EPM) (Presidente)
Thereza Christina Barja Fidalgo (UERJ)
Yara Cury (Instituto Butantan)

2004-2005

President: Giles A. Rae
Vice-President: Regina P. Markus
General Secretary: François G. Noël
Secretary: Isac A. Medeiros
Treasurer: Mauro M. Teixeira

Council Members (2004-2005)

Antonio José Lapa (Unifesp-EPM)
Aron Jurkiewicz (Unifesp-EPM)
Cristoforo Scavone (USP-SP)
Jamil Assreuy (UFSC) (Presidente)
João Batista Calixto (UFSC)
Maria Christina W. Avellar (Unifesp-EPM)
Rita C. A. Tostes (USP
Yara Cury (Instituto Butantan)

2002-2003

President: Giles A. Rae
Vice-President: Manassés C. Fonteles
General Secretary: Edson Antunes
Secretary: François G. Noël
Treasurer: Mauro M. Teixeira

Council Members (2002-2003)

Antonio José Lapa (ex-presidente)
Cristoforo Scavone (USP-SP)
Edson Antunes (Unicamp)
Gloria E. P. de Souza (USP-RP)
Jamil Assreuy (UFSC)
João Batista Calixto (UFSC)
Maria Christina W. Avellar (Unifesp-EPM)
Regina P. Markus (USP-SP)
Rita C. A. Tostes (USP-SP)

2000-2001

President: Antonio José Lapa
Vice-President: Roberto Soares de Moura
General Secretary: Caden Souccar
Secretary: Francisco Ruy Capaz
Treasurer: Thereza C. M. de Lima

Council Members (2000-2001)

Catarina Segretti Porto (Unifesp-EPM)
Edson Antunes (Unicamp)
Gloria E. P. de Souza (USP-RP)
Jamil Assreuy (UFSC)
João Batista Calixto (UFSC)
Maria Cristina O. Salgado (USP-RP)
Regina P. Markus (USP-SP)
Zuleica Bruno Fortes (USP-SP)

1998-1999

President: Maria Cristina O. Salgado
Vice-President: Regina P. Markus
General Secretary: Gustavo Ballejo
Secretary: José Geraldo Mill
Treasurer: Jamil Assreuy

Council Members (1998-1999)

Antonio José Lapa (Unifesp-EPM)
Catarina Segretti Porto (Unifesp-EPM)
Eduardo V. Tibiriçá (Fiocruz)
Fernando de Q. Cunha (USP-RP)
Gilberto de Nucci (Unicamp)
João Batista Calixto (UFSC)
Zuleica B. Fortes (USP-SP)

1996-1997

President: João B Calixto
Vice-President: Maria Cristina O. Salgado
General Secretary: Jamil Assreuy
Secretary: Giles A. Rae
Treasurer: Carlos A. Flores

Council Members (1996-1997)

Catarina S. Porto (Unifesp-EPM)
Eduardo V. Tibiriçá (Fiocruz)
Fernando de Queiroz Cunha (USP-RP)
Gilberto de Nucci (UNICAMP)

1994-1995

President: João B Calixto
Vice-President: William A. do Prado
General Secretary: Giles A. Rae
Secretary: Manoel Odorico de M Filho
Treasurer: Jamil Assreuy Filho

Council Members (1994-1995)

Catarina S. Porto(Unifesp-EPM)
Fernando M. A. Correa (USP-RP) (presidente do Conselho)
Marco Aurelio Martins (Fiocruz)
Renato S. B. Cordeiro (Fiocruz) (ex-presidente)
Zuleika P. Ribeiro do Valle (USP-SP)

1992-1993

President: Renato S. B. Cordeiro
Vice-President: João B. Calixto
General Secretary: Giles A. Rae
Secretary: Manoel Odorico de M. Filho
Treasurer: Patrícia M. R. e Silva

Council Members (1992-1993)

Caden Souccar (Unifesp-EPM) (1990-1992)
Catarina S. Porto (Unifesp-EPM)
Fernando M. Corrêa (USP-RP) (Presidente)
Gilberto de Nucci (Unicamp)
Giles A Rae (UFSC)
Paulina S. Sannomya (USP-SP)
Regina P. Markus (USP-SP)
William A. do Prado (USP-RP)
Zuleika Ribeiro do Valle (Unifesp-EPM)

1990-1991

President: Renato S. B. Cordeiro
Vice-President: João B. Calixto
General Secretary: Regina P. Markus
First Secretary: Krishnamurti M. Carvalho
Treasurer: Patrícia M. R. e Silva

Council Members (1990-1991)

Antonio J. Lapa (Unifesp-EPM)
Caden Souccar (Unifesp-EPM)
Fernando M. A. Correa (USP-RP)
Giles A Rae (UFSC)
Mario Tannhauser (UFRGS)
Therezinha B. Paiva (Unifesp-EPM)
William A. do Prado (USP-RP)
Zuleica Bruno Fortes (USP-SP)
Paulina Sannomya (USP)
Sergio H. Ferreira

1988-1989

President: Sergio H. Ferreira
Vice-President: Guilherme Suarez-Kurtz
General Secretary: João Garcia Leme
First Secretary: Fernando Morgan de A. Correa
Treasurer: William A. do Prado

Council Members (1988-1989)

Antonio J. Lapa (Unifesp-EPM)
Aron Jurkiewicz (ex-Presidente)
Frederico Graeff (USP-RP)
João Batista Calixto (UFSC)
Mario Tannhauser (UFRGS)
Regina P. Markus (USP-SP)
Renato Balão Cordeiro (Fiocruz)
Therezinha B. Paiva (Unifesp-EPM)
Zuleica Bruno Fortes (USP-SP)

1986-1987

President: Sergio H. Ferreira
Vice-President: Guilherme Suarez-Kurtz
General Secretary: João Garcia Leme
First Secretary: Fernando Morgan de A. Correa
Treasurer: William A. do Prado

1984-1985

President: Aron Jurkiewicz
Vice-President: Roberto Soares de Moura
General Secretary: Sergio H. Ferreira
First Secretary: João Palermo Neto
Treasurer: Therezinha Bandieira Paiva

Council Members (1984-1985)

Antonio J. Lapa (Unifesp-EPM)
E. A. Carlini (Unifesp-EPM)
Frederico G. Graeff (USP-RP)
Guilherme Suarez-Kurtz (INCa)

1982-1983

President: Alexandre P. Corrado
Vice-President: Aron Jurkiewicz
General Secretary: Sergio H. Ferreira
First Secretary: Roberto Soares de Moura
Treasurer: Adolfo M. Rothschild

1966-1981

President: Maurício Rocha e Silva
Vice-President: José Ribeiro do Valle
General Secretary: Alexandre P. Corrado
First Secretary: Lauro Sollero
Treasurer: Hanna A. Rothschild

2019 Congress Committees

Organizing Committee

André Sampaio Pupo (Unesp-Botucatu, Coordinator)
Cristoforo Scavone (USP)
Roberto Cesar Pereira Lima Junior (UFC)
Patrícia M. R. e Silva (Fiocruz-RJ)
Soraia Katia Pereira Costa (USP)
Sandra H. R. S. Cruz (Executive Secretary)

Scientific Committee

Flávia Almeida Santos (UFC, Coordinator)
Enilton A. Camargo (UFS)
Fabiola Taufic Mónica Iglesias (Unicamp)
Marco Aurélio Martins (Fiocruz-RJ)
Rosana Camarini (USP-SP)
Rui Daniel S. Prediger (UFSC)

Local Committee

Emiliano Oliveira Barreto (UFAL, Coordinator)
Jamylle Nunes de Souza Ferro (UFAL)
Juliane Pereira da Silva (UFAL)
Marcelo Duzzioni (UFAL)

Fundraising Committee

Fábio Cardoso Cruz (Unifesp, Coordinator)
Carlos Dias Junior (Unesp-Botucatu)
Emiliano Oliveira Barreto (UFAL)
Thiago Mattar Cunha (USP-RP)

SBFTE Young Trainee Committee

Eduardo Koji Tamura (UESC)
Fábio Cardoso Cruz (Unifesp-EPM)
João Alfredo de Moraes Gomes Silva (UFRJ)
Sanseray da Silveira Cruz-Machado (USP)
Simone Regina Potje (USP)

SBFTE Young Trainee Support Committee

Aleksandro Martins Balbino (UNIFESP)
Ana Cristina da Mata Silva (UFRJ)
Augusto Anésio (UNIFESP)
Avner de Almeida Silva (UESC)
Gilda Angela Neves (UFRJ)
Kallyane Santos Oliveira Silva (UESC)
Lucas Silva Franco (UFRJ)
Manuella Lanzetti Daher de Deus (UFRJ)
Marla Calazans (UFMG)

Abstract Evaluation Committee

Roberto Cesar Pereira Lima Junior (UFC, Coordinator)
Patrícia Martins Silva (Fiocruz)
Jamylle Nunes de Souza Ferro (UFAL)
Lirlândia Pires de Souza (UFMG)
Priscila de Souza (UFPR)
Ana Lucia Pires (Fiocruz-RJ, Secretary)

Poster Evaluation Committee

Roberto Cesar Pereira Lima Junior (UFC, Coordinator)
Patrícia Martins Silva (Fiocruz)
Jamylle Nunes de Souza Ferro (UFAL)
Lirlândia Pires de Souza (UFMG)
Priscila de Souza (UFPR)
Ana Lucia Pires (Fiocruz-RJ, Secretary)

José Ribeiro do Valle Award Committee

Teresa Dalla Costa (UFRGS, Coordinator)
Anthony Grace (University of Pittsburgh)
Maria Fernanda de Paula Werner (UFPR)

Ache-SBFTE Senior Pharmacologist Award Committee

Hernandes F. Carvalho (FeSBE, Coordinator)
Jorge A. Guimarães (EMBRAPII)
Michael Spedding (IUPHAR)

Promoting Pharmacology in Primary Public Schools in Maceió Committee

André Sampaio Pupo (Unesp-Botucatu)
Fabio Cardoso Cruz (SBFTE Jovem, Unifesp-EPM)

Abstract reviewers

Aleksander Roberto Zampronio
Alexandra Acco
Ana Carolina de Carvalho Correia
Ana Jérsia Araújo
Ana Maria Marques Orellana
André Klein
Andre Sampaio Pupo
Arquimedes Gasparotto Junior
Bruna Lima Roedel dos Santos
Bruno Lourenco Diaz
Cássia Regina da Silva
Chárist on André Dal Belo

Claudia Lucia Martins Silva
Cristiano Gonçalves Ponte
Deysi Viviana Tenazoa Wong
Diana Zukas Andreotti Viana
Diego Wilke
Edilson Dantas da Silva Junior
Edson Antunes
Elisa Mitiko Kawamoto
Emer Suavinho Ferro
Emiliano Barreto
Enilton Aparecido Camargo
Erick José Ramo da Silva
Fernanda Regina de Castro Almeida
Flávia Almeida Santos
Francisco Silveira Guimaraes
Fulvio Rieli Mendes
Gilda Angela Neves
Giles Alexander Rae
Gustavo Ballejo Olivera
Jacqueline Alves
Jamil Assreuy
Jamylle Nunes de Souza Ferro
Jand Venes Rolim Medeiros
Jessika Cristina Bridi
João Alfredo de Moraes
José Carlos Farias
José Delano Barreto Marinho Filho
Juliano Ferreira
Karoline Saboia Aragão
Leticia Veras Costa Lotufo
Luis Eduardo Menezes Quintas
Marco Aurélio Martins
Maria Aparecida Visconti
Maria Christina W. Avellar
Maria Fernanda de Paula Werner
Mariana Renovato Martins
Newton Gonçalves de Castro
Patrícia Machado R. e Silva Martins
Paula Fernanda Kinoshita
Paulo De Assis Melo
Regina de Sordi
Rita Tostes
Roberto César Pereira Lima Júnior
Rodrigo Molini Leão
Rosana Camarini
Rosane Gomez
Rosely Oliveira Godinho
Sandra Helena Penha de Oliveira
Soraia Katia Pereira
Talita Perdigão Domiciano
Tarcilia Aparecida Silva
Vanda Lucia Dos Santos
Vanessa Moreira
Waldiceu Aparecido Verri Junior

Useful information

Secretariat
Congress Secretariat will be open from 08h to 18h

Posters

- All posters should be on display until the end of your poster presentation, when they should be taken off.
- Poster presenters must attend the Session scheduled by the scientific committee (Sep 25 from 16h50 to 18h50 and Sep 27 from 10h00 to 12h00) when posters will be viewed by Poster Evaluators.
    - **Poster Session 1**: You should fix your poster at the time you arrive at the Convention Center on Sep 25 and take it off at the end of the session on Sep 25 (18h50).
    - **Poster Session 2**: You should fix your poster on Sep 27 (morning) and take it off at the end of the session on Sep 27, at 12h00.

Certificates
The Certificates will be available online in the system until 10 days after the event. You can download in PDF in the Certificates area.

Courses
The course certification will be given for the participants with at least 2 classes attendance.

Media Desk
Media desk will be open from 8h to 18h. All speakers are requested to leave the material at Media Desk at least two hours before presentations. All rooms have *data show*. If you need any other equipment, please inform Media Desk as soon as possible. Lecturers presenting talks at 8h should leave their material at the Media Desk the day before the presentation.

Badges
The use of badge is mandatory for all activities and circulation areas in the Convention Center.

Abstracts
Abstracts presented at the poster session will be available at SBFTE website (http://www.sbfte.org.br).

Social Activities

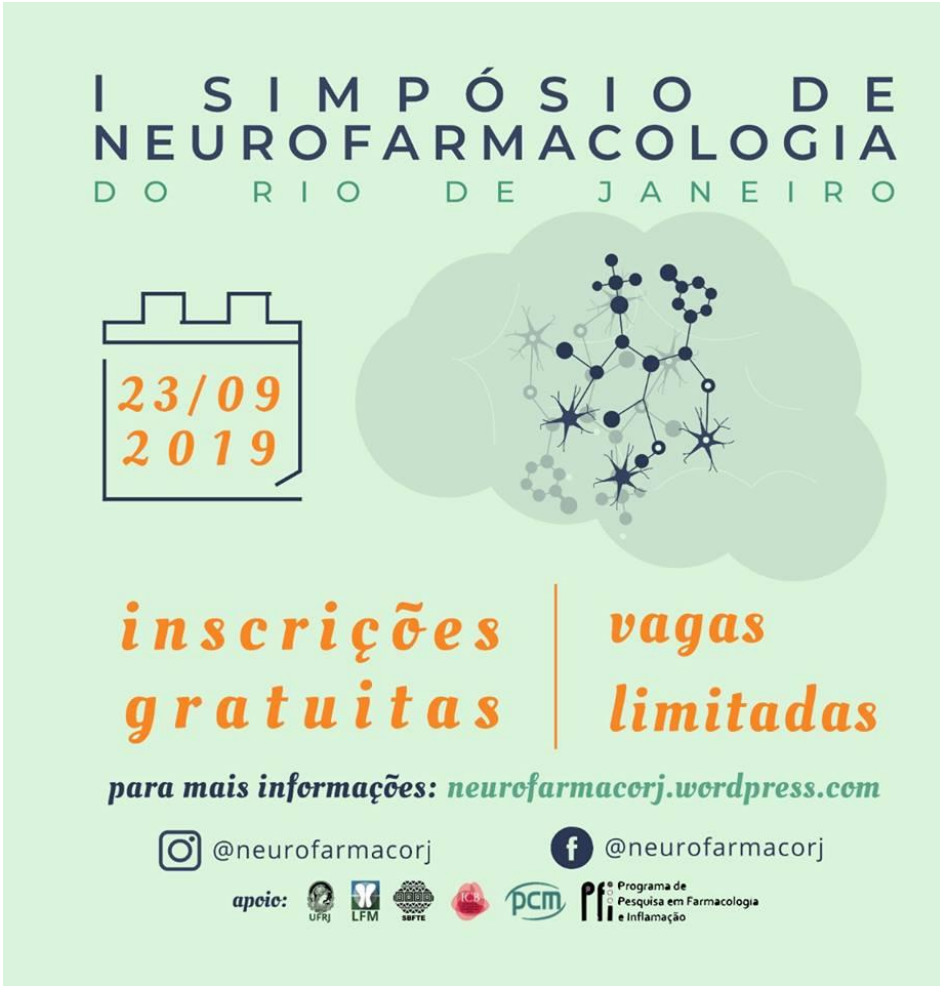
Welcome cocktail
24/09/2019 – 20h30-22h30
Maceió Convention Center

Special Dinner by Adhesion
25/09/2019 – 20h30-10h30
Anamá Restaurant (Avenida. Silvio Carlos Viana, 2501 – Ponta Verde)
*Payment and information at the registration desk

Get together party
26/09/2019 – 21h00-01h00
Maikai (Av. Eng. Paulo Brandão Nogueira, 540)

*In the Meeting bag you will find an identification bracelet. Keep it to enter and during the **Get Together Party**

Sociedade Brasileira de Farmacologia e Terapêutica Experimental (SBFTE)
Executive Secretary
http://www.sbfte.org.br
sbfte@sbfte.org.br


I SIMPÓSIO DE NEUROFARMACOLOGIA
DO RIO DE JANEIRO
23/09
2019
inscrições gratuitas
vagas limitadas
para mais informações: neurofarmacorj.wordpress.com
@neurofarmacorj
@neurofarmacorj
apoio:
UFRJ
LFM
SBFTE
ICB
pcm
Programa de Pesquisa em Farmacologia e Inflamação

Novel Insights in Mediators and Natural Products in Cancer, Vascular and Inflammatory Regulation

When: 23rd September 2019 **Time:** 9h:00 – 17:00 h

Where: Pink Conference Room – Institute of Biomedical Sciences – ICB/USP
Edifício Biomédicas IV – Av. Prof. Lineu Prestes, 1730

Coordinators: Dr. Luciana B. Lopes & Dr. Soraia Costa

Note: These classes are part of the PG course content **BMF-5895** (2 credits)

Program

9:00 – Welcome session

Dr. Luciana Lopes & Dr. Soraia Costa, Department of Pharmacology (ICB/USP)

9:30 – Targeting cancer proteins with marine natural products

Dr. Leticia C. V. Lotufo, Department of Pharmacology (ICB/USP)

10:20 – Development of a novel multi-target analgesic drug for neuropathic pain

Dr. Zsuzsanna Helyes, Centre for Neuroscience, University of Pécs, Hungary

11:10 – Spleen-liver communication in systemic inflammation

Dr. Alexandre A. Steiner, Department of Immunology (ICB/USP)

12:00 – Lunch break

14:00 – CGRP and its role in cardiovascular regulation

Dr. Susan Brain, School of Cardiovascular Medicine & Sciences, King´s College, London

14:50 – The TRPA1-mediated effects of H_2S and polysulfides

Dr. Erika Pinter, Department of Pharmacology & Pharmacotherapy, University of Pécs, Hungary

15:40 – Application of photobiomodulation in different animal models

Dr. Marúcia Chacur, Department of Anatomy, (ICB/USP)

16:30 – Concluding remarks

Keynote Speaker: Opening Lecture

Sara M. Rankin (Imperial College London, UK).

Sara Rankin is Professor of Leukocyte and Stem Cell Biology at the National Heart and Lung Institute, Imperial College London.

Professor Rankin obtained a first class Hons Degree and PhD in Pharmacology from Kings College, London. She then undertook postdoctoral positions in the Department of Medicine, UCSD, and at the Imperial Cancer Research Fund (now Cancer Research UK). Professor Rankin joined the Leukocyte Biology Section of the Institute in 1995 with a Wellcome Trust Career Development Award. She subsequently obtained a Wellcome Trust University award and is now a Professor in Leukocyte and Stem Cell Biology. Her research focuses on understanding the impact of the bone marrow in inflammatory diseases and elucidating the molecular mechanisms regulating the exit of leukocytes and stem cells from the bone marrow. Current research areas include: *Neutrophil clearance by the bone marrow*. *Molecular mechanisms regulating the mobilisation of haematopoietic, endothelial and mesenchymal progenitor cells*. *Trafficking of mesenchymal stem cells in vivo*. *The role of endothelial progenitor cells in angiogenesis in models of allergic airways inflammation*. Professor Rankin currently holds grants from the Wellcome Trust, The European Commission, the British Heart Foundation, the Medical Research Council and Industrial collaborators. She was awarded her Certificate in Advanced Studies in Learning and Teaching in 2001. She is a postgraduate tutor and Deputy Head of Postgraduate studies for NHLI. Professor Rankin is the Institute lead for Outreach and is involved in a variety of public engagement and outreach activities. Professor Rankin is on the Education Committee for the British Pharmacological Society and is a Fellow of the Society of Biology.

Prize Awards:
Second Senior Pharmacologist Award Edition

SBFTE

achē
mais vida para você

Senior Pharmacologist Award History

2017 First Senior Pharmacologist Award Recipient: Prof. Dr. João B. Calixto (UFSC, Cienp)

2019 *Second* Senior Pharmacologist Award Recipient: Fernando de Queiroz Cunha (USP-RP)

The rules can be seen at:
http://www.sbfte.org.br/edital-para-o-premio-farmacologista-senior-uma-realizacao-sbfte-e-laboratorio-ache/

Keynote Speaker:
Sergio Ferreira Lecture/Closing Lecture

Senior Pharmacologist Award Recipient

Fernando de Queiroz Cunha is a full professor of the Department of Pharmacology of the Medical School of Ribeirao Preto, USP. He works in the field of immunopharmacology, investigating the pathophysiological mechanisms of inflammatory diseases, in particular, sepsis and rheumatoid arthritis. One of the main objectives of his studies is to discover new and potential pharmacological targets for the development of new drugs and / or diagnostic tests for these diseases. Prof. Cunha is a member of the Academic of Sciences of the Developing World (TWAS), the Brazilian Academy of Science (ABC) and the Paulista Academy of Science (ACIESP). The Prof. Cunha has international scientific recognition and has published more than 500 articles in international journals, which have been cited more than 21,000 times. He has also great experience in training human resources, having trained over 50 masters and PhD students and supervised more than 10 post-doctors. Prof. Cunha studies on sepsis described the molecular mechanisms that explain why septic patients develop hypotension non-responsive to vasoconstrictor treatment and also, they do not control efficiently the microbe's infections. These studies allowed the group to initiate a new project aimed to development new drugs aimed to prevent the cardiovascular hyporresponsivess to vasoconstrictors and also to prevent the immunosuppression, events that aggravate sepsis. More recently the group of Prof. Cunha described an important mediator who plays a key role in organ damage during sepsis. This mediator is called NET (Neutrophil Extracellular Traps) and is released during sepsis by the neutrophils and causes lesions in the lungs, heart, liver and kidneys. The group also demonstrated that newborns are more susceptible to sepsis because they produce high concentrations of NETs compared to adults. These studies support the use of drugs that inhibit NETs to prevent injuries of the vital organs and consequently reducing the sepsis-induced death. Among the Prof. Cunha studies in the area of Rheumatoid Arthritis (RA) include those that describe the mechanisms involved in the resistance of a group of patients with RA to methotrexate (MTX) treatment. MTX is used worldwide as a first-line strategy in the treatment of RA. However, about 30-40% of patients do not respond to treatment, and it is only possible to determine therapeutic efficacy after 4-6 months of continuous use of the MTX. When the therapeutic response is not adequate, non-responders present progressive tissue damages in the joints, which are irreversible, impairing the movements and locomotion of the patients. However, these lesions could be attenuated with the administration of other effective treatments for the disease for patients resistant to MTX. The research of the Prof. Cunha group identified a bio-marker capable of predicting the therapeutic efficacy of MTX before starting treatment. The test is based on expression on the surface of regulatory T cells (Tregs) of a molecule involved in the production of adenosine, the CD39 / ENTPD1 ectoenzyme. UR-MTX patients have a reduction of this molecule even before the start of MTX treatment. Therefore, in the near future all patients newly diagnosed with RA will be able to perform the test through a diagnostic kit that has been developed in collaboration with the productive sector.

José Ribeiro do Valle Award
First Place Winner History

1998: Maria Martha Campos (UFSC; Adviser: João Batista Calixto)

1999: José Eduardo da Silva Santos (UFSC; Adviser: Jamil Assreuy)

2000: Ana Paula V. Dantas (USP-SP; Adviser: Maria Helena Catelli de Carvalho)

2001: Liliam Fernandes (USP-SP; Adviser: Maria Helena Catelli de Carvalho)

2002: Isaias Gleizer (USP-SP; Adviser: Cristoforo Scavone)

2003: Juliano Ferreira (UFSC; Adviser: João Batista Calixto)

2004: João Alfredo de Moraes (UERJ; Adviser: Thereza Christina Barja-Fidalgo)

2005: Tiago Chiavegatti (Unifesp-EPM; Adviser: Rosely O. Godinho)

2006: Ana Letícia G. Cabral Maragno (USP-RP; Adviser: Marcelo Damário Gomes)

2007: Maria Fernanda de Paula Werner (UFSC; Adviser: Giles A. Rae)

2008: Ana Luiza Andrade de Paula Lopes (Unifesp-EPM; Adviser: Rosely O. Godinho)

2009: Silvio Manfredo Vieira (USP-RP; Adviser: Fernando de Q. Cunha)

2010: Vanessa Olzon Zambelli (Instituto Butantan; Adviser: Yara Cury)

2011: Tatiana Paula Teixeira Ferreira (Fiocruz; Adviser: Patrícia Machado Rodrigues e Silva)

2012: Maíra Assunção Bicca (UFSC; Adviser: João Batista Calixto)

2013: Jaqueline Raymondi Silva (USP-RP; Adviser: Fernando de Q. Cunha)

2014: Jhimmy Talbot (USP-RP; Adviser: Fernando de Q. Cunha)

2015: Daniele Maria Ferreira (UFPR; Adviser: Maria Fernanda de Paula Werner)

2016: Gabriela S Kinker (USP, Adviser: Pedro Augusto Carlos Magno Fernandes)

2017: Fernando Olinto Carreño (UFRGS, Adviser: Teresa C. Dalla Costa)

2018 Bruna da Silva Soley (UFPR, Adviser: Daniela de Almeida Cabrini)

SBFTE

biolab
FARMACÊUTICA

José Ribeiro do Valle Award – 2019 Finalists

Franciele Franco Scarante
BSc in Biomedicine – UFPR (2010-2015)
MSc in Pharmacology – USP-RP 2016-2018
PhD student in Pharmacology – USP-RP
Adviser: Alline Cristina de Campos

Douglas da Silva Prado
BSc in Nursery UFS (2009-2013)
MSc in Biological Science (Pharmacology) – USP-RP (2014-2016)
PhD student in Biological Science (Pharmacology) – USP-RP
Adviser: José Carlos Farias Alves Filho

Natalia Barreto da Silva Ribeiro
BSc in Biological Science IFRJ (2011-2015)
MSc in Cellular and Molecular Biology – Fiocruz (2016-2018)
PhD student in Cellular and Molecular Biology – Fiocruz
Adviser: Patrícia Machado Rodrigues e Silva

Kassiano dos Santos Sousa
BSc in Biological Sciende – UFPB (2008-2013)
MSc in Biological Sscience (Zoology) – (2013-2015)
PhD student in Science (Physiology) – USP-SP
Adviser: Regina P. Markus

Irismara Sousa Silva
Bsc in Biomedicine – UFPI (2010-2014)
MsC in Pharmacology UFPI (2015 – 2016)
PhD student in Biological Science (Pharmacology and Physiology) –UFMG
Adviser: André Klein

About SBFTE Jovem

SBFTE Jovem, founded in 2013, is a Committee of the Brazilian Society of Pharmacology and Experimental Therapeutics (SBFTE). The Committee is composed of young Pharmacologists members of SBFTE, working in association with the SBFTE Board of Directors. Our mission is to create a permanent political-scientific forum dedicated to undergraduate, graduate students, Post-Docs, as well as young investigators and Junior faculty members of SBFTE to discuss scientific topics related to Pharmacology in order to promote the development of early-career investigators, stimulating the participation, insertion and collaboration of our members into the activities of the Society.

This year, SBFTE Young will promote two activities during the 51st Brazilian Congress of Pharmacology and Experimental Therapeutics. The first activity, *Doutores na Indústria* (Ph.D. in the Industry: Different areas of practice) is a roundtable to open a discussion about opportunities to Brazilian early-career scientists regarding innovation, new challenges in science, how to engage into carriers in the industry or any other relevant opportunities that are beyond scholar-driven carriers. This section is scheduled for September 25th, 2019 from 1:30 pm to 3:30 pm. The second activity, "Meeting with the Pharmacologist" is scheduled for September 26th, 2019 from 12:10 pm to 01:20 pm. This session provides the opportunity to trainees and young scientists to engage into an active discussion with senior scientists about any topic of interest related to building a strong career in Science and Pharmacology, such as challenges in getting funding, establishing a research group, choosing and being a good mentor, as well as topics of their area of expertise.

In addition to the two activities, the Committee engages into relevant public awareness of science by promoting activities in local public schools of Maceió/AL and hosting several students in the activities along with the Congress of SBFTE. We invite all the early-career attendees of the Congress and young professionals to participate and support SBFTE Jovem's activities in the 51st SBFTE Congress at Maceió/AL.

SBFTE Young Committee

Eduardo Koji Tamura (UESC)
Fábio Cardoso Cruz (Unifesp-EPM)
João Alfredo de Moraes (UFRJ)
Sanseray da Silveira Cruz Machado (USP-SP)
Simone Regina Potje (USP-RP)

Sociedade Brasileira de Farmacologia e Terapêutica Experimental (SBFTE)
Executive Secretary
http://www.sbfte.org.br
sbfte@sbfte.org.br

Program at a Glance

	23/09/19 (Monday)	24/09/19 (Tuesday)	25/09/19 (Wednesday)	26/09/19 (Thursday)	27/09/19 (Friday)
08h00		Venue Secretariat Opening	Venue Secretariat Opening	Venue Secretariat Opening	Venue Secretariat Opening
08h00			Courses	Courses	Courses
8:00h		Promoting Pharmacology in Primary Public Schools			
09h00			Lectures	Lectures	Lectures
09h00		Meeting of the SBFTE Board and Deliberative Council			
09h50			Coffee-break	Coffee-break	
10h00					Poster Session 2
10h10			Symposia	Symposia	
12h00		Lunch			
12h15			Lunch	Lunch	Closing Lecture
			SBFTE Assembly	Meet the Professor	
			Technical Lecture	Roundtable	
13h00		Meeting Permanent Forum of Postgraduation Courses in Pharmacology			
13h15					Closing Ceremony
13h30			Symposia/ Roundtables	Symposia/ Roundtables	
14h00	Satellite courses	Pre-congress Courses			
15h00	Coffee-break				
15h20		Roundtable			
15h30			Coffee-break	Coffee-break	
15h50			Lectures		
16h00				Symposia	
16h30	Meeting Clinical Pharmacology in Postgraduation				

	Courses in Pharmacology				
16h50			Poster Session 1		
18h00				Meeting of the N-NE-CW Region Pharmacology Network	
				SBFTE Young Assembly	
18h30		Opening Session			
19h30		Opening Lecture			
20h30		Cocktail	Special Dinner by Adhesion		
21h00				Get together party	

Scientific program

23/09/2019 (Monday)

14h00-17h00	**Satellite courses – Hotel Ponta Verde - Maceió**
Água Viva Room	**Cell and Region-Specific Approaches in Neurological and Psychiatric Disorders** (Abordagens Célula-Região Específicas nos Transtornos Neurológicos e Psiquiátricos) Chair: Rosana Camarini (USP-SP) • 14h00-14h50 Class 1: *Cell-based approaches in CNS* (*Abordagem baseada em célula no SNC*) Carolina Demarchi Munhoz (USP-SP) • 15h00-15h50 Class 2*: New tools to assess neuronal ensembles in behaviors* (*Novas ferramentas para avaliar conjuntos neuronais em comportamentos*) Fabio Cardoso Cruz (Unifesp-EPM) • 15h50-16h10 Coffee break • 16h10-17h00 Class 3: In vitro *and* in vivo *approaches to TBI* (*Abordagens* in vitro *e* in vivo *para o estudo do TCE*) Bonnie Firestein (Rutgers University, USA)
Caravela Room	**Pharmacogenomics: Current Status and Perspectives** (Farmacogenômica: Status Atual e Perspectivas) Chair: Guilherme Suarez Kurtz (INCa) • 14h00-14h50 Class 1: *Pharmacogenomics: Introduction* (*Farmacogenômica: Introdução*) Guilherme Suarez Kurtz (INCa) • 15h00-15h50 *Class 2: Pharmacogenomics: Current status* (*Farmacogenômica: Status atual*) Guilherme Suarez Kurtz (INCa) • 15h50-16h10 Coffee break • 16h10-17h00 Class 3: *Pharmacogenomics*: *Clinical implementation* (*Farmacogenômica: Implementação Clínica*) Guilherme *Suarez* Kurtz (INCa)

	24/09/2019 (Tuesday)
08h00-15h00	**SBFTE e Divulgação de Farmacologia na Escola Pública** (Promoting Pharmacology in Primary Public Schools in Maceió) Escola Estadual Theotônio Vilela Brandão (4 Turmas Ensino Médio (Turnos Manhã e Tarde) Chairs: André S. Pupo (Unesp-Botucatu) / Emiliano Barreto (UFAL) / SBFTE Young Committee
08h00	**Venue Secretariat and SBFTE Secretariat Opening**
09h00-12h00 VIP II Room	**Meeting of the Board of SBFTE Directors and Deliberative Council** (Council and Directory Board Members only)
12h00-13h00	**Lunch**
13h00-15h00 *Pajuçara Room*	**Meeting of SBFTE Permanent Forum of Postgraduation Courses in Pharmacology** (only for Heads of Postgraduation Courses in Pharmacology, Deliberative Council and Society Board)
14h00-17h00	**Pre-congress Courses**
Jatiuca Room	**Methods for Cardiorenal Ethnopharmacological Research** (Métodos para a pesquisa etnofarmacológica cardiorrenal) **Chair:** Arquimedes Gasparotto Junior (UFGD) • Class 1: *Ethnobotanical, pharmacognostic, phytochemical and toxicological aspects as an initial step for cardiorenal ethnopharmacological research* (*Aspectos etnobotânicos, farmacognósticos, fitoquímicos e toxicológicos como etapa inicial para a pesquisa etnofarmacológica cardiorrenal*) Arquimedes Gasparotto Junior (UFGD) • Class 2: *Experimental techniques in animal models of hypertension, atherosclerosis, heart failure and acute myocardial infarction* (*Técnicas experimentais em modelos animais de hipertensão arterial sistêmica, aterosclerose, ICC e infarto agudo do miocárdio*) Arquimedes Gasparotto Junior (UFGD) • Class 3: *Cardiovascular disease study models associated with multiple risk factors* (*Modelos de estudo de doença cardiovascular associados à múltiplos fatores de risco*) Arquimedes Gasparotto Junior (UFGD)
Ipioca Room	**Zebrafish as an Experimental model in Pharmacology** (Zebrafish como um Modelo Experimental em Farmacologia) Chair: Adriana Ximenes da Silva (UFAL)

	• Class 1: *Understanding Zebrafish creation and management* (*Entendendo a criação e o gerenciamento de Zebrafish*) Monica Valdyrce dos Anjos Lopes Ferreira (IBu) • Class 2: *The Zebrafish as a model for nociception studies* (*O Zebrafish como modelo para estudos de nocicepção*) Adriana Rolim Campos Barros (Unifor) • Class 3: *Zebrafish as screening model for detecting toxicity and gabaergic drugs efficacy* (*Zebrafish como modelo de triagem para a detecção de toxicidade e eficácia de drogas gabaérgicas*) Adriana Ximenes da Silva (UFAL)
15h00-15h20	Coffee Break
15h20-16h30	Roundtable
Pajuçara Room	Animal Experimentation: Legislation and its Developments (Experimentação Animal: legislação e seus Desdobramentos) Chair: Maria Christina Werneck Avellar (Unifesp-EPM) • *Concea and its role as legislator for animal experimentation* (*Concea e seu papel legislador para a Experimentação Animal*) Renata Mazaro e Costa (UFG, CONCEA/MCTIC Coordinator) • *The future of Lab animal facilities for the next 20 years* (*Biotério do futuro e perspectivas para os próximos 20 anos*) Marcel Frajblat (UFRJ)
16h30-17h30 Pajuçara Room	Meeting - Clinical Pharmacology in Postgraduation Courses in Pharmacology (only for Heads of Postgraduation Courses in Pharmacology) Chair: Guilherme Suarez Kurtz (INCa)
18h30-19h30 Gustavo Leite Theater	Opening Session
19h30-20h20 Gustavo Leite Theater	Opening Lecture Regenerative Pharmacology – Drugs that Enhance Bone Healing through the Mobilization of Mesenchymal Stem Cells Sara Margaret Rankin (Imperial College, UK) Introduced by Marco Aurélio Martins (Fiocruz-RJ)
20h30-22h30	Cocktail

25/09/2019 (Wednesday)	
08h00-08h50	**Courses**
Jatiuca Room	**The Importance of Time Factor in Pharmacology: From Receptor to Therapeutic Effect** (A Importância do Fator Tempo em Farmacologia: Do Receptor ao Efeito Terapêutico) Chair: François G. Noël (UFRJ) • Class 1: *Kinetics of drug-receptor interaction and residence time* (*Cinética da interação fármaco-receptor e tempo de residência*) François Noël (UFRJ)
Ipioca Room	**Statistics for Pharmacologists** (Estatística para Farmacologistas) Chair: Leandro Jose Bertoglio (UFSC) • Class 1: *On the selection of the appropriate statistical test to analyze my experimental data* (*Como selecionar o teste estatístico apropriado para analisar meus dados experimentais?*) Leandro Jose Bertoglio (UFSC)
Pajuçara Room	**The Challenge of Research with Laboratory Animal: Rules, Management and Welfare** (O Desafio do Uso de Animais no Laboratório de Pesquisa: Regras e Cuidados do Bem-Estar dos Animais) Chair: Paulo de Assis Melo (UFRJ) • Class 1: *CEUA: Villain or partner? How to approve a CEUA project?* (*CEUA: Vilã ou parceira? Como aprovar um projeto da CEUA?*) Marcel Frajblat (UFRJ)
09h00-09h50	**Lectures**
Jatiuca Room	**New Strategies for Discovery and Pharmacological Development of Therapeutic Antibodies** João Gonçalves (University of Lisbon, Portugal) Introduced by Claudia do Ó Pessoa (UFC)
Ipioca Room	**Zebrafish Disease Models for High Throughput Screens in Drug Development** Xiao-Yan Wen (University of Toronto, Canada) Introduced by Adriana Rolim Campos Barros (Unifor)
09h50-10h10	**Coffee-break**
10h10-12h10	**Symposia/Oral Communication**
Jatiuca Room	**Drug development: Hydrogen Sulfide-Based Drugs for Pain and Inflammation** Chair: John L Wallace (University of Calgary, Canada)

	• *H_2S-based anti-inflammatories: GI-safe and enhanced effectiveness* John L Wallace (University of Calgary, Canada) • *Biofilm control: A key for better treatments?* Nathalie Vergnolle (INSERM, France) • *The impact of nitric oxide and hydrogen sulfide in periodontal and vascular inflammation* Marcelo N. Muscará (USP-SP) • CO1: 04.022 *Dsatinib, a tyrosine kinase inhibitor, down-regulates airway inflammation and lung remodeling in a mouse model of glucocorticoid resistant asthma.* Santana ACC[1], Serra MF[1], Pimentel ADS[1], Arantes ACS[1], Abreu SC[2], Xisto DG[2], Martins PMRS, Rocco PRM[2], Martins MA [1]Fiocruz, [2]UFRJ • CO2: 04.013 Development and challenges of topical mitochondrial target hydrogen sulphide based-nanocarrier system for burn skin wound. Cerqueira ARA[1], Matos JKRM[1], Spadari CC[1], Teixeira SA[1], Whiteman M[2], Muscará MN[1], Lopes L[1], Costa SKP[1] [1]ICB-USP, [2]University of Exeter
Ipioca Room	Hormones and Inflammation Chair: Vinicius de Frias Carvalho (Fiocruz) • *Glucagon inhibits ovalbumin-induced lung inflammation and remodeling* Vinicius de Frias Carvalho (Fiocruz) • *Abnormal T-cell development in the thymus of non-obese diabetic mice: Possible relationship with the pathogenesis of type 1 autoimmune diabetes* Wilson Savino (Fiocruz) • *Polyunsaturated fatty acid receptors, GPR40 and GPR120, are expressed in the hypothalamus and control energy homeostasis and inflammation* Lício Augusto Velloso (Unicamp) • CO1: 04.046 *Insulin modulates pulmonary allergic inflammation and increases pulmonary resistance in diabetic mice* Martins JDO[1], Ferreira SS[1], Oliveira MA[2], Tsujita M[1], Casagrande FB[1], Gomes E[2], Russo M[2], Lima WT[2], Nunes FPB[1] [1]FCF-USP; [2]ICB-USP • CO2 04.020 A mimetic peptide derived from Annexin-1 (AnxA1), a glucocorticoid-inducible protein, controls inflammation and remodeling induced by house dust mite (HDM) in mice. Ferreira TPT[1], Arantes ACS[1], Flower RJ[2], Perretti M[2], Martins MA[1], Martins PMRS[1] [1]Fiocruz, [2]The William Harvey Research Institute

Pajuçara Room	**The Pharmacological Bases of Drug Addiction** Chair: Rosana Camarini (USP-SP) • *Interaction of biperiden on alcohol-seeking behaviors.* Rodrigo Molini Leão (UFBA) • *Synaptic plasticity mechanism commom to learning and alcohol disorder* Karina Possa Abrahão (Unifesp-EPM) • *CRF, stress and addiction* Tarciso Tadeu Miguel (UFU) • *Aging and Neuroprotection: Effects of klotho protein in energetic metabolism, Na,K-ATPase signaling and adaptative response in Central Nervous System* Cristoforo Scavone (USP-SP)	
12h10-13h20	**Lunch**	
12h15-13h20	**Jatiuca Room**	**Pajuçara Room**
	SBFTE Assembly with Lunch Box	**Technical Lecture with lunch box** **Magnetic 3D cell culture applied to drug Discovery and preclinical tests** Rafaela Mendonça Baggio (Greiner Bio-One)
13h30-15h30	**Symposia/Roundtables**	
Jatiuca Room	**New perspectives and Opportunities for Redox Based Therapy** Chair: Lúcia Rossetti Lopes (USP-SP) • *Chemogenetic approaches to dissect redox stress pathways in the cardiovascular system* Thomas Michel (Harvard Medical School, USA) • *Vascular thiol isomerases: Novel redox mechanisms and therapeutic opportunities* Francisco Rafael Martins Laurindo (InCor-HC-FMUSP) • *Protein Disulfide Isomerase: A novel therapeutic target to regulate Nox1 signaling in atherosclerosis.* Lucia Rossetti Lopes (USP-SP) • CO1: 06.052 *Potential Effects of Matrix Metalloproteinase (MMP)-2 on the Sarcoplasmic Reticulum Calcium ATPase (SERCA) in Hypertension-Induced Vascular* Dysfunction. Silva PHL[1], Mello MMB[1], Parente JM[1], Schulz R[2], Castro MM[1] [1]USP, [2]University of Alberta	
Ipioca Room	**Ultrasonic Vocalizations: A new tool for Behavioural Pharmacology** Chair: Roberto Andreatini (UFPR)	

	• *Psychopharmacology of drugs of abuse and ultrasonic vocalizations by rodents* Helena Maria Tannhauser Barros (UFCSPA) • *Ultrasonic vocalizations as a maker for affective states in animal models of mood disorders* Roberto Andreatini (UFPR) • *Characterization of ultrasonic vocalizations in different pain states and social contexts in rats.* Juliana Geremias Chichorro (UFPR) • CO1: 03.021 *Cannabidiol attenuates orofacial dyskinesia and cognitive impairment induced by haloperidol in mice* via PPARγ receptors Sonego AB, Prado DS, Guimaraes FS FMRP-USP • CO2: 03.008 *Nociceptin/Orphanin FQ receptor signaling modulates resilience to stress in mice*. Holanda VAD[1], Salvatore P, Azevedo JG[2], Finetti L[2], Calo G[2], Ruzza C[2], Gavioli EC[1] [1]UFRN [2]Universidade de Ferrara
Pajuçara Room	**PhD in Industry: Different Areas of Practice (Doutores na Indústria: Diferentes Áreas de Atuação)** Chair: SBFTE Young Committee • *The challenge of career-changing: From basic science to drug development* (*O desafio da mudança de carreira: Da ciência básica ao desenvolvimento de fármacos*) Gabriela Westerlund (Biozeus Biopharmaceutical) • *Challenges for the development of new drugs to treat tropical and neglected disease: The importance of cooperation between academia and industry. (Desafios para o desenvolvimento de novos fármacos para tratar doenças tropicais e negligenciadas: A importância da cooperação entre academia e indústria)* Anna Caroline Campos Aguiar (USP-São Carlos) • *Public awareness of science: How to attract a bigger audience to what we discover (Conscientização pública da ciência: como atrair um público maior para o que descobrimos.)* Fabrício Alano Pamplona (Mind the Graph)
15h30-15h50	**Coffee-break**
15h50-16h40	**Lectures**
Jatiuca Room	**Use of 3D Structure in Quest for Pharmacological Modulators of the Na,K-ATPase Activity** Natalya U. Fedosova (Aarhus University, Denmark) Introduced by Luis Eduardo Menezes Quintas (UFRJ)
Ipioca Room	**A Pluridimensional View of GPCR Biased Agonism: Insights from Synthetic and Endogenous Agonists** Claudio M. Costa-Neto (USP-RP)

	Introduced by François G. Noel (UFRJ)
16h50-18h50	**Poster Session 1**
	01 Cellular and Molecular Pharmacology (01.001-01.009) 02. Neuropharmacology (02.001-02.018) 03. Psychopharmacology (03.001-03.014) 04. Inflammation and Immunopharmacology (04.001-04.029 e 04.047) 05. Pain and Nociception Pharmacology (05.001-05.012 e 05.016) 06. Cardiovascular and Renal Pharmacology (06.001-06.029 e 06.030, 06.035 e 06.037) 07. Endocrine, Reproductive and Urinary Pharmacology (07.001-07.011) 08. Respiratory and Gastrointestinal Pharmacology (08.001-08.014 e 08.016-09.069) 09. Natural Products and Toxinology (09.001-09.042, 09.045 e 09.068-09.069) 10. Cancer Pharmacology (10.001-10.014) 11. Clinical Pharmacology, Pharmacokinetics, Pharmacogenomics and Toxicology (11.001-11.010) 12. Drug Discovery and Development (12.001-12.009) 14. Pharmacology: Other (14.001-14.010, 14.012 e 14.019)
20h30-10h30	**Special Dinner by Adhesion** **Anamá Restaurant** Avenida. Silvio Carlos Viana, 2501 – Ponta Verde *Payment and information at the registration desk

26/09/2019 (Thursday)	
08h00-08h50	**Courses**
Jatiuca Room	**The importance of time factor in Pharmacology: From Receptor to Therapeutic Effect** (A Importância do Fator Tempo em Farmacologia: do Receptor ao Efeito Terapêutico) Chair: François G. Noël (UFRJ) • Class 2: *Kinetics of the activation of signaling cascades and functional selectivity* (*Cinética da ativação de cascatas de sinalização e seletividade funcional*) Claudio M. Costa Neto (USP-RP)
Ipioca Room	**Statistics for Pharmacologists** (Estatística para Farmacologistas) Chair: Leandro Jose Bertoglio (UFSC) • Class 2: *Why the p-value matters*? (*Por que o valor de "p" importa?*) Janaina Menezes Zanoveli (UFPR)
Pajuçara Room	**The Challenge of Research with Laboratory Animal: Rules, Management and Welfare** (O Desafio do Uso de Animais no Laboratório de Pesquisa: Regras e Cuidados do Bem-Estar dos Animais) Chair: Paulo de Assis Melo (UFRJ) • Class 2: *Use of animals of different sizes in the production of immunobiologicals and drugs* (*Uso de animais de diferentes portes na produção de imunobiológicos e fármacos*) Marcelo Abrahão Strauch (IVB)
09h00-09h50	**Lectures**
Jatiuca Room	**History of Pharmacology: From the origins to Modern Era** François G. Noël (UFRJ) Introduced by Claudio M. Costa-Neto (USP-RP)
Ipioca Room	**Peripubertal Stress and Hippocampal Damage as Risk Factors in the Pathophysiology of Schizophrenia: Implications for Treatment and Prevention** Anthony A. Grace (University of Pittsburgh USA) Introduced by Gilda Angela Neves (UFRJ)
09h50-10h10	**Coffee-break**
10h10-12h10	**Symposia/Oral communication**
Jatiuca Room	**Pharmacological Modulation of Pain and Inflammation in Chronic Disease** Chair: Jason McDougall (Dalhousie University, Canada)

	• *Anti-inflammatory and analgesic properties of cannabis constituents in the treatment of arthritis* Jason McDougall (Dalhousie University, Canada) • *Neutrophils as a source of auto-antigens in Lupus: What is happening?* Marc Pouliot (University of Laval, Canada) • *Peripheral macrophage activation drives pathological pain* Thiago M. Cunha (USP-RP) • CO1: 04.040 *Protease-activated receptor* (*PAR*)*2 mediates LPS-induced pro-inflammatory repertoire in murine macrophages* Barra A, Brasil AF, Florentino RM, Leite MF, Capettini LSA, Klein A UFMG • CO2: 05.003 *HUF-101*, *a cannabidiol analog*, *prevents mechanical and thermal allodynia in a chemotherapy-induced peripheral neuropathic pain* model Silva N[1], Gomes FI[1], Lopes A[1], Mechoulam R[2], Gomes F[1], Cunha TM[1], Guimaraes FS[1] [1]FMRP-USP, [2]Hebrew University
Ipioca Room	Vascular Dysfunction: From Vascular Injury to Remodeling Chair: Cláudia Lúcia Martins Silva (UFRJ) • *Mechanistic Insights into Caveolin-1 depletion-dependent endothelial-to-mesenchymal transition* Richard Minshall (University of Illinois at Chicago, USA) • *Perivascular adipose tissue and vascular dysfunction in sepsis* Jamil Assreuy (UFSC) • *Endothelial cell – Macrophage crosstalk in vascular repair and remodeling* Suellen D´Arc dos Santos Oliveira (University of Illinois at Chicago, USA) • CO1: 06.041 *IL-1RI contributes to endothelial dysfunction*, *vascular remodeling and oxidative stress in Angiotensin II-induced hypertension*. Fedoce AG, Pereira CA, Aguiar CAS, Parente JM, Gonzaga NDA, Tostes RC, Carneiro FS FMRP-USP
Pajuçara Room	Neurometabolism, Inflammation and Brain Damage Chair: Isaias Glezer (Unifesp-EPM) • *Mitochondria dynamics and metabolism regulation* Sabrina Diano (Yale School of Medicine, USA) • *Diet, Mitochondria and Energy Metabolism* Alicia Kowaltowski (USP) • *Mitochondrial dysfunction and changes in high-energy compounds in different cellular models of hypoxia: Implication to Schizophrenia* Tatiana Rosado Rosenstock (FCMSCSP)

	• *Inflammatory signaling effects on neural progenitors proliferation and metabolism* Isaias Glezer (Unifesp-EPM)
12h10-13h20	**Lunch**
12h10-13h20	**Meet the Professor with lunch box**
Ipioca Room	**Chair:** Sanseray da Silveira Cruz-Machado (SBFTE Young Coordinator) • Alicia Kowaltowski (USP-SP) • Anthony A. Grace (University of Pittsburgh, USA) • Marc Pouliot (University of Laval, Canada) • Monika Schaefer-Korting (Freie Universität Berlin, Germany) • Richard Minshall (University of Illinois, USA) • Sabrina Diano (Yale School of Medicine, USA) • Sara Margaret Rankin (Imperial College, UK) • Susan Diana Brain (King´s College, UK)
12h10-13h20	**Roundtable with lunch box**
Pajuçara Room	**New Criteria of Capes Evaluation: Perceptions and Directions in Pharmacology** (Novos Critérios de Avaliação da Capes: Percepções e Direções na área de Farmacologia). Chair: Paulo César Ghedini (UFG) • *Capes Evaluation in Biological Sciences II: Relevance and Perspectives* (*Avaliação da Capes na Área Ciências Biológicas II: Relevância e Perspectivas*) Adelina Martha dos Reis (UFMG, Coordinator CBII Capes)
13h30-15h30	**Symposia**
Jatiuca Room	**José Ribeiro do Valle Award** **Chair**: Roberto César Pereira Lima Júnior (UFC) *Franciele Franco Scarante* • 03.005 *The anti-stress effects of the combination of Escitalopram and Cannabidiol in mice depends on anandamide levels in the prefrontal cortex*. Scarante, FF[1], Vicente MA[1], Fuse EJ[1], Lopes VD[2], Aguiar RP[3], Scomparin DS[1], Guimaraes FS[1], Campos AC[1] [1]FMRP-USP, [2]FCFRP-USP, [3]UEM *Douglas da Silva Prado* • 04.033 *ERK5 mediates TGF-β signaling and shapes autoimmune inflammation*. Prado, DS, Damasceno LEA, Ferreira RG, Rosa MH, Cunha TM, Cunha FDQ, Ryffel B, Waisman A, Alves-Filho JC FMRP *Natalia Barreto da Silva Ribeiro* • 04.012 *Therapeutic administration of gold nanoparticles* (*AuNPs*) *accelerates resolution of silica-induced lung fibrosis in*

	mice. Ribeiro NBS, Capelozzi VL, Silva VM, Machado MP, Sa YAPJD, Arantes ACS, Martins PMRS, Martins MA Fiocruz *Kassiano dos Santos Sousa* • 04.034 *Purinergic signaling converts N-acetylserotonin into the pineal darkness hormone*. Sousa KS, Quiles CL, Ferreira ZFS, Markus RP USP *Irismara Sousa Silva* • 04.008 *A novel platelet-activating factor and protease-activated receptor* (*PAR*)*-2 network in lung inflammation in mice*. Silva IS, Almeida AD, Lima Filho ACM, Braga WF, Capettini LSA, Leite JIA, Leite MF, Klein A UFMG
Ipioca Room	**Pharmacology of Natural Products: Challenges and Opportunities** Chair: Luciano Augusto de Araújo Ribeiro (Univasf) • *Experimental and Neuropsychopharmacological Characterization of Natural Products with Epileptogenic, Anti-epileptogenic and Neuroprotective Actions* Olagide Wagner de Castro (UFAL) • *Integrative metabolomics analysis of the Brazilian Biodiversity* Norberto Peporine Lopes (USP-RP) • *Monoterpenes as possible tools for managing of chronic pain* Lucindo Jose Quintans Junior (UFS) • CO1: 09.017 *Structural characterization of two beta-neurotoxins* (*MLL-Tx-I and MLL-Tx-II*) *from* Micrurus lemniscatus (*South American coralsnake*) *venom and their modulatory activity on SNARE-protein complex expression*. Floriano RS[1], Panunto PC[2], Torres-Bonilla KA[2], Saénz-Suarez PA[2], Rocha T[3], Fernandez J[4], Silva Júnior NJ[5], Rowan EG[6], Lomonte B[4], Hyslop S[2] [1]Unoeste; [2]Unicamp, [3]UFS, [4]Universidad de Costa Rica, [5]PUC-GO, [6]University of Strathclyde • CO2 09.006 *Protective effect of* Plumeria pudica *Latex proteins on ethanol-induced gastric injury in mice*. Souza BS, Moita LA, Sales ACS, Barbosa MS, Silva FDS, Sousa FBM, Medeiros JVR, Oliveira JS UFPI
15h30-15h50	**Coffee-break**
16h00-18h00	**Symposia/Oral communication**
Jatiuca Room	**New Pharmacological Approaches for Fibrosing Disorders** Chair: Emiliano de Oliveira Barreto (UFAL) • *Influence of activation of the inflammasome pathway on tissue remodeling and fibrogenic activities* Vincent Lagente (University of Rennes 1, France) • *Nanotechnology application on the treatment of pulmonary fibrosis*

	Patrícia Machado Rodrigues e Silva (Fiocruz-RJ) • CO1: 04.005 *The effect of different prostaglandin F2α concentrations on mesenchymal stem cells* Santos ACA, Sartori T, Borelli P, Fock RA USP • CO2: 04.036 Methyl cinnamate attenuates inflammatory and pathophysiological parameters in elastase-induced emphysema in mice. Carmo JOS[1], Nascimento LMPS[1], Correia ACC[2], Cartaxo TN[1], Ferro JNS[1], Barreto E[1] [1]UFAL, [2]UFPE • CO3: 04.044 *Role of toll-like receptor* (*TLR*)*3 in lung fibrosis triggered by silica particles in mice*. Sa YAPJ[1], Ferreira TPT[1], Ribeiro NBS[1], Correa AMC[1], Oliveira TAL[1], Alves-Filho JCF[2], Hogaboam C[3], Martins MA[1], Martins PMRS[1] [1]Fiocruz, [2]FMRP-USP, [3]Cedars-Sinai • CO4: 04.021 Probiotics increased lymphocytes subpopulations of CD3+CD4+, CD45+CD25+CCR6-, and CD45+CD25-CCR6+ cells in irinotecan-induced experimental steatohepatitis. Aragão KS[1], Melo A[2], Wong D[2], Fernandes C[3], Gurgel D[2], Pereira M[2], Freitas JA[2], Almeida PRC[2], Lima-Junior RCP[2] [1]Estácio, [2]UFC, [3]UECE
Ipioca Room	**The Pharmacological Role of Neuropeptides in Inflammation, Pain and Beyond** Chair: Elizabeth S. Fernandes (Ceuma) / Marcelo N. Muscará (USP-SP) • *New insights into the role of TRP receptors in arthritis* Susan D Brain (King´s College, UK) • *Somatostatin sst4 receptor agonists, as a novel analgesic and antidepressant drug candidates* Zsuzsanna Helyes (University of Pécs Medical School, Pécs, Hungary) • *Participation of TRPA1 in neuropathic pain mechanisms* Gabriela Trevisan dos Santos (UFSM) • *Regulatory role of TRPA1 in the pathomechanism of experimental and human psoriasis* Erika Pinter (University of Pécs Medical School, Hungary)
Pajuçara Room	**Main Challenges for Innovation in Pharmacology** Chair: João Batista Calixto (UFSC) • *A Brief introduction on innovation in drug development in Brazil* João Batista Calixto (UFSC) • *Challenges for the development of cannabinoid products in Brazil* Fabrício Alano Pamplona (Mind the Graph) • *Rethinking preclinical drug research - Human based 3d tumor models as an example* Monika Schaefer-Korting (Freie Universität, Germany)

	• *EU-OPENSCREEN - An International Research Infrastructure initiative to facilitate Chemical Biology and early Drug Discovery* Bahne Stechmann (EU-OPENSCREEN, Germany)	
18h00-19h00	**Pajuçara Room**	**Ipioca Room**
Pajuçara Room	Meeting of the North-Northeast and Central West Region Pharmacology Network	SBFTE Young Assembly
21h00-01h00	**Get together party** Maikai Av. Eng. Paulo Brandão Nogueira, 540 In the Meeting bag you will find an identification bracelet. Keep it to enter and during the Get Together Party	

27/09/2018 (Friday)

08h00-08h50	**Courses**
Jatiuca Room	**The Importance of time fator in Pharmacology: From Receptor to Therapeutic Effect** (A Importância do Fator Tempo em Farmacologia: Do Receptor ao Efeito Terapêutico) Chair: François G. Noël (UFRJ) • *Class 3: Integrating pharmacokinetics and pharmacodynamics* in vivo (*Integrando farmacocinética e farmacodinâmica* in vivo) Teresa Cristina Tavares Dalla Costa (UFRGS)
Ipioca Room	**Statistics for pharmacologists** (Estatística para farmacologistas) Chair: Leandro Jose Bertoglio (UFSC) • Class 3: *Meta-analysis*: *Principles*, *applications and limitations* (*Meta-análise: princípios, aplicações e limitações*) Cilene Lino de Oliveira (UFSC)
Pajuçara Room	**The Challenge of Research with Laboratory Animal: Rules, Management and Welfare** (O Desafio do Uso de Animais no Laboratório de Pesquisa: Regras e Cuidados do Bem-Estar dos Animais) Chair: Paulo de Assis Melo (UFRJ) • Class 3: *Conflicts and adequacy of analgesia, anesthesia and euthanasia in the experimental design with animals* (*Conflitos e adequação de analgesia, anestesia e da eutanásia no projeto experimental com animais*) Paulo de Assis Melo (UFRJ)
09h00-09h50	**Lectures**
Jatiuca Room	**Novel Targets for Therapeutic Intervention in Parkinson's Disease** Tiago Fleming Outeiro (University Medical Center Goettingen, Germany) Introduced by Rui Daniel S. Prediger (UFSC)
Ipioca Room	**The End of Medicine as we Know It** Ana Isabel Casas Guijarro (Maastrich University, Netherlands) Introduced by Fabiola Taufic Mónica Iglesias (Unicamp)
10h00-12h00	**Poster Session 2 with Coffee break**
	01. Cellular and Molecular Pharmacology (01.010-01.018) 02. Neuropharmacology (02.019-02.036) 03. Psychopharmacology (03.015-03.027) 04. Inflammation and Immunopharmacology (04.030-04.046 e 04.048-04.058) 05. Pain and Nociception Pharmacology (05.013-05.025)

	06. Cardiovascular and Renal Pharmacology (06.031-06.034, 06.036, 06.038-06.057) 07. Endocrine, Reproductive and Urinary Pharmacology (07.012-07.022) 08. Respiratory and Gastrointestinal Pharmacology (08.015 e 08.020-08.037) 09. Natural Products and Toxinology (09.043, 09.046-09.064, 09.066-09.067 e 09.070-09.084) 10. Cancer Pharmacology (10.015-10.018 e 10.020-10.027) 11. Clinical Pharmacology, Pharmacokinetics, Pharmacogenomics and Toxicology (11.011-11.019) 12. Drug Discovery and Development (12.010-12.018) 14. Pharmacology: Other (14.011 e 14.013-14.018)
12h15-13h05	Jatiuca Room
	Closing Lecture
	Sergio Ferreira Lecture **Understanding the Molecular Basis of Inflammatory Diseases** Fernando de Q. Cunha (USP-RP) Introduced by Andre S. Pupo (Unesp-Botucatu)
13h15-14h15	**SBFTE/Aché Second Senior Pharmacologist Award** Award Recipient: Fernando de Q. Cunha (USP-RP)
	Closing Ceremony **José Ribeiro do Valle Award and Prize Announcements**

Poster session 1:
25/09/2019 (Wednesday)

01. Cellular and Molecular Pharmacology

01.001 Antineoplastic beta lapachona is not cytotoxic in low concentration in endothelial cells. Alves NM, Cruz VDSC, Graziani DG, Braga KMDSB, Paixão FMDP, Araújo EG UFG

01.002 Atorvastatin blocked UTP-induced metastatic prostate cancer cells to endothelial cells. Cardoso TC, Silva CLM UFRJ

01.003 Beta-blockers with moderate intrinsic sympathomimetic activity improve sepsis-induced myocardial dysfunction. Silva KPD[1], Júnior EDS[2], Baker J[3], Cunha FQ[4], Pupo AS [1]Unesp-Botucatu, [2]UFRN, [3]University of Nottingham, [4]FMRP-USP

01.004 Stress-mediated systemic low-grade inflammation and its impact on male reproductive health. Freitas GA[1], Pinna GP[2], Scavone C[1], Avellar MCW[3] [1]ICB-USP, [2]University of Illinois, [3]Unifesp

01.005 Polarization of mesenchymal stem cells isolated from apical papilla human teeth with IFN-γ. Dagnino APA, Chagastelles PC, Medeiros RPD, Goldani E, Campos MM, Silva JB PUC-RS

01.006 Vitamin D increases dyslipidemia but does not enhance cardiovascular remodeling or oxidative stress on atherosclerotic and osteoporotic mice. [1]Prado AF, [1]Alves GM, [1]Anaissi AKM, Demachki S[1], Nascimento JLM[1], Macchi BDM[1], Ramos J[2], Gerlach RF[2], Issa JPM[2], Azevedo A[2] [1]UFPA, [2]USP, FMRP-USP

01.007 Maxadilan, but not PACAP, triggers a disruption in endothelial barrier: Molecular mechanisms associated to changes in endothelial cell phenotype. Barja-Fidalgo TC[1], Nascimento-Silva VN[1], Rodrigues GRDS[1], Svensjö ES[2] [1]UERJ, [2]UFRJ

01.008 Phenotypical and pharmacological differences evoked by *in vitro* aging of LLC- PK1 proximal tubule renal cells. Barros GMO, Silva ACAE, Quintas LEM UFRJ

01.009 *In vitro* Leishmanicidal Activity of New Carbamoyl-N-Aryl-Imine-Ureas against Leishmania Major. Santos HCN[1], Silva AE[1], Silva JFM[1], Silva JKS[1], Silva KCJ[1], Araújo MV[1], Oliveira GG[1], Avelar JLS[2], Barreiro EJDL[2], Lima LM[2], Moreira MSA[1] [1]UFAL; [2]UFRJ

02. Neuropharmacology

02.001 Long and short-term effects of WIN55,212-2 and nicotine exposure during adolescence in mice. Gonçalves PFR, Nunes LED, Andrade BDS, Frederico N, Borges G, Castro NG, Neves GA UFRJ

02.002 Antioxidant and neuroprotective effects of Plumieride in the Hippocampus and Prefrontal Cortex of mice chronically exposed to corticosterone. Dalmagro AP[1], Camargo A[2], Zeni ALB[2], Silva RML[1], Malheiros A[1], Souza MM[1] [1]Univali, [2]Furb

02.003 Cannabidiol attenuates the conditioned place aversion induced by naloxone-precipitated morphine withdrawal in mice. Souza AJ, Morais B, Gomes FV, Guimarães FS FMRP-USP

02.004 TRPV1 receptor antagonism induced a neuroprotective effect and rescued episodic and aversive memories in an animal model of Alzheimer's Disease. Silva EMF, Lagatta DC, Domingos LBD, Assis AB, Veras FP, Resstel L FMRP-USP

02.005 **Pharmacological validation of a new animal model of depression in mice: A single subconvulsant dose of pilocarpine**. Souza FMA[1], Neto JGS[1], Vieira MPS[1], Barros O[1], Souza GF[1], Correia WBZGB[1], Duarte FS[2], Lima TCM[3], Duzzioni M[1] [1]UFAL, [2]UFPE, [3]UFSC

02.006 **Neuroplasticity of the endocannabinoid system is associated with CBD anticonvulsant effects along a chronic protocol of epileptic seizures**. Lopes WL, Silva Júnior RMP, Silva RAVS, Leite JPL, Cairasco NG USP

02.007 **Neuroinflammatory response in NA, K-ATPase activity in allergic lung inflammation: putative involvement of female sex hormones**. Lima GM, Umaña ER, Ribeiro MR, Leite JA, Lima WT, Scavone C ICB-USP

02.008 **Cannabinoid microdoses reduces Alzheimer Disease symptoms in a 75 years old patient: A case study**. Nascimento F[1], Martins-Gomes AC[1], Cury RMC[1], Soares FAS[2], Maia BHNS[2], Pamplona FA[1], Gomes-da-Silva E[1] [1]Unila, [2]UFPR

02.009 **Mental and neurological disorders as risk factors for periodontal diseases in institutionalized people**. Ávila TV, Rabelo CC, Corrêa FOB, Pontes AEF, Oliveira DM, Silva BAA, Gomes MA, Reis DR, Lana VLR, Dias TLM UFJF

02.010 *In vitro* **effects of memantine and cannabidiol in Alzheimer´s disease**. Monteiro BO, Quintella ML, Romariz SA, Affonso D, Filev R Unifesp

02.011 **Participation of neurokinin NK1 receptors in the streptozotocin-induced memory deficit in an animal model of Alzheimer's disease**. Mendonça PDS, Leal JC, Duarte FS UFPE

02.012 **New GABAergic compound: Acute toxicity and anxiety-like behavior in adult Zebrafish** (*Danio rerio*). Mendes CB1, Clementino-Neto J1, D'Oca MGM[2], Ximenes-da-Silva A1 [1]UFAL, [2]UFRGS

02.013 **Involvement of Neurokinin Nk3 Receptors from Nucleus Accumbens Shell (NAshell) and Prefrontal Cortex (PEC) in The Positive and Negative-Like Symptoms of Scrhizophrenia in Rats**. Silva GVD, Pinho CCES, Duarte FS UFPE

02.014 **Chrysin prevents memory impairment induced by aluminum in mice**. Campos HM, Costa MD, Neri HS, Moreira LKS, Costa EA, Santos FCA, Ghedini PC UFG

02.015 **Brain glucose administration attenuates neuronal death in hippocampus, subiculum and thalamic nuclei after pilocarpine-induced status epilepticus**. Melo IS[1], Santos YMO[1], Santos JF[1], Pacheco ALD[1], Costa MDA[1], Oliveira KB[1], Brito IRR[1], Duzzioni M[1], Sabino-Silva R[2], Borbely AU[1], Castro OW[1] [1]UFAL, [2]UFU

02.016 **Antidepressant-like potential of solidagenone isolated from** *Solidago chilensis*. Alves BO, Miorando D, Zilli GAL, Ernetti J, Alievi K, Zanotelli P, Locateli G, Dalla Vecchia CA, Müller LG, Roman Júnior WA Unochapecó

02.017 **Effects of metal complex derived of the Diazepam [(DZP)PdCl]2 in the behaviors related to fear, anxiety and memory in mice**. Silva OBS, Souza FMA, Souza GF, Vieira MPS, Correia WBZGB, Neto JGS, Silva AV, Meneghetti MR, Duzzioni M UFAL

02.018 **Effects of metal complex derived of the Diazepam [(DZP)PdOAc]2 in the behaviors related to fear, anxiety and memory in mice**. Souza GF, S OBS, Vieira MPS, Souza FMA, Correia WBZGB, Neto JGS, Silva AV, Meneghetti MR, Duzzioni M UFAL

03. Psychopharmacology

03.001 Preclinical study of the effects of usnic acid on animals with Alzheimer's disease induced by Aβ1-42. Cazarin CA[1], Dalmagro AP, Gonçalves AE[1], Fátima A[2], Souza MM[1] [1]Univali, [2]UFMG

03.002 Effects of a post-conditioning treatment with ibogaine on the reinstatement of ethanol-induced conditioned place preference in mice. Henriques GM, Santos AA, Reis HS, Dias Júnior BC, Cerqueira NA, Jesus NMS, Marinho EAV, Berro LF UESC

03.003 Impact of *Lactobacillus plantarum* administration in the acquisition of preference in ethanol-induced conditioned place preference extended protocol in mice. Santos TB[1], Silva KSO[1], Lins JF[1], Kisaki ND[1], Rocha VN[1], Farias CJ[1], Uetanabaro APT[1], Marinho EAV[1], Nicoli JR[2] [1]UESC, [2]UFMG

03.004 Effects OF Nociceptin/Orphanin FQ receptor antagonist on inescapable electric footshock stress-induced anxiety-like behaviors in mice. Barbosa AIS[1], Holanda VAD[1], Soares-Rachetti VDP[1], Ruzza C[2], Calo G[2], Gavioli EC[1] [1]UFRN, [2]Universidade de Ferrara

03.005 The anti-stress effects of the combination of Escitalopram and Cannabidiol in mice depends on anandamide levels in the prefrontal cortex. Scarante, FF[1], Vicente MA[1], Fuse EJ[1], Lopes VD[2], Aguiar RP[3], Scomparin DS[1], Guimarães FS[1], Campos AC[1] [1]FMRP-USP, [2]FCFRP-USP, [3]UEM

03.006 MK801 pharmacogenetics effects in two models of attention-deficit/hyperactivity disorder. Granzotto N, Caneppa S, Voltz L, Izídio GS UFSC

03.007 Role of medial prefrontal cortex subregions in the impairing effects of cannabidiol on contextual fear memory reconsolidation. Bertoglio LJ[1], Stern CAJ[2], Reichmann HB[1], Gazarini L[3], Guimarães FS[4] [1]UFSC, [2]UFPR, UFMS[3], [4]FMRP-USP

03.008 Nociceptin/Orphanin FQ receptor signaling modulates resilience to stress in mice. Holanda VAD[1], Salvatore P, Azevedo JG[2], Finetti L[2], Calo G[2], Ruzza C[2], Gavioli EC[1] [1]UFRN [2]Universidade de Ferrara

03.010 Treatment with synthetic cannabinoid WIN55,212-2, during adolescence, alters the susceptibility to cocaine-induced conditioned place preference. Gobira PH, Joca S FCFRP-USP

03.011 Effect of pre-treatment with metadoxine on the development of ethanol-induced conditioned place preference and re-exposure to ethanol in mice. Dias Júnior BC, Santos AA, Coimbra JPSA, Santana MCE, Jesus LOS, Brito ACL, Marinho EAV, Lima AJO UESC

03.012 Ayahuasca and methylphenidate induce conditioned place preference: behavioral and Fos protein expression evaluations. Rodrigues IRS[1], Reis HS[1], Santos TB[1], Serra YA[1], Machado EBO[1], Lima AJO[1], Yokoyama TS[2], Cruz FC[2], Berro LF, Marinho EAV[1] [1]UESC, [2]Unifesp

03.013 Effects of previous and concomitant administration of *Lactobacillus plantarum* 286 and *Lactobacillus plantarum* 81 on the development of ethanol-induced conditioned place preference in mice. Silva KSO[1], Santos TB[1], Serra YA[1], Lins JF[1], Coimbra JPSA[1], Santos ML[1], Uetanabaro APT[1], Nicoli JR[2], Marinho EM[1], Marinho EAV[1], Tamura EK[1] [1]UESC, [2]UFMG

03.014 Effects of chronic administration of agomelatine on biochemical parameters in female rats. Costa JAM, Moura NPS, Santos LC, Gomes ACCN, Lima FMS, Silva Júnior ED, Gavioli EC, Soares-Rachetti VDP UFRN

04. Inflammation and Immunopharmacology

04.001 Role of hyperglycemia, inflammation and autophagy in bone marrow derived macrophages in Type 1 Diabetes. Sousa ESA, Queiroz LAD, Martins JO USP

04.002 Diosmetin presents topical anti-inflammatory effect on an UVB radiation-induced skin inflammation model in mice. Camponogara C, Brusco I, Brum ES, Pegoraro NS, Oliveira SM UFSM

04.003 Leukotrienes and angiotensin in diabetes. Guimarães JPT[1], Martins JO[2], Jancar SJ[1] [1]ICB-USP, [2]USP

04.004 Reduction of S-nitrosothiol levels improves inflammation in experimental pneumonia-induced sepsis in mice. Oliveira FRMB, Rosales TO, Assreuy J UFSC

04.005 The effect of different prostaglandin F2α concentrations on mesenchymal stem cells. Santos ACA, Sartori T, Borelli P, Fock RA USP

04.006 Augmented Interleukin-8 (IL-8) correlates with classical cardiovascular risk factors in overweight children. Fonseca GAA[1], Alves JD[2], França ACH[2], Fagundes DL[2], Lobato NS[1], Lima VV[2], Giachini FR[2] [1]UFG, [2]UFMT

04.007 Effect of isopropyl galate on ifosfamide induced hemorrhagic cystite in mice. Bandeira SRM, Oliveira LSA, Gonçalves RLG, Rezende DC, Sousa IJO, Neto FPR, Trindade GNC, Oliveira FA UFPI

04.008 A novel platelet-activating factor and protease-activated receptor (PAR)-2 network in lung inflammation in mice. Silva IS, Almeida AD, Lima Filho ACM, Braga WF, Capettini LSA, Leite JIA, Leite MFL, Klein A UFMG

04.009 Synthesis, structural characterization and cytotoxicity evaluation of new 4-Aminoquinoline derivatives. Silva Neto GJ, Silva AE, Silva KCJ, Moreira MSA, Campesatto EA, Meneghetti MR UFAL

04.010 Anti-inflammatory activity of ethil fraction acetate and chemical determination of *Poincianella pyramidalis* (Tul.) L.P.Queiroz. Moraes SZC[1], Graça AS[1], Souza JB[1], Almeida SM[1], Mota DCS[1], Araújo BS[1], Shan AYKV[1], Quintans JSS[1], Quintans-Júnior LJ[1], Barreto E[2], Brandão GCB[3], Estevam CDS[1] [1]UFS, [2]UFAL, [3]UFOP

04.011 Hepatic microcirculation and metabolic effects of chronic physical exercise in obesity. Rodrigues KL, Silvares RR, Pereira ENGS, Flores EEI, Silva VVD, Daliry A Fiocruz

04.012 Therapeutic administration of gold nanoparticles (AuNPs) accelerates resolution of silica-induced lung fibrosis in mice. Ribeiro NBS[1], Capelozzi VL[2], Silva VM[2], Machado MP[1], Sa YAPJ[1], Arantes ACS[1], Martins PMRS[1], Martins MA[1] [1]Fiocruz, [2]USP

04.013 Development and challenges of topical mitochondrial target hydrogen sulphide based-nanocarrier system for burn skin wound. Cerqueira ARA[1], Matos JKRM[1], Spadari CC[1], Teixeira SA[1], Whiteman M[2], Muscará MN[1], Lopes L[1], Costa SKP[1] [1]ICB-USP, [2]University of Exeter

04.014 Inhibition of neutrophil extracellular traps improves experimental arthritis. Schneider AH[1], Machado CCM[1], Maganin AGM[1], Barroso LC[2], Fukada Alves SY[3], Alves-Filho JCF[1], Cunha TM[1], Louzada-Júnior P[1], Silva TA[2], Cunha FQ[1] [1]FMRP-USP, [2]UFMG, [3]FCFRP-USP

04.015 Macrophage activation and antitumor effect of a sulfated polysaccharide fraction obtained from red seaweed *Gracilaria cornea*. Teles FB, Assef ANB, Monteiro VS, Holanda TBL, Alves APN, Benevides NMB, Wilke DV UFC

04.016 Association of early exposure to electrophilic pollutant in initiating non-alcoholic fatty liver disease and cardiovascular risk in APOE-/- mice. Marques CL, Soares AG, Teixeira SA, Feitosa KB, Araújo LCC, Carvalho CRO, Antunes VR, Muscará MN, Costa SKP USP

04.017 Role of DNA-PK complex during during Zika virus infection. Patricio DDO, Mansur DM UFSC

04.018 Comparison of *in vitro* **models of airway epithelial cells for the secretion of mucus and inflammatory process**. Lagente V, Bodin A, Victoni T, Gicquel T, Pons F University of Rennes

04.019 Friedelin improves migration of thymocytes and inhibits their IL-2 production *in vitro*. Lins MP[1], Carmo JOS[1], Reis MDSR[1], Savino WS[2], Smaniotto SS[1], Barreto E[1] [1]UFAL, [2]Fiocruz

04.020 A mimetic peptide derived from Annexin-1 (**AnxA1**), **a glucocorticoid-inducible protein**, **controls inflammation and remodeling induced by house dust mite** (**HDM**) **in mice**. Ferreira TPT[1], Arantes ACS[1], Flower RJ[2], Perretti M[2], Martins MA,[1] Martins PMRS[1] [1]Fiocruz, [2]The William Harvey Research Institute

04.021 Probiotics increased lymphocytes subpopulations of CD3+CD4+, **CD45+CD25+CCR6-**, **and CD45+CD25-CCR6+ cells in irinotecan-induced experimental steatohepatitis**. Aragão KS[1], Melo A[2], Wong D[2], Fernandes C[3], Gurgel D[2], Pereira M[2], Freitas JA[2], Almeida PRC[2], Lima-Júnior RCP[2] [1]Estácio, [2]UFC, [3]UECE

04.022 Dsatinib, **a tyrosine kinase inhibitor**, **down-regulates airway inflammation and lung remodeling in a mouse model of glucocorticoid resistant asthma**. Santana ACC[1], Serra MF[1], Pimentel AS[1], Arantes ACS[1], Abreu SC[2], Xisto DG[2], Martins PMRS[1], Rocco PRM[2], Martins MA[1] [1]Fiocruz, [2]UFRJ

04.023 Reduced macrophage P2X7 receptor function during schistosomiasis impairs host defense. Thorstenberg MLP, Monteiro MMLV, Martins M, Silva RC, Silva CLM UFRJ

04.024 Losartan modulates gene expression of renin-angiotensin system components, **decreases inflammatory cytokines molecules and attenuates bone volume loss in rats with experimentally-induced periodontitis**. Dionisio TJ, Souza GP, Colombini-Ishikiriama BL, Garbieri TF, Parisi VA, Oliveira GM, Santos CF USP

04.025 Evaluation of the leishmanicidal activity of *Allium sativum*, *Curcuma longa*, *Zingiber Officinale* **and** *Glycine max*. Ferreira SCA, Nunes ICM, Albuquerque LWN, Alves AA, Moreira MSA, Leite AB, Silva AE, Santos MS, Queiroz AC UFAL

04.026 Investigation of the antinociceptive effect and acute toxicity of stigmasterol. Morgan LV, Alves BO, Scatolin M, Zilli GAL, Volfe CRB, Daniel C, Guzatti JGG, Souza MA, Lopes MLLC, Oltramari AR, Zottis C, Müller LG, Scapinello J Unochapecó

04.027 Maternal glucocorticoids *utero* **determines the production of corticosterone and reduces acute lung injury response in adult rats**. Severo PH, Gil NL[2], Balbino AM[1], Azevedo GA[1], Landgraf MA[1], Landgraf RG[1] [1]Unifesp-Diadema, [2]Unifesp

04.028 Nerolidol in polymeric nanoparticles: **anti-inflammatory effect in arthritis model**. Gomes MVLD[1], Souza EPBSS[1], Silva LAS[1], Souza EV[1], Santos WM[1], Araújo JMD[1], Soares RC[2], Almeida RG[1], Araújo AAS[1] [1]UFS, [2]UFU

04.029 Mechanism of chronic anti-inflammatory action of the essential oil of the leaves of *Lantana montevidensis* (**Spreng**) **Briq**. **evaluated by granulomatous tissue formation-MCAIAEOLLMEGTF**.

Pessoa RT[1], Oliveira MRC[1], Oliveira-Tintino CDM[2], Silva MGL[1], Magalhães FEA[3], Martins AOPBB[1], Menezes IRA[1] [1]URCA, [2]UFPE, [3]UECE

04.047 Experimental model of zymosan induced-arthritis without anesthesia in mice. Soares DM[1], Gomes RO[1], Melo MCC[2], Santana Júnior JCV[1] [1]UFBA, [2]USP

05. Pain and Nociception Pharmacology

05.001 The transient receptor potential ankyrin 1 antagonism reduces the nociception and inflammation in an ultraviolet B radiation-induced burn model in mice. Fialho MFP, Brum ES, Pegoraro NS, Oliveira SM UFSM

05.002 Role of kinin receptors in the reserpine-induced pain/depression dyad. Becker G[1], Brusco I[1], Silva CR[2], Cunha TM[3], Oliveira SM[1] [1]UFSM, [2]UFU, [3]FMRP-USP

05.003 HUF-101, a cannabidiol analog, prevents mechanical and thermal allodynia in a chemotherapy-induced peripheral neuropathic pain model. Silva N[1], Gomes FI[1], Lopes A[1], Mechoulam R[2], Gomes F[1], Cunha TM[1], Guimaraes FS[1] [1]FMRP-USP, [2]Hebrew University

05.004 Involvement of spinal CAV2.3 in the secondary hyperalgesia induced by capsaicin. Ferreira MA[1], Lückmeyer DD[1], Macedo SJ[1], Prudente AS[2], Ferreira J[1] [1]UFSC, [2]Unila

05.005 Effect of lipidic transfer protein isolated from *Morinda citrifolia* (Noni) seeds in sensitive neuropathy peripheral induced by oxaliplatin in mice. Cesario FRAS, Vale ML, Pereira AF, França JC, Oliveira AR, Dias DBS, Silva CMP UFC

05.006 Classical analgesic substances induce thermal antinociceptive effects in *Drosophila melanogaster larvae*. Silva TS[1], Lopes C[2], Guimarães JDS[3], Kuhn GCES[3], Romero T[3], Naves LA[3], Duarte IDG[3] [1]FMRP-USP, [2]USP, [3]UFMG

05.007 Cisplatin–induced neurotoxicity in dorsal root ganglia: The rosiglitazone neuroprotective effects. Oliveira HR, Neves FAR, Duarte DB UnB

05.008 Alfa-phellandrene reduces cancer hypernociception in an experimental model in mice. Reis Filho AC, Pinheiro Neto FP, Nogueira MRSN, Lopes EML, Almeida FRC, França ARSF, Lima MPD, Gomes LS, Acha BT, Ferreira PMP UFPI

05.009 Antinociceptive properties of Tonantzitlolone B isolated from *Stillingia loranthacea* (Euphorbiaceae). Villarreal CF[1], Espírito-Santo RF[1], Santos DS[1], Lauria PSS, Abreu LS[2], Tavares JF[2], Velozo ES[1] [1]UFBA, [2]UFPB

05.010 Morphine exposure and maternal deprivation during the early postnatal period alter neuromotor development and nerve growth factor levels. Torres ILS[1], Oliveira C[1], Scarabelot VLS[1], Vercelino RV[2], Silveira NPS[1], Adachi LNA[1], Regner GG[1], Santos LS[3], Macedo ICM[4], Souza AD[5], Caumo WC[1] [1]UFRGS, [2]UFCSPA, [3]Unilasalle, [4]Unipampa, [5]Unime

05.011 NAD + modulation in neuropathic pain induced by partial ligation of the sciatic nerve in mice. Miranda ALP, Silva VDCS, Santos BLR, Lima CKFL, Oliveira JT, Camacho-Pereira J UFRJ

05.012 Dopamine D1 and D2 receptors mediate the neuropeptide s-induced antinociception in the mouse formalin test. Oliveira MC[1], Holanda VA[1], Souza LS[1], Soares BL[1], André E[2], Silva Júnior ED[1], Guerrini R[3], Calo G[3], Ruzza C[3], Gavioli EC[1] [1]UFRN, [2]UFPR, [3]Universidade de Ferrara

05.016 Cannabidiol is a promising treatment for chronic pain: anxiolytic-like and analgesic effects in animal model of chronic constriction injury (CCI), modulation via CB1 and TRPV1 receptors. Cardoso GKRS[1], Zuardi AW[2], Crippa JA[2], Hallak J, Leite-Panissi CRA[3] [1]USP, [2]FMRP-USP, [3]FFCLRP-USP

06. Cardiovascular and Renal Pharmacology

06.001 Electrical field stimulation induces endothelium-dependent contraction of human umbilical cord vessels. Britto Júnior J[1], Jacintho FF[1], Murari GF[1], Campos R[1], Moreno RA[2], Antunes E[1], Mónica FZ[1], De Nucci GD [1]Unicamp, [2]UECE

06.002 Causes of cardiac decompensation and its influence on the mortality of hospitalized patients with heart failure in General Hospitals in Maceió, AL. Silva RZ, Rivera IR, Mendonça MA, Galdino EBT, Oliveira-Filho AD, Neves SJF, Costa FA UFAL

06.003 AAL 195, a phosphodiesterase-4 inhibitor, induces hypotensive and vasorelaxant effects in SHR. Silva JCG, Bernardino AC, Paulino ET, Oliveira KRV, Machado MLDP, Rodrigues AKBF, Vieira SP, Araújo Júnior JX, Schmitt M, Ribeiro EAN UFAL

06.004 Matrix Metalloproteinase (MMP)-2 contributes to decrease dystrophin and troponin i in hypertension-induced cardiac remodeling and dysfunction. Mello MMB, Parente JM, Omoto ACM, Fazan Jr. R, Castro MM USP

06.005 Vasodilator potential of ruthenium complexes containing imidazole derivatives in preparations of rat aorta artery. Barbosa FWX, Silveira JAM, Rocha DG, Gouveia FS, Uchôa BO, Silva FAO, Marinho AD, Jorge RJB, Lopes LGF, Siqueira RJB, Monteiro HSA UFC

06.006 Evaluation of the pharmacological potential of the hydroethanolic extract of the peels from *Passiflora edulis fo. flavicarpa degener* **in treatment of hypertension in rats.** Cabral B[1], Gonçalves TAF[2], Medeiro IA[2], Rezende AA[1], Zucolotto SM[1] [1]UFRN, [2]UFPB

06.007 Chlorhexidine mouthwash attenuates the antihypertensive effects and vascular MMP-2 dowregulation induced by l-arginine in two kidney, one clip hypertensive rats. Batista RIM[1], Nogueira RC[1], Ferreira GCF[1], Paula GHO[1], Angelis CD[1], Pinheiro LC[2], Santos JET[1] [1]FMRP-USP, [2]EERP-USP

06.008 Analyses of tubular transporters in visceral leishmaniasis patients before and during treatment with liposomal Amphotericin B. Bezerra GF[1], Lima DB[1], Meneses GC[1], Magalhães EP[1], Azevedo IEP[1], Silva Júnior GB[2], Daher EF[1], Martins AMC[2] [1]UFC, [2]Unifor

06.009 Negative inotropic effects and subcellular disorganization induced by *Crotalus durissus cascavella* **venom in cardiac tissue.** Silva LB[1], Simões LO[1], Alves QL[1], Araújo FA[1], Hora VRS[1], Jesus RLC[1], Soares MBPS[2], Meira CS[2], Aguiar MC[1], Couto RD[1], Cruz JS[3], Santos MAV[2], Silva LLC[1], Vasconcelos DFSA[1] [1]UFBA, [2]CPqGM-Fiocruz, [3]UFMG

06.010 Lethal sepsis increases the anti-contractile action of PVAT by a mechanism that involves NO and PGI2. Awata WMC[1], Gonzaga NA[1], Borges VF[1], Carnio EC[2], Cunha FQ[1], Tirapelli C[2] [1]FMRP-USP, [2]EERP-USP

06.011 Acute and prolonged diuretic effect of 1,3,5,6-Tetrahydroxyxanthone in normotensive and hypertensive rats. Mariano LNB[1], Boeing T[1], Silva RCMVAF[1], Cechinel-Filho V[1], Niero R[1], Silva LM[2], Andrade SF[1], Souza P[1] [1]Univali, [2]UFPR

06.012 Atorvastatin and sildenafil improve seven-day lead-exposed rats' hypertension. Paula ES, Polonio LCC, Tozzato GPZ, Dias Júnior CAC Unesp-Botucatu

06.013 Hydralazine reduces mortality in sepsis animal model. Santos DM[1], Silva EAP[1], Pereira EWM[1], Marinho YYM[1], Heimfarth L[1], Quintans-Júnior LJ[1], Menezes IAC[2], Santos MRV[1], Quintans JSS[1] [1]UFS, [2]UFPR

06.014 Phytochemical screening and evaluation of the vascular effects of the aqueous extract from *Morus Nigra* L. in rats. Silva WFP[1], Silva SB[1], Alves SML[2], Machado JCB[1], Ferreira MRA[1], Mendes RFV[1], Soares LAL[1], Ximenes RM[1], Araújo AV[1] [1]UFPE, [2]UPE

06.015 Translational effects of peptide Kef-1 from probiotic Kefir: Anti-hypertensive and antioxidant properties. Aires R[1], Amorim FG[2], Côco LZ[2], Pimenta AB[2], Leal MA[1], Vasquez EC[1], Campagnaro BP[2], Meyrelles SDS[1] [1]UFES e [2]UVV-ES

06.016 Angiotensin II- induced contraction is due to reactive oxygen species production in renal hypertensive rat aortas. Fahning BM, Bendhack L FCFRP-USP

06.017 Supraphysiological levels of testosterone induces cardiac dysfunction via NLRP3 inflammasome activation. Alves JV[1], Costa RM[2], Omoto ACM[2], Silva J[2], Tostes RCA[1] [1]FMRP-USP, [2]UFG

06.019 Ascorbate decreases nitrosylation and increases blood pressure in septic shock. Pinheiro LC[1], Persona IS[1], Tirapelli C[1], Cunha FQ[2], Santos JET[2], Lacchini R[1] [1]EERP-USP, [2]FMRP-USP

06.020 Alpha-1A adrenoceptor signaling impairment during experimental sepsis. Borges VF[1], Silva Júnior ED[2], Abrão EP[3], Silva KPD[4], Cunha TM[3], Alves-Filho JCF[3], Carneiro FS[3], Tostes RC[3] , Baker J[5], Pupo AS[4], Cunha FQ[3] [1]USP, [2]UFRN, [3]FMRP-USP, [4]Unesp-Botucatu, [5]University of Nottingham

06.021 Consequences of different nutritional insults during lactation in early life of male and female wistar rats. Vieira CB, Fernandes I, Castro-Pinheiro C, Alvim-Silva T, Souza KP, Rocha NN UFF

06.022 The supplementation with *Dipteryx alata vog*.'s almond oil has antithrombotic and vasomodulate effects in rats. Oliveira JCPL, Veras RC, Silva-Luis CC, Azevedo FLAA, Arruda AV, Alves RMFR, Araújo IGA, Medeiros IAUFPB

06.023 Contribution of the aryl hydrocarbon receptor (AhR) to vascular dysfunction in mice fed with a hyperlipidic diet. Bolsoni JA, Silva JF, Tostes R FMRP-USP

06.024 Cardioprotective effects of *Plinia cauliflora* (Mart.) Kausel in a rabbit model of doxorubicin-induced congestive heart failure. Tirloni CAS, Romão PVM, Palozi RAC, Guarnier LP, Gasparotto Júnior A UFGD

06.025 Involvement OF NADPH-oxidase enzyme in the nephroprotective and antioxidant effect of (-)-α-bisabolol. Magalhães EP[1], Sampaio TL[1], Silva BP[1], Menezes RRPPB[1], Marinho MM[1], Santos RP[2], Martins AMC[1] [1]UFC, [2]UFC-Sobral

06.026 Evaluation of antiplatelet and vascular effects of *Canna indica* L in rats. Brazão SC, Lima GF, Machado LR, Moraes IA, Motta NAV, Brito FCF UFF

06.027 Effect of luteolin on endothelial superoxide anion generation. Cruz YMC[1], Assunção HCR[2], Bertolino J[2], Fernandes L[1] [1]Unifesp-Diadema, [2]Unifesp

06.028 Isoflurane presents a trend in enhancing nitric oxide-dependent vasodilation response. Souza CRR, Paula ES, Dias Júnior CAC Unesp-Botucatu

06.029 Biochemical characterization in young and adult male and female Wistar rats submitted to neonatal overnourishment. Pedro SS, Amaral GA, Souza KP, Vieira CB UFF

06.030 **Pharmacological investigation of the action mechanism of a natural substance extracted from *Piper rivinoides* in vascular reactivity**. Barenco TS[1], Espírito-Santo LC[1], Souza PDN[2], Marques AM[3], Ramalho TC[4], Nascimento JHM[1], Ponte CG[2] [1]UFRJ, [2]IFRJ, [3]Fiocruz, [4]UFLA

06.035 **Pharmacological evaluation of a quinazoline derivate in vascular reactivity**. Teixeira RGS[1], Barenco TS[2], Espírito-Santo LC[3], Resende GO[3], Ponte CG[3], Santos WC[1] [1]UFF, [2]UFRJ, [3]IFRJ

06.037 **Anti-inflammatory and vasodilatory effects of inosine in a hypercholesterolemic model: crucial role of eNOS activation and NF-κB inhibition**. Lima GF[1], Motta NAV[1], Lopes RO[1], Mendes ABA[2], Autran LJ[1], Brazão SC[1], Brito FCF[1] [1]UFF, [2]UFRJ

07. Endocrine, Reproductive and Urinary Pharmacology

07.001 **Implantation and standardization of obesity induced by high glycemic index diet in wistar rats**. Ferreira SRD, Pessoa RF, Moura TMCF, Bezerra CO, Lima JPM, Cavalcante HC, Aquino JS, Cavalcante FA UFPB

07.002 **N-acetylcysteine and alpha-lipoic acid improve oxidative stress, inflammation and serum lipids levels in ovariectomized rats via estrogen-independent mechanisms**. Delgobo M, Agnes JP, Gonçalves RM, Santos VW, Zanotto-Filho A UFSC

07.003 **Metyrapone Treatment Reduces Maternal Corticosterone, However Does Not Reverse The Placental Changes Resulting from Maternal Food Restriction in Wistar Rats**. Gil NL[1], Severo PH[1], Azevedo GA[1], Balbino AM[1], Landgraf MA[2], Landgraf RG[1] [1]Unifesp-Diadema, [2]UNIP

07.004 **Programming of lipid metabolism in male rats after intrauterine exposition to Dexamethasone**. Souza DN[1], Veronesi VB[1], Santos-Silva JC[1], Teixeira CJ[1], Hecht FB[1], Bordin S[2], Anhê GF[1] [1]FCM-Unicamp, [2]ICB-USP

07.005 ***In vitro* effects of fluoxetine on rat distal cauda epididymis contraction**. Samala M, Melo AB, Mateus F, Pontes THA, Gomes LTC, Gavioli EC, Silva Júnior ED UFRN

07.006 **Food Supplementation with *Spirulina platensis* restores the damage caused by the hypercaloric diet on the relaxing cavernous reactivity of Wistar rats**. Diniz AFA, Ferreira PBF, Souza ILL, Lacerda Júnior FF, Cavalcante FA, Silva BA, Silva MCC UFPB

07.007 **Identification of potential EPPIN-biding proteins in murine spermatozoa**. Raimundo TRF, Mariani NAP, Andrade JJ, Silva AAS, Andrade AD, Kushima HK, Santos LD, Silva EJR Unesp-Botucatu

07.008 **Chronic treatment with fluoxetine or sertraline affected epididymal contraction and sperm parameters**. Silva Júnior ED, Bezerra MS, Martins ABM, Trajano FMG, Pontes THA, Gomes LTC, Gavioli EC UFRN

07.009 **Protective effects of LASSBio-788, a potential antiatherogenic compound, on reproductive function in hypercholesterolemic male rats**. Maia IC[1], Gontijo LS[1], Moreira TJ[1], Motta NAV[1], Ribas JAS[1], Kummerle AE[2], Brito FCF[1], Marostica E[1] [1]UFF, [2]UFRRJ

07.011 **The Epididymal protease inhibitor (EPPIN) sequence 111QGNNNNFQSKANC123 is critical for its role as a modulator of mouse sperm motility**. Silva AAS[1], Mariani N[1], Raimundo T[1], Avellar MCW[2], Kushima H[1], Silva EJR[1] [1]Unesp-Botucatu, [2]Unifesp-EPM

08. Respiratory and Gastrointestinal Pharmacology

08.001 Antidiarrheal and spasmolytic activity of *Lippia origanoides* essential oil. Silva DS[1], Menezes PMN[1], Macedo CAF[2], Mourão MRN[1], Silva BAO[1], Barros ML[1], Lucchese AM[2], Ribeiro LAA[1], Silva FS, Palheta Júnior RC [1]UNIVASF, [2]UEFS

08.002 Evaluation of immunoregulatory, antioxidant and anti-secretory activity of estragole in the gastric mucosa in animals' models. Alves Júnior EB[1], Serafim CAL[1], Pessoa MLS[1], Vieira GC[1], Jesus TG[1], Silva LMO[1], Silva AO[1], Gomes TGC[2], Araújo Júnior RF[2], Batista LM[1], Vasconcelos RC[2], Araújo AA[2] [1]UFPB, [2]UFRN

08.003 Involvement of Vanyloid Transient Potential Receptor 4 (TRPV4) in ethanol induced gastric lesion in mice. Pacheco G[1], Oliveira AP[1], Nolêto IRSG[1], Chaves LS[1], Iles B[1], Lopes ALF[1], Araújo AKS[1], Santos ES[1], Sousa FBM[2], Medeiros JVR[1] [1]UFPI, [2]UniNassau

08.004 Assessment upon the effects of the ethanolic extract from the leaves of *Annona muricata* on the mus musculus gastrointestinal tract. Matos RPS[1], Sousa JA[2], Santos F[2], Souza ORB[3], Ferreira LVA[2] [1]Facid, [2]UNIFSA, [3]UFPI

08.005 Evaluation of the antioxidant and gastric antiulcerogenic activities of the hydroalcoholic extract and leaf fractions of *Solanum stipulaceum* Roem & Schult. Lima CAA[1], Oliveira DF[1], Silva AS[1], Lima RS[2], Santos JL[1], Dias AS[1], Santos ALLM[1], Ferro JNS[3], Shan AYKV[1], Araújo BS[1], Barreto E[3], Silva MS[1], Batista JS[1], Santana AEG[3], Estevam CDS[1] [1]UFS, [2]UFU, [3]UFAL

08.006 Constituents of the gastroesophageal refluxate interfere with the contractility of rat esophagus. Gadelha KKL, Carvalho EFD, Oliveira DMN, Silva KL, Silva AAV, Camilo KLA, Silva CAO, Pinheiro CG, Magalhães PJC UFC

08.007 Evaluation of the gastroprotective and antioxidant effects of Kefir on gastric lesions induced use of anti-inflammatory. Côco LZ[1], Barboza KRM[1], Aires R[2], Pimenta ABT[1], Vasquez EC[1], Pereira TMC[1], Campagnaro BP[1] [1]UVV-ES, [2]UFES

08.008 Effect of pyridostigmine and donepezil treatment on blood pressure and gastric emptying in hypertension rats induced by L-NAME. Telles PVN[1], Cavalcante GL[1], Santos RB[1], Lima JVO[2], Costa EAS[1], Alves Filho FC[1], Sabino JPJ[1], Silva MTB[1] [1]UFPI, [2]UNIFSA

08.009 Evaluation of the gastroprotective activity of hecogenin acetate in rodents. Sousa AJC[1], Pereira EPS[1], Silva Batista WWB[1], Sousa JSLL[1], Soares DSDC[1], Vieira da Silva F[1], Quintans-Júnior LJ[1], Meneses Oliveira RC[1] [1]UFPI, [2]UFS

08.010 Investigation of spasmolytic and expectorant activity of vanillin. Silva BAO, Silva FS, Menezes PMN, Silva DS UNIVASF

08.011 Investigation of the relaxant mechanism of action of the essential oil extracted from the leaves of *Hyptis martiusii* Bentt on isolated rat trachea. Ribeiro LAA[1], Barros ML[1], Menezes PMN[2], Brito W[1], Ribeiro TFF[1], Macedo CAF[3], Duarte-Filho LAMS[1], Silva D[1], Silva FS[1] [1]UNIVASF, [2]Renorbio, [3]UEFS

08.012 Lectins from *Canavalia ensiformis* e *Canavalia brasiliensis* prevent increased [Ca2+]c and necrosis of pancreatic acinar cells and improve experimental acute alcoholic pancreatitis. Damasceno SRB[1], Pantoja PS[1], Marques FCJ[2], Carvalho CMM[1], Leite KESS[2], Lima MAS[2], Nascimento KS[1], Cavada BS[1], Assreuy AMS[2], Souza MHLP[1], Criddle DN[1], Soares PMG[1] [1]UFC, [2]UECE

08.013 Study of the respiratory mechanics of spontaneously hypertensive rats. Moriya H[1], Vitorasso R[1], Santana J[1], Lima WT[2], Oliveira MA[2] [1]USP, [2]ICB-USP

08.014 Study of the possible activity of buriti oil (*Mauritia flexuosa* **L.**) **in the intestinal motility of the species** *Mus musculus*. Nunes ASS[1], Santos PHN[2], Queiroz BCSH[3], Gomes AF[2], Sousa GS[2], Neres HLS[1], Sousa RGC[1], Mendes HL[1], Sousa JA[2] [1]UFPI, [2]UNIFSA, [3]UFRN

08.016 Evaluation of effects on gastrointestinal motility of alpha-asarone in mice. Silva AO, Silva LMO, Serafim CAL, Araruna MEC, Pessoa MLS, Alves Júnior EB, Batista LM UFPB

08.017 Effects of bradykinin in non-adrenergic non-cholinergic Gaba-induced relaxation in rat duodenum. Almendra JSL[1], Sousa IA[1], Petri C[1], Cavalcanti SMG[1], Alves Filho FC[1], Cavalcanti PMS[2] [1]UFPI, [2]UFPB

08.018 Evaluation of the mechanisms involved in the anti-secretory effect of H_2S in the diarrhea induced by cholera toxin in mice. Sousa FBM[1], Oliveira AP[2], Araújo AKS[2], Nolêto IRSG[2], Nogueira KM[3], Pacheco G[2], Fonseca MMV, Chaves LS[2], Lopes ALF[2], Medeiros JVR[2] [1]UniNassau, [2]UFPI, [3]UFC

08.019 Eucalyptol ameliorate lung function on rats exposed to cigarette smoke. Viana EA[1], Lima CC[2], Melo PO[2], Serra D[2], Cavalcante FSA[2], Lima EKF[1] [1]Ufersa, [2]UECE

09. Natural Products and Toxinology

09.001 Chemical composition, acetylcholinesterase inhibition of the essential oil of *Psychotria poeppigiana* **and molecular docking simulations**. Marangoni JA[1], Volobuff CRF[1], Santos SM[1], Oliveira Júnior PC[1], Borges JAT[1], Yamazaki DAS[1], [2]Gauze GF, Formagio ASN[1] [1]UFGD, [2]UEM

09.002 Effect of the extract of *Euterpe oleracea* **Mart. (Açaí) on physical activity and vascular response in rats submitted to aerobic physical training**. Oliveira BC, Soares RA, Bem GF, Santos IB, Carvalho LCRM, Costa CA, Ognibene D, Soares de Moura R, Resende AC UERJ

09.003 Antihypertensive effect of *Alpinia zerumbet* **leaf extract in spontaneously hypertensive rats**. Menezes MP, Carvalho LCRM, Soares RA, Santos IB, Bem GF, Moura RS, Costa CAD, Resende ADC, Ognibene D UERJ

09.004 Effect of the extract of *Euterpe oleracea* **Mart. (Açaí) and aerobic exercise training on physical performance and vascular changes caused by aging**. Soares RA, Oliveira BC, Bem GF, Barcellos I, Carvalho LCRM, Costa CAD, Soares de Moura R, Ognibene D, Resende AC UERJ

09.005 Oleanolic acid attenuates olanzapine-induced adipogenesis via the AMPKalpha/SREBP1 pathway in 3T3-L1 cells. Silva AVL, Silva RAC, Oliveira FTD, Nunes PIG, Freire GP, Lima RP, Pessoa ODL, Rao VS, Santos FA UFC

09.006 Protective effect of Plumeria pudica Latex proteins on ethanol-induced gastric injury in mice. Souza BS, Moita LA, Sales ACS, Barbosa MS, Silva FDS, Sousa FBM, Medeiros JVR, Oliveira JS UFPI

09.007 Non-selective spasmolytic activity of ethanolic extract from leaves of the *Varronia dardani* **(Taroda) J. S. Mill. (Cordiaceae)**. Figueiredo IAD, Silva GR, Ferreira SRD, Pessoa RF, Veloso CAG, Costa VCO, Cavalcante FA UFPB

09.008 Hemodynamic effects induced by acute administration of ethanolic extract of *Leandra dasytricha* **in Spontaneously Hypertensive Rats**. Medeiros CFA[1], Camargo SB[2], Cechinel-Filho V[3], Vasconcelos DFSA[4] [1]USP, [2]Fiocruz, [3]Univali, [4]UFBA

09.009 Effect of *Stevia sweetener* (*S. rebaudiana*) intake on biochemical and metabolic parameters of control and obese mice. Lima LSB, Gonçalves BGS, Malafaia TOM, Kutianski AKGV, Neves FA, Melo VMS, Parada JPPC, Yahata MA, Santos SDS, Souza ABM, Sanchez Moura A, Garcia de Souza EP UERJ

09.010 Influence of exercise in combination with phytotherapy supplementation in a mouse model of menopause. Martins JP, Silva LCS, Nunes MSN, Campos MMC PUC-RS

09.011 Antifungal and cytotoxic profile of the modified gum of *Anadenanthera colubrina* var. Cebil (Griseb.) Altschul. Ribeiro FOS[1], Mendes MGA[1], Brito LM[2], Daboit TC[1], Pessoa CO[2], Araújo AR[1], Silva DA[1] [1]UFPI, [2]UFC

09.012 Evaluation of the acute toxicity and antibacterial activity from the hexane extract of *Stemodia maritima* L. Sousa RS, Silva JAG, Borba EFO, Ramos KRLP, Silva PA, Oliveira PAL, Silva EPM, Lima GT, Princival IMRG, Gusmão NB, Silva TG UFPE

09.013 Relaxant effects of the essential oil of *Ocimum basilicum* in isolated rat aorta. Silva KL, Silva AAV, Pinheiro CG, Silva CAO, Oliveira DMN, Carvalho EF, Gadelha KKL, Camilo KLA, Magalhães PJC UFC

09.014 *In vitro* evaluation of the fungicidal potential of *Acmella oleracea* (L.) R.K. Jansen (Asteraceae). Cunha LDLL[1], Porto NM[2], Almeida LFD[3], Pestana AM[1], Sousa ITC[1] [1]Unicamp, [2]Ceuma, [3]UFPB

09.015 Cardiovascular effects caused by the venom of *Lachesis achrochorda* from Colombia. Camilo KLA, Guerrero-Vargas JA, Carvalho EF, Siqueira RJB, Oliveira DMN, Silva AAV, Silva KL, Gadelha KKL, Pinheiro CG, Bindá AH, Magalhães PJC UFC

09.016 Evaluation of acute toxicity and gastroprotective potential of *Croton heliotropiifolius* Kunth. Silva JAG, Sousa RS, Borba EFO, Silva PA, Ramos KRLP, Silva SJL, Lima GT, Silva EPM, Silva TG UFPE

09.017 Structural characterization of two beta-neurotoxins (MLL-Tx-I and MLL-Tx-II) from *Micrurus lemniscatus* (South American coralsnake) venom and their modulatory activity on SNARE-protein complex expression. Floriano RS[1], Panunto PC[2], Torres-Bonilla KA[2], Saénz-Suarez PA[2], Rocha T[3], Fernandez J[4], Silva Júnior NJ[5], Rowan EG[6], Lomonte B[4], Hyslop S[2] [1]Unoeste; [2]Unicamp, [3]UFS, [4]Universidad de Costa Rica, [5]PUC-GO, [6]University of Strathclyde

09.018 Ability of fucosylated chondroitin sulfate to antagonize bee venom activities. Melo PA, Tavares-Henriques MST, Cruz-Teixeira JMC, Monteiro-Machado M, Gonçalves TS, Patrão-Neto FC, Strauch MA, Mourão PAS UFRJ

09.019 Antibacterial and antibiofilm activities of cordiaquinones obtained from *Cordia polycephala* roots. Araújo AJ[1], Barros AB[1], Oliveira MA[1], Araújo AR[1], Soares MJS[1], Freitas HPS[1], Leite JRSA[2], Pessoa ODL[3], Marinho Filho JDB[1] [1]UFPI, [2]UnB, [3]UFC

09.020 Antioxidant potential of different accesses of *Maytenus ilicifolia* in Hyperglycemic rats. Zanatta L, Schindler M, Mezzomo H, Marins K, Regginato A, Sachett A, Chitolina R, Bevilaqua F, Zanatta AP, Dal Magro J Unochapecó

09.021 Renal effects induced by *Bothrops alternatus* snake venom involve cytokines and oxidative stress. Monteiro SMN[1], Nogueira Júnior FA[1], Jorge ARC[1], Marinho AD[1], Silveira JAM[1], Silva HRF[1], Silva PLB[1], Chaves Filho AJM[1], Ferreira Júnior RS[2], Macedo DSM[2], Jorge RJB[2], Monteiro HSA[2] [1]UFC, [2]Unesp

09.022 Analgesic and anti-inflammatory effects of *Eugenia Dysenterica* leaves. Funez MI, Marques MAS, Santos AA, Albernaz AF, Lisboa IF, Magalhães PO, Duarte DB, Nascimento PGBD UnB

09.023 Comparative study of the renal effects of Mexican coral snake venoms: *Micrurus browni* and *Micrurus laticollaris* (Squamata:Elapidae). Braga JRM[1], Jorge ARC[2], Marinho AD[2], Valle MB[3], Alagon A[3], Moraes ICO[4], Monteiro HSA[2], Jorge RJB[2] [1]UFRB, [2]UFC, [3]UNAM, [4]Unicatólica

09.024 Evaluation of the potential gastroprotector of *Licania macrophylla* Benth in rodents. Nascimento AA, Sales PF, Nóbrega PA, Corrêa FRFB, Cabral GNV Unifap

09.025 Morphometric and morphology evaluation of hepatoprotection induced by monoterpene against isoproterenol damage in hypertensive and infarcted rats. Machado MLDP[1], Paulino ET[1], Oliveira KRV[1], Bernardino AC[1], Silva JCGD[1], Lopes AAA[1], Vieira SP[1], Silva DM[1], Oliveira AP[2], Ribeiro EAN[1] [1]UFAL, [2]UFPI

09.026 The potential therapeutic effect of a polyphenol-rich extract from seeds of *Euterpe oleracea* Mart. (acai) in renovascular hypertension. Machado ML, Cunha LLM, Vilhena JC, Jorge TM, Carvalho LCRM, Soares RA, Santos IB, Bem GF, Ognibene D, Resende AC, Soares de Moura R, Costa CAD UERJ

09.027 Antihypertensive effects in the long-term induced by alpha-terpineol after chronic treatment in rats. Oliveira KRV[1], Paulino ET[1], Silva JCG[1], Bernardino AC[1], Machado MLDP[1], Rodrigues AKBF[1], Silva DM[1], Oliveira AP[2], Ribeiro EAN[1] [1]UFAL, [2]UFPI

09.028 Effects of Copaiba oil and Dapsone on Envenomation by *Loxosceles intermedia* Spider in Mice. Oliveira KC[1], Teixeira RGS[1], Ribeiro MF[1], Garcia TA[1], Oliveira FL[2], Machado TB[1], Souza CMV[3], Calil-Elias S[1] [1]UFF, [2]UFRJ, [3]Fiocruz

09.029 Protective effect of Epiisopilosine, a new alkaloid from *Pilocarpus Microphyllus*, on paracetamol induced hepatic lesion in mice. Sousa GC[1], Chaves LS[1], Santos ES[1], Silva PC[1], Pacheco G[1], Sousa FBM[2], Carvalho JL[1], Lopes ALF[1], Pinho SS[1], Medeiros JVR[1] [1]UFPI, [2]UniNassau

09.030 Inhibition of GAPDH enzyme from *Trypanosoma cruzi* (tcGAPDH) BY (-)-α-BISABOLOL: *in silico* and *in vitro* ASSAY. Silva BP[1], Menezes RRPPB[1], Magalhães EP[1], Sampaio TL[1], Marinho MM[1], Santos RP[2], Martins AMC[1] [1]UFC, [2]UFC-Sobral

09.031 Involvement of nitric oxide and potassium channels on the vasorelaxant effect induced by *Leandra dasytricha* extract. Lima GBC[1], Alves QL[1], Araújo FA[2], Jesus RLC[1], Brito DS[1], Gonçalves GO[1], Moraes RA[3], Cechinel-Filho V[4], Vasconcelos DFSA[1] [1]UFBA, [2]CPqGM-Fiocruz, [3]Fiocruz, [4]Univali

09.032 Seasonal Influence on the chemical constitution and biological effect of the essential oil from *A. Triphylla*. Parodi TV[1], Gressler LT[1], Silva LL[1], Becker AG[2], Schmidt D[1], Caron BO, Heinzmann BM[1], Baldisserotto B[1] [1]UFSM, [2]UFPR

09.033 Evolfilene, a sesquiterpene from *Evolvulus linarioides*, attenuates ovalbumin-induced allergic airway inflammation in mice. Gomes GC[1], Miranda EP, Assis SKC[1], Souza TNC[2], Costa VCO[3], Pereira LCO[3], Silva MS[3], Ferro JNS[2], Barreto E[2], Correia ACC[1] [1]UPE, [2]UFAL, [1]UFPB

09.034 Effect of *Hesperozygis ringens* (Benth.) Epling hexanic extract on inhibition of hemolysis. Ferrari FT, Rosa IA, Bandeira Júnior G, Cargnelutti JF, Heinzmann BM UFSM

09.035 Healing bioproduct enriched with *Abarema cochliacarpa*. Almeida SM[1], Dias ASD[1], Mota DCS[1], Souza JB[1], Graça AS[1], Moraes SZC, Shan AYKV[1], Barreto E[2], Santana AEGS[2], Albuquerque Júnior RLC[3], Araújo BSA[1], Estevam CDS[1] [1]UFS, [2]UFAL, [3]Unit

09.036 Chemical characterization and antimicrobial activity of *S. cumini* AGAINST *Klebsiella pneumoniae*. Santos AM[1], Estevam CDS[1], Santos SBD[1], Santos PAL[1], Santos LC[1], Silva AS[1], Mota KO[2], Texeira KCS[1], Araujo BS[1] [1]UFS, [2]UFAL

09.037 Effect of aqueous extract and protein fraction without phycocyanin from *Spirulina platensis* in human neutrophils and preadipocytes. Sousa JAC, Almeida AC, Azul FVCS, Pinto CS, Melo KM, Rocha TM, Viana GSB, Campos DCO, Santos FA, Oliveira HD, Pimenta ATA, Araújo EVO, Leal LKAM UFC

09.038 Evaluation of the antioxidant activity of the methanolic extract of *Miconia affinis* DC. and determination of the sensitivity profile by disk-diffusion. Sousa MGO[1], Borba EFO[1], Costa TCP[2], Silva JAG[1], Sousa RS[1], Silva EPM[1], Silva PA[1], Leite TCC[1], Gusmão NB[1], Silva TGD[1] [1]UFPE, [2]UFRPE

09.039 Effect of *Dioscorea villosa* on neutrophil migration in OVX mice with zymosan-induced arthritis. Santos WM, Almeida RG, Camargo EA, Souza EPBSS, Silva LAS UFS

09.040 Effects of supplementation with *S. Platensis* on oxidative stress and via MAPK in uterus of Wistar rats. Lacerda Júnior FF[1], Ferreira PBF[1], Diniz AFA[1], Silva MCCS[1], Araújo LCC[2], Silva AS[1], Costa BA[1] [1]UFPB, [2]USP

09.041 Proteins from *Plumeria pudica* Latex prevent inflammation and alveolar bone loss on periodontitis induced by ligature in rats. Oliveira NVM, Oliveira LES, Souza BS, Moita LA, Sales ACS, Barbosa MS, Silva FDS, França LFC, Vasconcelos DFP, Oliveira JS UFPI

09.042 Evaluation of gastroprotective activity of *Tocoyena hispidula* Standl L. in rodents. Batista CL, Sousa JSLL, Sousa AJC, Silva Batista WWB, Fernandes HB, Pereira da Silva E, Araújo JAN, Alves EAS, Meneses Oliveira RC UFPI

09.044 Effects of *Euterpe oleracea* Mart. (Acai) Extract on hepatic steatosis associated to obesity: Role of the Renin-Angiotensin System. Romão MH, Bem GF, Santos IBS, Soares RA, Ognibene D, Costa CA, Resende AC UERJ

09.045 Antagonist of *Apis mellifera* activities by *Eclipta prostrata* extract and its constituents. Souza PDN[1], Rocha Júnior JRS[1], Pinheiro AN[1], Cesar MOC[1], Monteiro-Machado M[1], Strauch MA[1], Ponte CG[2], Patrão-Neto FC[1], Melo PA[1] [1]UFRJ, [2]IFRJ

09.065 Effects of *Piper hispidum* in *Danio rerio* Behavioral Tests. Bastos-Pereira AL, Cabral PFA, Cipriani DS UESC

09.068 Effects of Euterpe oleracea Mart. (acai) extract in 3T3-L1 pre-adipocyte cells in Culture: role of renin angiotensin system. Silva DLB, Barcellos I, Bem GF, Romão MH, Oliveira BC, Soares RA, Menezes MP, Trindade PL, Daleprane JB, Costa CA, Ognibene D, Soares de Moura R, Resende AC UERJ

09.069 Antileishmania activity *in vitro* of cordiaquinone E obtained from *Cordia polycephala* roots. Rodrigues RRL, Nunes TAL, Sousa JMS, Rodrigues KAF, Marinho Filho JDB, Freitas HPS, Pessoa ODL, Araújo AJ UFPI, UFC

10. Cancer Pharmacology

10.001 Evaluation of the toxicities presented by patients with lung cancer treated with carboplatin and paclitaxel. Seguin CS[1], Vasconcelos P[1], Cursino M[1], Bastos L[1], Vaz C[1], Quintanilha J[1], Barbeiro A[1], Zambom L[1], Perroud Jr M[1], Moriel P[1], Pincinato E[2] [1]Unicamp, [2]Mackenzie

10.002 Evidence of interaction in the association of *Matricaria recutita* and 5-Fluorouracil on toxicological and histomorphological analysis in mice with cancer. Santos SA[1], Amaral RG[1], Menezes

Filho RO[1], Graca AS[1], Mendes Neto JM[1], Andrade LN[1], Albuquerque Júnior RLC[2], Pereira Filho RN[2], Gomes SVF[2], Santos SL[1], Carvalho AA[1] [1]UFS, [2]Unit

10.003 **Benefits of the FFA1 and FFA4 receptors modulation in a pre-clinical model of cancer associated cachexia**. Freitas RDS, Muradás TC, Dagnino AP, Greggio S, Venturin G, Costa J, Campos MM PUC-RS

10.004 **The antitumor potential of polysaccharide extracted of** *Anacardium occidentale* **L. stem**. Barros AB[1], Araújo AJ[1], Oliveira TM[1], Iles B[1], Medeiros JVR[1], Silva DA[1], Moura AF[1], Moraes Filho MO[2], Marinho Filho JDB[1] [1]UFPI, [2]UFC

10.005 *In vivo* **and** *in vitro* **antineoplastic effect against mammary cancer of polysaccharides extracted from sweet green pepper** (*Capsicum annuum* (**CAP**). Adami ER, Acco A, Corso CR, Turin-Oliveira NM, Galindo C, Stipp MC, Dittrich RL, Telles JEQ, Klassen G, Cavaliere E, Cordeiro LMC, Silva LM, Milani L UFPR

10.006 **Gedunin Effect on Glioblastoma Progression**. Costa TEMM[1], Seito LN[1], Krahe TE[2], Henriques MG[1], Penido C[1] [1]Fiocruz, [2]UERJ

10.007 **NQO1 enzyme and cancer**: **Scientific and technological mapping**. Costa PMS, Paier CRK, Oliveira FCE, Rebouças LV, Silva MFS, Pessoa C UFC

10.008 **Synthesis and antiproliferative activity of novel derivates of alpha-lapachone on tumor cell lines**. Lima DJB[1], Pessoa C[1], Silva Júnior EN[2], Valença W[2], Rebouças LV[1], Costa PMS[1] [1]UFC, [2]UFMG

10.009 **Prospection of new synthetic molecules and determination of anticancer effect of a new synthetic chalcone-sulfonamide** (**CSS185**). Moura AF[1], Araújo AJ[1], Marinho Filho JDB[1], Santos MCL[2], Silva MFS[2], Oliveira FCE[2], Castro MRC[3], Peres CN[3], Pessoa C[2], Moraes Filho MO[2] [1]UFPI, [2]UFC, [3]UFG

10.010 **Evaluation of the chemopreventive effect of** *Cordia lutea* **L flower ethanolic extract on prostate carcinogenesis induced by N-methyl-N-nitrosourea and testosterone in rats**. Armas JPR, Ortiz-Sanchez JM, Aguilar-Carranza C, Palomino-Pacheco M Universidad Nacional Mayor de San Marcos

10.011 **Extract of the leaves of** *Passiflora alata* **induces apoptosis and necrosis in leukemic cell line**. Nascimento DS[1], Amaral RG[1], Santos SA[1], Mendes Neto JM[1], Andrade LN[1], Gomes SVF[2], Severino P[2], Menezes Filho RO[1], Santos SL[1], Carvalho AA[1] [1]UFS, [2]Unit

10.012 **Investigation of the cytotoxic activity of quinones B-lapachone and lapachone in cell lines** *in vitro*. Sousa AC[1], Queiroz RRM[1], Silva MFS[1], Oliveira FCE[1], Abreu BB[1], Rebouças LV[1], Silva Júnior EN[2], Pessoa C[1] [1]UFC, [2]UFMG

10.013 **Antitumor activity of** *Eplingiella fruticosa* **Salmz Benth. in swiss mice transplanted with sarcoma 180**. Mota DCS[1], Lima ACBL[1], Almeida SM[1], Souza JB[1], Moraes SZC[1], Graça AS[1], Amaral RG[1], Shan AYKV[1], Barreto E[2], Albuquerque Júnior RLC[3], Araújo BS[1], Estevam CDS[1] [1]UFS, [2]UFAL, [3]Unit

10.014 **Phytochemical analysis and biological activity of the leaves extracts of** *Montrichardia linifera* (**Arruda**) **Schott** (**Araceae**). Araújo JI, Pereira FIA, Barros AB, Araújo AR, Araújo GS, Silva DA, Marinho Filho JDB, Araújo AJ UFPI

10.019 **Gene expression profile as predictive response markers to neoadjuvant anastrazole in elderly women diagnosed with breast cancer**. Lopes MHS[1], Barbosa LA[2], Torrezan GT[3], Olivieri EHR[3], Paula CAA[3], Gifoni MAC[2], Lima MVA[2], Carraro DM[3], Wong DVT[1], Andrade VP[3] [1]UFC, [2]ICC, [3]AC Camargo Cancer Center

11. Clinical Pharmacology, Pharmacokinetics, Pharmacogenomics and Toxicology

11.001 *In vitro in vivo* correlation in the development of oral drug formulations: Case studies from a Pharmaceutical Industry in Brazil. Davanço MG[1], Meulman J[2], Carvalho PO[1], Duarte FG[2], Campos DR[2] USF, Sanofi Medley Farmacêutica

11.002 Microdialys probes calibration for an application in pharmacokinetic study of amphotericin B. Santos VV, Araújo JMS, Pereira LC, Azeredo FJ UFBA

11.003 ALDH2 Activity recovery by nicotinamide adenine dinucleotide (NAD+) treatment in neuroblastoma SH-SY5Y cells exposed to lead and ethanol. Deza-Ponzio R, Cejas RB, Albrecht PA, Fernández-Hubeid LE, Cancela LM, Irazoqui FJ, Virgolini MB Universidad de Córdoba

11.004 Analysis of Gene Polymorphisms Related to NSAIDs Metabolism and Pain Modulation. Calvo AM[1], Weckwerth GM[1], Oliveira GM[1], Dionisio TJ[1], Faria FAC, Moore T[2], Santos CF[1] [1]USP, [2]Kailos Genetics

11.005 New insights from the study of vulnerable populations exposed to mercury: genetic susceptibility, peripheral markers of neurotoxicity and the impact of large-scale projects in Amazon. Crespo-Lopez ME[1], Arrifano G[1], Macchi BM[1], Oliveira MA[1], Araújo AL[1], Sacramento L[1], Takeda P[1], Martin-Doimeadios RCR[2], Moreno MJ[2], Trujillo SF[2], Oria R[3], Leite JA[4] [1]UFPA, [2]Universidad Complutense of Madrid, [3]UFC, [4]UFMG

11.006 Toxicity of the herbicide metribuzin on the development and antioxidant enzymes in drosophila melanogaster. Silva CM, Oliveira J, Silva E, Neiva G, Araújo LA UFAL

11.007 Toxicological evaluation of the insecticide imidacloprid and the herbicide hexazinone in *Drosophila melanogaster*. Floresta LRS, Silva KTR, Oliveira JM, Silva EA, Neiva G, Araújo LAD UFAL

11.008 Biocompatibility of the Eu doped TiO2 nanocrystals and CdSe/CdS magic sized quantum dots in *Drosophila melanogaster*. Silva KTR, Oliveira JM, Silva EA, Carvalho JPS, Silva U, Silva CJ, Dantas NO, Silva ACA, Araújo LA UFAL

11.009 Adverse Drug Reactions of Magnesium Sulfatein High-Risk Pregnancy and puerperium in Intensive Care. Borges MAH[1], Costa T[2], Cunha MD[2], Bezerra PKV[2], Azeredo F[1], Martins R[2], Oliveira A[2] [1]UFBA, [2]UFRN

11.010 Exposition To Water Containing Traces Of Heavy Metals And Pesticides From Alagoas' Water Basins Induces Behavioral Alterations In Adult Zebrafish (Danio rerio). Santos ORS, Santana DB, Sousa MAS, Oliveira AAR, Nascimento TG, Reys JRM, Moura MABF UFAL

12. Drug Discovery and Development

12.001 Pharmacokinetics of linalool complexed with B-cyclodextrin: Is it a new therapeutic formulation for treatment of hypertension? Camargo SB[1], Medeiros CFA[1], Santos VV[2], Azeredo FJ[3], Vasconcelos DFSA[1] [1]Fiocruz, [2]USP, [3]UFBA

12.002 Preclinical pharmacological evaluation of *Senna velutina* roots: Chemical composition, *in vitro* and *in vivo* antitumor effects, and death mechanisms in B16F10-Nex2 melanoma cell. Castro DTH[1], Campos JF[1], Damião MJ[1], Torquato HF[2], Paredes-Gamero EJ[3], Carollo CA[3], Rodrigues EG[2], Souza KDP[1], Santos EL[1] [1]UFGD, [2]Unifesp, [3]UFMS

12.003 Experimental Hydroxymethylnitrofurazone-therapy in CL-Brener bioluminescent *Trypanosoma cruzi* infections is more efficient, reduces cardiac and hepatic damage in the chronic than acute stage. Scarim CB[1], Francisco A[1], Jayawardhana S[1], Lewis MD, Chin CM[2], Taylor MC[1], Kelly JM[1] Unesp-Araraquara, FCFAr-Unesp

12.004 Evaluation of interaction between Nanocarrier PAMAM of 3rd generation and substance with potential anti-cancerigene. Silva MPG, Santos JCN, Araújo Júnior JX, Aquino TM, Abreu FCD UFAL

12.005 Determination of the cytotoxic effect and evaluation of the *in vitro* leishmanicidal potential of new aminoguanidine hydrazone derivatives and other related compounds. Santos MS, Queiroz AC, Silva Júnior EF, Leite AB, Vieira ACS, Silva JKS, Aquino TM, Araújo Júnior JX, Moreira MSA UFAL

12.006 From Kefir proteome to *in vivo* analysis: Exploring the hypotensive effects of a prototype candidate for ACE inhibitor drug. Amorim FG[1], Coitinho LB[2], Aires R[3], Dias AT[3], Meyrelles SS[3], Rezende LCD[3], Pauw ED[4], Quinton L[4], Campagnaro BP[1], Vasquez EC[1] [1]UVV-ES, [2]FCFRP-USP, [3]UFES, [4]University of Liège

12.007 Use of the ethanolic extract of *Mimosa tenuiflora* for the synthesis of silver nanoparticles with antimicrobial applications. Souza JMT, Rocha LMC, Barros AB, Araújo AR, Silva DA, Marinho Filho JDB, Araújo AJ UFPI

12.008 Pharmacological screening of synthetics neolignans front of clinical bacteria strains. Dourado TMH, Cruz LS, Oliveira BHM, Oliveira BTM, Silva LAA, Rodrigues LC, Vasconcelos UVRG, Travassos RA UFPB

12.009 Anti-Inflammatory activity in arthritis model of nerolidol in inclusion complex with beta-cyclodextrin. Ribeiro LD[1], Souza EPBSS[1], Gomes MVLD[1], Silva LAS[1], Quintans LJ[1], Rocha LM[2], Cavalcanti MD[1], Araújo AAS[1] [1]UFS, [2]UFF

14. Pharmacology: Other

14.001 Zebrafish feeding of Gong-Cheng-You-Cha (a herb-based health food) delivers antifatigue effects. Zhao Y, Hao E, Qin L, Xie J, Huang J, Du Z, Hou X, Deng J Guangxi University of Chinese Medicine

14.002 Periprostatic adipose tissue from obese mice reduced the contraction induced by alpha-1 adrenoceptor agonist in isolated prostate smooth muscle from obese and lean mice. Passos GR, Oliveira MG, Bertollotto GM, Rocha NR, Antunes E, Mónica FZM Unicamp

14.003 *In vitro* evaluation of the antileishmania and immunomodulatory activities of the monoterpenes limonene and carvacrol. Carvalho RCV[1], Santos IL[1], Alves MMM[1], Sousa VC[1], Cruz LPL[1], Santos LP[1], Carneiro SMP[1], Carvalho FAA[2] [1]UFPI, [2]UFMG

14.004 Validation of an *in vitro* cell culture bioassay for the bioactivity assessment of monoclonal antibody denosumab. Perobelli RF, Xavier B, Silva FS, Cardoso Júnior CDA, Cavalheiro TN, Walter ME, Dalmora SL UFSM

14.005 **Development of an *in vitro* cell culture bioassay for the potency assessment of ramucirumab**. Silva FS, Perobelli RF, Xavier B, Cardoso Júnior CDA, Nascimento BF, Mohr A, Diefenbach ICF, Dalmora SL UFSM

14.006 **Evaluation of probable interactions between food/nutrient and drugs used in treatment of non-communicable chronic diseases in seniors living in an asylum in Macaé (RJ)**. Campos WVA, Carmo PLC, Vianna KS, Ferreira CCD UFRJ

14.007 **Use of delta-9-Tetrahydrocannabinol (DELTA-9-THC) and cannabidiol in the treatment of neurological disorders a systematic review**. Lopes VB[1], Silva VIAP[2], Araújo HFP[2], Mendonça TPS[1], André ACGM[1], Santos FMR[1] [1]Unit, [2]UFPE

14.008 **Evaluation of the cytotoxic activity of nanostructured sodium alendronate**. Machado FS, Iles B, Dourado FF, Araújo GS, Souza JMT, Barros AB, Medeiros JVR, Silva DA, Araújo AJ, Marinho Filho JDB UFPI

14.009 **PHytochemical prospection and antibacterial evaluation of the ethanolic extract of *Croton tricolor* Klotzsch ex Baill**. Neri TS[1], Silva DC[1], Costa JG[2], Santos AF[3], Maior LPS[1], Rocha TJM[4], Fonseca SA[1] [1]Cesmac, [2]UECE, [3]UFAL, [4]UPE

14.010 **Establishment of a diet-induced animal model of non-alcoholic fatty liver disease for application in pre-clinical studies**. Araújo BP, Pereira ENGS, Martins CSM, Silvares RR, Flores EEI, Rodrigues KL, Daliry A Fiocruz

14.012 **Relaxing effect of purified cashew gum (*Anacardium occcidentale* L.) on rodent uterus *in vitro* and *in vivo***. Souza ORB, Savia SFLD, Pereira LCA, Santos DF, Oliveira MM, Reis Filho ACF, Silva AM, Silva DA, Nunes LCC, Santos RFS, Meneses Oliveira RC UFPI

14.019 **Investigation of the presence of drugs as emerging pollutants in Bengal River (Nova Friburgo, RJ) and implications for health**. Fujimaki CMO, Bernardo RRB, Santos BLR, Lima CKF, Miranda ALP UFRJ

Poster session 2:
27/09/2019 (Friday)

01. Cellular and Molecular Pharmacology

01.010 **Alpha 7 Nicotinic acetylcholine receptors in macrophages and microglia**. Santos VGB, Castro NG, Nazareth AMN, Lima FRSL, Leser FSL UFRJ

01.011 **Participation of PI3 kinase and ERK pathways in the differentiation of hematopoietic stem cells by P2 receptors**. Souza KF[1], Araújo RT[1], Zaias AB, Torquato HF[1], Paredes-Gamero EJ[2] [1]Unifesp, [2]UFMS

01.012 **Cytoglobin attenuates neuroinflammation in lipopolysaccharide-activated primary preoptic area cells via NFkB pathway inhibition**. Gomes BRB, Sousa GLS, Ott D, Murgott J, Sousa MV, Souza PEN, Roth J, Souza FHV UnB

01.013 **AT1 receptor signaling in cells with high levels of O-GlcNAc-modified intracellular proteins**. Silva Neto JA, Abrão EP, Silva J, Costa TJ, Duarte DA, Simões SC, Costa Neto CM, Tostes RC FMRP-USP

01.014 **Characterization of extracellular cAMP metabolism in rat airways**. Pacini ESA[1], Jackson EK[2], Godinho RO[1] Unifesp[1]; [2]University of Pittsburgh

01.015 **Unveiling the molecular bases of AT1 receptor desensitization and tachyphylaxis**. Duarte DA[1], Silva LTPEA[1], Oliveira EB[1], Bouvier M[2], Costa Neto CM[1]USP, [2]Université de Montréal

01.016 **Inhibitory activity of Copaifera reticulata and Piper marginatum oleoresin on lipoxygenase enzyme**. Pires TM[1], Silva LAN[1], Oliveira ECP[1], Acho LDR[2], Lima ES[2], Moraes WP[2] UFOPA, [2]UFAM

01.017 **Protective effect of Aqueous Coriandrum sativum L. extract in the production of reactive species and Aortic wall remodeling in rat neonate offspring after maternal exposure to methylmercury**. [1]Bannwart CM, [1]Ferreira PN, [1]Rodrigues KE, [1]Oliveira FR, [1]Hamoy M, [1]Amarante CB, [1]Nascimento JLM, [1]Macchi BDM, [1]Gerlach RF[2], [1]Silva CAM, [1]Prado AF [1]UFPA, [2]USP

01.018 **Action of lysine (K) -deacetylase modulators on cell metabolism in astrocytes exposed to oxidative stress and excitotoxicity: possible neuroprotective role in Amyotrophic Lateral Sclerosis**. Torresi JLB, Rosenstock TR, Dutra MB FCMSCSP

02. Neuropharmacology

02.019 **Participation of Auraptene and Isoquercetin in the sedative effects promoted by hydroethanolic extract (HE) of polygala altomontana in rats**. Leal JC[1], Silva JMD[1], Tizziani T[1], Brighente IMC[1], Duarte FS[1] [1]UFPE, [2]UFSC

02.020 **The role of interferon-γ in L-DOPA-induced dyskinesia in Parkinson's disease**. Ferrari DP[1], Bortolanza M[2], Bel ED[2] FMRP-USP, FORP-USP

02.022 **Involvement of the hypocampal colinergic system in the depressive-like behavior induced by the withdrawal of crack/cocaine in mice**. Santos Neto JG[1], Souza FMAD[1], Silva NKGT[2], Pacheco ALD[1], Nicácio DCSP[1], Cavalcante GTS[1], Correia WBZGB[1], Vieira MPS[1], Souza GF[1], Silva OBS[1], Silva VC[1], Brito IRR[1], Castro OW[1], Duzzioni M[1] UFAL[1], USP[2]

02.023 **Evaluation of the effects of moderate aerobic exercise on PTEN/AKT pathway in mice cerebellum**. Matumoto AM, Kawamoto EM, Andreotti DZ ICB-USP

02.024 **Biological evaluation of a library of bivalent derivatives as potential theranostic tools for Alzheimer's disease**. Gonçalves AE[1], Gandini A[2], Poeta E[2], Sabaté R[2], Bartolini M[2], Monti B[2], Strocchi S[2], Paglia S[2], Grifoni D[2], Bolognesi ML[2] [1]Univali, [2]Università di Bologna

02.025 **SUMOylation: A new neuroprotective target for Parkinson's disease?** Soares ES, Junqueira SC, Zanella CA, Mansur DS, Prediger RDS, Cimarosti HI UFSC

02.026 **Nicotinic α7 receptor controls acetylcholine spillover from the rat motor endplate during high frequency nerve firing**. Santana LMC, Silva CRA, Prado WA, Matos JBAGN, Sá PC UEM

02.027 **Structure-activity relationships, molecular docking and biological evaluation of sulfonamides on the memory of animals with Alzheimer's disease**. Souza MM[1], Andreolla MCA[1], Souza AS[2], Ferreira LLG[3], Andricopulo AD[2], Brighente IMC[2], Yunes RA[4], Nunes R[4], Oliveira AS[4] [1]Univali, [2]Unifesp, [3]UFSCar, [4]UFSC

02.028 **Zika virus neuroinfection impairs Dentate-CA3 hippocampal synaptic plasticity in adult mice**. Neves GA, Castro NG, Figueiredo CP, Aragão FB, Neris RLS, Souza INO, Miranda IA, Clarke J, Poian AT, Ferreira ST UFRJ

02.029 **Study of the participation of nitrergic neurotransmission in the lateral prefrontal cortex in cardiovascular responses by acute restraint stress in rats**. Alves FHF[1], Goulart MTG[1], Crestani CC[2], Busnardo CB[2], Corrêa FMA[3] [1]UFLA, [2]Unesp-Araraquara, [3]USP

02.030 **Evaluation of anti-neuroinflammatory effect of a standardized extract of** *Amburana cearensis* **in a microglial cell line**. Azul FVCS, Machado de Jesus N, Araújo AB, Ferreira MKA, Norberto JN, Sousa JAC, Almeida TS, Leal LKAM UFC

02.031 **The ventral medial prefrontal cortex CRF1 receptor modulates the tachycardic activity of the baroreflex**. Brufatto JPT[1], Uliana DL[2], Resstel L[3], [3]Lagatta DC, Silva EMF[3], Assis ABB[3] [1]USP, [2]University of Pittsburgh, [3]FMRP-USP

02.032 **Crack cocaine affects larval development, motility and female fertility in** *Drosophila melanogaster*. Brito IRR, Santos JF, Angelo LKGA, Araújo LA, Castro OW, Silva Filho EA, Rodarte RSR UFAL

02.033 **Increased glucose availability reduces neuronal activity in hippocampus, subiculum and thalamic nuclei after status epilepticus**. Santos JF[1], Melo IS[1], Santos YMO[1], Pacheco ALD[1], Costa MDA[1], Oliveira KB[1], Brito IRR[1], Duzzioni M[1], Sabino-Silva R[2], Borbely AU[1], Castro OW[1] [1]UFAL, [2]UFU

02.034 **Pharmacological validation of a new animal model of anxiety in mice: A Single subconvulsant dose of pilocarpine**. Vieira MPS[1], Souza FMA[1], Santos Neto JG[1], Silva OBS, Souza GF[1], Correia WBZGB[1], Duarte FS[2], Lima TCM[3], Duzzioni M[1] [1]UFAL, [2]UFPE, [3]UFSC

02.035 **Solutol® HS 15 has anticonvulsant and neuroprotective actions in an experimental model of temporal lobe epilepsy**. Paulino PAT, Arroxelas-Silva CL, Conceição-Silva GF, Santos ED, Pereira-Silva W, Castro OW, Gitaí DLG UFAL

02.036 **Maternal crack cocaine use in rats alters depression, anxiety-like behavior, memory impairment and seizure susceptibility in offspring**. Pacheco ALD, Melo IS, Santos JF, Costa MA, Souza FMA, Santos YMO, Silva BRM, Oliveira KLS, Santos Neto JG, Borbely AU, Duzzioni M, Castro OW UFAL

03. Psychopharmacology

03.015 **The** *in vitro* **effect of the antipsychotic quetiapine on inflammation is dependent on the initial state of macrophages**. Turra BO[1], Nerys DAO[1], Braun LE[1], Azzolin VF[1], Teixeira CF[1], Lima PASP[2], Chitolina B[1], Ribeiro EE[1], Motta JR[1], Praia RS[1], Cruz IBM[1], Barbisan F[1] [1]UFSM, [2]PUC-RS

03.016 **Effect of the environment on the re-exposure to ethanol in mice treated with ibogaine in the ethanol-induced conditioned place preference (CPP) paradigm**. Santos AA, Henriques GM, Kisaki ND, Leite JPC, Machado EBO, Macêdo LEL, Marinho EAV, Lima AJO UESC

03.017 **Early and late behavioral and biochemical consequences of ethanol withdrawal: focus on indoleamine 2,3 dioxygenase activity**. Santos LC[1], Ayres D[1], Pinto I, Silveira M[1], Dantas R[1], Albino M[1], Lima R[1], André E[2], Tirapelli C[3], Padovan C[3], Gavioli EC[1], Rachetti V[1] [1]UFRN, [2]UFPR, [3]USP

03.018 **Chronic treatment with venlafaxine in stressed mice up-regulates CB1 expression in the hippocampus but produces its behavioral effects in a CB1-independent manner**. Araújo MR, Scarante FF, Scomparin DS, Guimarães FS, Campos AC FMRP-USP

03.019 **Involvement of TRPA1 in a model of depression induced by corticosterone in mice**. Santos BM, Pereira GCP, Bochi GV UFSM

03.020 Pharmacological treatments for cocaine addiction needs a selective approach. Anesio A, Yokoyama TS, Zaniboni CR, Palombo P, Bertagna N, Cruz FC Unifesp

03.021 Cannabidiol attenuates orofacial dyskinesia and cognitive impairment induced by haloperidol in mice via PPARγ receptors. Sonego AB, Prado DS, Guimarães FS FMRP-USP

03.022 Cannabidiol and 7-nitroindazol reverse the behavioral changes induced by an animal model of PTSD. Lisboa SFDS[1], Vila-Verde C[2], Uliana DL[3], Resstel L[2], Guimarães FS[2] [1]FCFRP-USP, [2]FMRP-USP, [3]University of Pittsburgh

03.023 Antidepressant-like effect of beta-caryophyllene in mice. Almeida FRC, Oliveira GLSO, Lopes EM, Reis Filho AC UFPI

03.024 Investigation of the rewarding effects of ibogaine and alcohol on a mouse conditioned place preference model. Kisaki ND, Henriques GM, Rodrigues IRS, Santana MCE, Coimbra JPSA, Moreira Júnior ECM, Marinho EAV, Berro LF UESC

03.025 Curve doses of ethanol administered orally in the conditioned place preference induction in male and female mice. Lins JF[1], Santos TB[1], Silva KSO[1], Santos ML[1], Leite JPC[1], Santana MCE[1], Rocha VN[1], Tamura EK[1], Lima AJO[1], Uetanabaro APT[1], Nicoli JR[2], Marinho EAV [1]UESC, [2]UFMG

03.026 Ayahuasca blocks the expression of methylphenidate-induced conditioned place preference in mice: Behavioral and Fos protein expression evaluations. Serra YA[1], Reis HS[1], Santos AA[1], Henriques GM[1], Rodrigues IRS[1], Lima AJO[1], Yokoyama TS[2], Cruz FC[2], Berro LF, Marinho EAV [1]UESC. [2]Unifesp

03.027 Effects of repeated methylphenidate treatment in mice´s childhood on place preference conditioning in their adult life. Leite JPC, Campos DO, Dias Júnior BC, Silva AA, Brito ACL, Pereira JLA, Marinho EAV, Lima AJO UESC

04. Inflammation and Immunopharmacology

04.030 Comparative study of T lymphocyte activity in different murine models of experimental Type 1 Diabetes mellitus. Queiroz LAD, Guimarães JPT, Assis JB, Sousa ESA, Martins JO, Sá-Nunes AD USP

04.031 Oleic acid into semisolid dosage forms reduces UVB-induced skin inflammation via glucocorticoid receptors. Pegoraro NS, Camponogara C, Cruz L, Oliveira SM UFSM

04.032 Uvaol attenuates inflammatory functions of macrophages by inhibits M1-like phenotype and NF-Kb signaling. Cavalcante-Araújo PM[1], Lagente V[2], Barreto E[1] [1]UFAL, [2]University of Rennes

04.033 ERK5 mediates TGF-β signaling and shapes autoimmune inflammation. Prado DS, Damasceno LEA, Ferreira RG, Rosa MH, Cunha TM, Cunha FQ, Ryffel B, Waisman A, Alves-Filho JC FMRP-USP

04.034 Purinergic signaling converts N-acetylserotonin into the pineal darkness hormone. Sousa KS, Quiles CL, Ferreira ZFS, Markus RP USP

04.035 A hydrogen sulfide (H_2S)-releasing dexamethasone derivative with antioxidant activity attenuates the development of atopic dermatitis in mice. Coavoy-Sánchez SA[1], Teixeira SA[1], Cerqueira ARA[1], Santagada V[2], Caliendo G[2], Costa SKP[1], Severino B[2], Muscará MN[1] [1]USP, [2]Università degli Studi di Napoli Federico II

04.036 Methyl cinnamate attenuates inflammatory and pathophysiological parameters in elastase-induced emphysema in mice. Carmo JOS[1], Nascimento LMPS[1], Correia ACC[2], Cartaxo TN[1], Ferro JNS[1], Barreto E[1] [1]UFAL, [2]UPE

04.037 Role of estradiol and progesterone on allergic lung inflammation previously induced in female obese mice. Umana ERP[1], Oliveira MA[1], Ribeiro MR[1], Moriya HT[2], Alves VF[1], Rigonati CA[1], Gama P[1], Lima LS[1], Scavone C[1], Oliveira-Filho RM[1], Vasquez YR[3], Lima WT, Prado CM[2] [1]ICB-USP, [2]USP, [3]King´s College

04.038 The effect of obesity and female sex hormones on the experimental asthma model with neutrophil predominance. Ribeiro MR[1], Oliveira MA[1], Umaña ER[1], Alves VF[1], Moriya HT[2], Sá-Lima LS[1], Scavone C[1], Riffo-Vasquez YR[1], Oliveira-Filho RM[1], Lima WT[1] [1]ICB-USP, [2]USP, [3]King´s College

04.039 Effects of treatment with the PGD2 receptor antagonist TM30089 on mouse allergic inflammation. Tavares EBG, Andre DM, Medeiros ML, Oliveira MG, Antunes E Unicamp

04.040 Protease-activated receptor (PAR)2 mediates LPS-induced pro-inflammatory repertoire in murine macrophages. Barra A, Brasil AF, Florentino RM, Leite MFL, Capettini LSA, Klein A UFMG

04.041 Inflammatory profile of first-episode psychosis: Preliminary findings on the interaction between cannabis consumption and childhood maltreatment. [1]Corsi-Zuelli F, [1]Marques L, [1]Roza DL, [1]Shuhama R, [1]Loureiro C, Menezes PR[2], [1]Louzada-Júnior P, [1]Del-Ben CM [1]FMRP-USP, [2]FM-USP

04.042 Paraprobiotics prevent the development of irinotecan-induced intestinal mucositis in mice. Nobre LMS, Cajado AG, Lopes MHS, Ribeiro LR, Geraix J, Wong DVT, Lima-Palheta Júnior RC UFC

04.043 Antitumor effects of macrophages activated by non-cytotoxic sulfated polysaccharides from brown algae *Dictyota caribaea*. Assef ANB[1], Celestino RCA[2], Santos GRC[1], Mourão PAS[2], Cinelli LP[2], Wilke DV[1], Teles FB[1] [1]UFC, [2]UFRJ

04.044 Role of toll-like receptor (TLR)3 in lung fibrosis triggered by silica particles in mice. Sa YAPJ[1], Ferreira TPT[1], Ribeiro NBS[1], Correa AMC[1], Oliveira TAL[1], Alves-Filho JCF[2], Hogaboam C[3], Martins MA[1], Martins PMRS[1] [1]Fiocruz, [2]FMRP-USP, [3]Cedars-Sinai

04.045 The H3/H4 receptor antagonist LINS01007 attenuates the effects of lung allergic response in murine model. Balbino AM Unifesp-Diadema, Fernandes JPSF, Corrêa MF, Lippi BK, Fernandes GAB, Negreiros NGS

04.046 Insulin modulates pulmonary allergic inflammation and increases pulmonary resistance in diabetic mice. Martins JO[1], Ferreira SS[1], Oliveira MA[2], Tsujita M[1], Casagrande FB[1], Gomes E[2], Russo M[2], Lima WT[2], Nunes FPB[1] [1]FCF-USP, [2]ICB-USP

04.048 AT1 Receptor blockade attenuates tissue destruction and bone volume loss in rats with experimentally-induced periodontitis. Ferreira C[1], Dionisio TJ[1], Souza GP[1], Colombini-Ishikiriama BL[1], Garbieri TF[1], Parisi VA[1], Oliveira GM[1], Oliveira SHP[2] [1]USP, [2]FOA-Unesp

04.049 Effect of Patchouli (*Pogostemon cablin*) essential oil on the zymosan-induced arthritis model. Silva-Filho SE[1], Maranhão IF[1], Hamaji MP[1], Cardia GF[2], Wiirzler LA[2], Silva-Comar FM[2], Bersani-Amado CA[2], Cuman RKN[2] [1]UFMS, [2]UEM

04.050 The effects of aging on the production of hydrogen sulfide (H_2S) in the murine skin. Teixeira SA[1], Gomes GL[1], Rodrigues L[1], Cerqueira ARA[1], Alves KB[1], Oliveira L[1], Nascimento N[1], Silva GB[1], Akamine E[1], Whiteman M[2], Muscará MN[1], Costa SKP[1] [1]USP, [2]University of Exeter

04.051 Mitochondrial pyruvate carrier regulates inflammation and fever in rats. Souza FHV, Guimarães NC, Alves DS, Gomes BRB, Vilela WR, Sousa MV, Bem AF UnB

04.052 *Platymiscium floribundum Vog* **decreases bone degradation and modulates the levels of inflammatory mediators during periodontitis in rats**. Freire JMO[1], Chaves HVC[1], Sousa NA[2], Teixeira AHT[1], Sousa LH[1], Pinto IR[1], Nascimento Júnior MV[1], Costa JJN[1], Portela LR[1], Lima MAS[1], Pimenta ATA[1], Bezerra MMB[1] [1]UFC-Sobral, [2]UFPI

04.053 Chitosan-based biomaterials benefit healing of lesions in rats. Pires CS, Souza AH, Gaissler V, Scholl S ULBRA

04.054 Down regulation of macrophages might contribute to the refractoriness of ACKR2 knockout mice to silica-induced chronic lung inflammation. Correa AMC[1], Dias DF[1], Oliveira TAL[1], Sa YAPJ[1], Simões RL[2], Barja-Fidalgo TC[2], Cyrino FZGA[2], Bouskela E[2], Martins MA[1], Martins PMRS[1] [1]Fiocruz, [2]UERJ

04.055 Study of the leishmanicidal activity of *Bauhinia forficata*, *Punica granatum*, *Eugenia uniflora*, **and** *Persea americana*. Nunes ICM, Ferreira SCA, Albuquerque LWN, Alves AA, Moreira MSA, Santos MS, Leite AB, Silva AE, Queiroz AC UFAL

04.056 Repeated exposures to polyinosinic-polycytidylic acid, a Toll-like receptor 3 agonist, causes glucocorticoid-insensitive airway hyper-reactivity and inflammation in A/J mice. Procópio CAM, Santana ACC, Sa YAPJ, Nascimento ALD, Gomes HS, Coutinho DS, Ferreira TPT, Martins PMRS, Martins MA Fiocruz

04.057 Characterization and membrane expression of Siglec receptors on human monocytes. Silva PCS, Formiga RO, Amaral FC, Spiller F UFSC

04.058 Effect of the Biochanin A on inflammatory in obese ovariectomized mice. Araújo LFLMF[1], Almeida RG[1], Araújo JMD[1], Santos WM[1], Camargo EA, Neres WS[1], Félix FB[2] [1]UFS, [2]UFMG

05. Pain and Nociception Pharmacology

05.013 Investigation of antinociceptive potential of synthetic 4-Aminoquinoline derivatives. Moura IG, Silva SMA, Viana MDM, Moreira MSA, Meneghetti MR, Campesatto EA UFAL

05.014 Mitochondrial dysfunction in a fibromyalgia-like symptoms model in mice. Brum ES[1], Fialho MFP[1], Hartmann DD[1], Gonçalves DF[1], Fischer SPM[1], Scussel R[2], Machado-de-Ávila RA[2], Dalla Corte CL[3], Soares FAA[1], Oliveira SM[1] [1]UFSM, [2]Unesc, [3]Unipampa

05.015 Correlation between metabolic syndrome and migraine: the role of adipokines and omega-3. Barbosa IR, Dagnino APA, Cunha GD, Campos MM PUC-RS

05.017 Synergy and Additivity Between Cannabinoidergic, Opioidergic and Adrenergic Systems in the modulation of peripheral nociception in mice. Lopes C[1], Santos-Silva T[2], Fonseca F[1], Castro-Júnior C[2], Romero T[2] [1]USP, [2]UFMG

05.018 Antioxidants antinociceptive effect in animal model of oxaliplatin-induced peripheral neuropathy is associated with decreasing oxidative damage and inflammation in the spinal cord. Agnes JP, Gonçalves RM, Delgobo M, Macedo SJ, Ferreira J, Zanotto-Filho A UFSC

05.019 The activation of cannabinoid receptors inhibits the development of oxaliplatin-associated neurotoxicity in mice. Pereira AF, Lisboa MRP, Alves BWF, Silva CMP, Dias DBS, Menezes KLS, Cesario FRAS, França JC, Oliveira AR, Alencar NMN, Lima-Júnior RCP, Vale ML UFC

05.020 Increase of kynurenine 3-monooxigenase in the spinal cord astrocytes mediates the maintenance of neuropathic pain. Maganin A, Souza GS, Lopes AHP, Silva RL, Gomes FIF, Alves-Filho JCF, Cunha FQ, Cunha TM FMRP-USP

05.021 Photobiomodulation in the treatment of inflammation and muscular pain. Oliveira CGDO, Chacur M, Giorgi R USP, IBu

05.022 Local effects of natural alkylamides from *Acmella Oleracea* and synthetic isobutylalkyl amide on neuropathic and postoperative pain models in mice. Werner MFP, Souza LMD, Maria-Ferreira D, Luz BB, Nascimento AM, Cipriani TR, Dallazen JL UFPR

05.023 Antinociceptive activity of Priprioca (*Cyperus articulatus* **var. nodosus L.**). Moraes WP[1], Pereira AMNP[1], Pires TM[1], Moraes JC[1], Almeida Júnior JS, Lopes JMC, Barata LESB, Saroratto AS[2] Ufopa, Unicamp

05.024 Activities of neurons and glial cells are increased after hyperalgesia induced by platelet releasate by mechanisms dependent on P2X7 purinergic receptors. Giorgi R[1], Bom AOP[1], Francisco KM[1], Campos ACP[2], Santoro ML[1], Pagano RDLP[2] [1]IBu, [2]Hospital Sírio Libanês

05.025 Therapeutic action of bergenin in an animal model of diabetic neuropathy. Almeida LS[1], Santos DS[1], Espírito-Santo RF[1], Nascimento OA[1], Juiz PJL[2], Alves CQ[1], David JM[1], David JPL[1], Soares MBPS[3], Villarreal CF[1] [1]UFBA, [2]UFRB, [3]CPqGM-Fiocruz

06. Cardiovascular and Renal Pharmacology

06.031 Endothelial dysfunction induced by inhibitors of gastric acid secretion. Lopes JMS[1], Nogueira RC[1], Parente JM[1], Paula GHO[1], Pinheiro LC[2], Castro MM[1], Santos JET[1] [1]USP, [2]EERP-USP

06.032 Itaconimides derivatives induce vasodilation, negative inotropism and hypotension. Moraes RA[1], Alves QL[1], Camargo SB[1], Medeiros CFA[2], Hora VRS[3], Jesus ADM[3], Cechinel-Filho V[4], Stiz DS[4], Corrêa R[4], Vasconcelos DFSA[3] [1]Fiocruz, [2]USP, [3]UFBA, [4]Univali

06.033 Omeprazole promotes vascular remodeling via upregulation of xanthine oxidoreductase and Matrix Metalloproteinase-2 Activity. Nogueira RC[1], Pinheiro LC[2], Lopes JMS[1], Parente JM[1], Conde SO[3], Paula GHO[1], Castro MM[3], Santos JET[3] [1]USP, [2]EERP-USP, [3]FMRP-USP

06.034 Renal vascular reactivity in sepsis: A putative mechanism for sepsis-induced kidney failure. Rosales TO, Nardi GM, Assreuy J UFSC

06.036 *In vitro* **vasorelaxant activity of the mitochondria-targeted hydrogen sulfide (H_2S)-donor AP39 on murine mesenteric artery rings**. Marques LAC[1], Teixeira SA[1], Torregrossa R[2], Whiteman M[2], Costa SKP[1], Muscara MNP[1] [1]ICB-USP, [2]University of Exeter

06.038 Inhibition of acetylcholinesterase promotes alterations on cardiovascular autonomic control and aortic vascular reactivity in L-Name-induced hypertensive rats. Cavalcante GL[1], Ferreira FN[1], Sousa MF[1], Lima JVO[2], Furtado MM[1], Alves Filho FC[1], Silva MTB[1], Arcanjo DDR[1], Sabino JPJ[1] [1]UFPI, [2]UNIFSA

06.039 Antiatherogenic effects of cyclic nucleotide modulators through NF-κB and p38 MAPK Inhibition in aortas of hypercholesterolemic rats. Motta NAV[1], Lima GF[1], Lopes RO[1], Mendes ABA[2], Autran LJ[1], Brazão SC[1], Marques EBM[1], Kümmerle AEK[3], Barreiro EJB[2], Scaramello CBVS[1], Brito FCF [1]UFF, [2]UFRJ, [3]UFRRJ

06.040 **Influence of perivascular adipose tissue in vascular dysfunction of sepsis**. Barp CG, Benedet PO, Assreuy J UFSC

06.041 **IL-1RI contributes to endothelial dysfunction, vascular remodeling and oxidative stress in Angiotensin II-induced hypertension**. Fedoce AG, Pereira CA, Aguiar CAS, Parente JM, Gonzaga NDA, Tostes RCA, Carneiro FS FMRP-USP

06.042 **The flavonoid luteolin alters the production of prostanoids and nitric oxide by the venous endothelium**. [1]Assunção HCR, Cruz YMC[2], Bertolino J[1], Fernandes L[2] [1]Unifesp, [2]Unifesp-Diadema

06.043 **Are echocardiographic changes addressed to neonatal leptin treatment related to different biochemical profiles in female Wistar rats?** Souza KP, Pedro SS, Rocha NN, Scaramello CBV UFF

06.044 **Effect of carvacrol on monocrotaline induced pulmonary hypertension in rats**. Alves RMFR, Medeiros IA, Oliveira JCPL, Maciel PMP, Silva GNA, Santos PF, Azevedo FLAA, Gonçalves TAF UFPB

06.045 **Perivascular tissue regulates the relaxation of umbilical cord veins in different nutritional states**. Machado MR, Servian CDPS, Oliveira SCM, Filgueira FP, Costa RM, Lobato NS UFG

06.046 **Combined inhibition of AT1 receptor and advanced glycation end products in the diabetic nephropathy**. Flores EEI, Pereira ENGS, Silvares RR, Rodrigues KL, Araújo BPD, Martins CSM, Daliry A Fiocruz

06.047 **Chronic ouabain administration modulates cardiac and renal membrane lipid content in rats**. Quintas LEM[1], Garcia I[2], Feijó P[1], Araújo W[2], França-Neto A[3], Rossoni L[3], Barbosa L[2], Santos H[2] [1]UFRJ, [2]UFSJ, [3]USP

06.048 **Anticontractile effect of perivascular adipose tissue is enhanced by stimulated hydrogen sulfide formation and is ATP-sensitive potassium channel-dependent in hypertensive pregnant rats**. Tozzato GPZ, Polonio LCC, Paula ES, Dias Júnior CA Unesp-Botucatu

06.049 **The acute hypotensive and vasorelaxation effects of S-nitrosoglutatione has no involvement of cyclooxygenase pathway**. Paula TC, Ferreira GC, Batista RIM, Santos JET FMRP-USP, USP

06.050 **Hyperglycemia induces apoptosis of HEK 293 cells by reducing Nrf2 activity and oxidative stress**. Costa RM[1], Silva JLM[1], Alves JV[2], Tostes RCA[2] [1]UFG, [2]FMRP-USP

06.051 **Hypotensive and vasorrelaxant effect of (-)-myrtenol in hypertensive rats**. Mendes Neto JM, Maia MIA, Silva EAP, Feitosa MBJ, Santos SA, Amaral RG, Santos SL UFS

06.052 **Potential effects of Matrix Metalloproteinase (MMP)-2 on the Sarcoplasmic Reticulum Calcium ATPase (SERCA) in hypertension-induced vascular dysfunction**. Silva PHL[1], Mello MMB[1], Parente JM[1], Schulz R[2], Castro MM[1] [1]USP, [2]University of Alberta

06.053 **Protective effect of (-)-alpha-bisabolol in a model of acute kidney injury by ischemia-reperfusion** *in vitro*. Costa IV, Silva BP, Sampaio TL, Magalhães EP, Menezes RRPPB, Martins AMC UFC

06.054 **Evaluation of the activity of SPRM12 on α-adrenergic receptors and sex-related differences**. Silva SB, Alves SML, Silva WFP, Anjos JV, Araújo AV UFPE

06.055 **Different pharmacological effect of SPRM09 on α-adrenergic receptors of male and female rats**. Alves SML, Silva SB, Silva WFP, Anjos JV, Araújo AV UPE e UFPE

06.056 **Pharmacological effects of β-methylphenylethylamine on isolated rat aorta**. Pinheiro CG, Magalhães PJC, Oliveira DMN, Silva CAO, Gadelha KKL, Camilo KLA, Silva KL, Carvalho EF, Silva AAV UFC

06.057 **Indol-3-Carbinol lowers blood pressure and improves vascular function in hypertensive rats**. Arruda AVD[1], Cabral B[2], Gonçalves TAF[1], Rezende MSA[1], Oliveira JCPL[1], Azevedo FDLAA[1], Veras RC[1], Medeiros IA[1], Araújo IGA[1] [1]UFPB, [2]UFRN

07. Endocrine, Reproductive and Urinary Pharmacology

07.012 **The multidrug resistance protein inhibitor, MK571 reduces prostate smooth muscle contractility from obese mice and patients with benign prostatic hyperplasia**. Bertollotto GM, Oliveira MG, Passos GR, D´Ancona CA, Antunes E, Mónica FZ Unicamp

07.013 **TRPM8-activation improves the responsiveness of erectile tissue: A cool receptor with a cool activity**. Jesus RLC[1], Araújo FA[2], Vasconcelos DFSA[1] [1]UFBA, [2]CPqGM-Fiocruz

07.014 **Effects of growth hormone on the motility of murine macrophages during aging**. Porto FL, Reis MDS, Marques ALX, Borbely KS, Mendonça BS, Menezes CA, Smaniotto S UFAL

07.015 *In vitro* **sertraline effects on rat distal cauda epididymis contraction**. Melo AB, Samala M, Mateus F, Pontes THA, Gomes LTC, Gavioli EC, Silva Júnior ED UFRN

07.016 **Seminal vesicle-secreted protein 2 (SVS2) reduces the motility of mouse spermatozoa** *in vitro*. Andrade JJ, Mariani NAP, Silva AAS, Andrade ADA, Raimundo TRF, Kushima HK, Silva EJRS Unesp-Botucatu

07.017 **Impact of antenatal dexamethasone treatment on cellular and molecular events during Wolffian duct morphogenesis**. Sousa MED, Ribeiro CMR, Avellar MCW Unifesp-EPM

07.018 **Lipopolysaccharide reduces urethral smooth muscle contractility independently of TLR4 activation: Implication of caspase-1 and cyclooxygenase activation**. Calmasini FB[1], Alexandre EC[1], Oliveira MG[1], Silva FH[1], Soares AG[2], Costa SKP[2], Antunes E[1] [1]Unicamp, [2]USP

07.019 **Diuretic and renal protective effect of two natural xanthones in normotensive and hypertensive rats**. Souza P[1], Mariano LNB[1], Boeing T[1], Silva RCMVA[1]F, Cechinel-Filho V[1], Niero R[1], Silva LM[2], Andrade SF[1] [1]Univali, [2]UFPR

07.020 **Evaluation of benznidazole on epididimary sperm of mice**. Mazaro-Costa R[1], Barbosa CCB[1], Nishimura ANN[1], Araújo AA[1], Carn CMC[2], Pinto LSRP[2] [1]UFG, [2]UFOP

07.021 **Atomic force microscopy and raman spectroscopy identification of biophysical and biochemical differences of trophoblast cells treated with uvaol to ameliorate Group B streptococcus deleterious effects**. Tenório LPG[1], Silva ECOS[2], Marques ALX[1], Allard MJ[2], Bergeron JDB[1], Sebire G[2], Souza ST[1], Fonseca EJS[1], Borbely AU[1], Borbely KS[1] [1]UFAL, [2]Université de Montréal

07.022 **Investigating the mechanism of action and function of innate immunity components in the morphogenesis of the epididymis**. Nishino FA, Ferreira LGA, Ribeiro CM, Avellar MCW Unifesp-EPM

08. Respiratory and Gastrointestinal Pharmacology

08.015 **Essential oil of** *Dysphania ambrosioides* **L exhibits negative modulation of peristaltism and antisecretory effects in gastrointestinal tract of mice**. Lima JVO[1], Cavalcante GL[2], Sousa CFAJ[2], Sousa RGC[2], Figueredo JS[2], Oliveira GR[1], Britto MHRM[2], Sousa JAD[1] [1]UNIFSA, [2]UFPI

08.020 Evaluation of antidiarrheal and gastroprotective activity of α-asarone in animal models. Serafim CAL, Alves Júnior EB, Pessoa MLS, Batista LM UFPB

08.021 Evaluation of the gastroprotective activity of a pharmaceutical form with extract from the leaves of *Spondias mombin*. Araruna MEC[1], Santos VL[2], Medeiros ACD[2], Medeiros FD[2], Rêgo RIA[2], Silva PR[2] [1]UFPB, [2]UEPB

08.022 The study of the possible effect from the *Melissa officinalis* **ethanolic extract on the gastrointestinal secretion of Mus muscullus**. Sousa CFAJ[1], Sousa RGC[1], Lima JVO[2], Oliveira GRD[2], Ferreira LVA[2], Oliveira IS[3], Britto MHRM[2], Sousa JA[2] [1]UFPI, [2]UNIFSA, [3]Facid

08.023 Treatment with L-cysteine ameliorates oral mucositis induced by 5-fluorouracil in hamsters. Oliveira AP[1], Fonseca KM[1], Sousa FBM[2], Carvalho JL[1], Lopes ALF[1], Costa MDR[3], Silva VF[3], Silva BM[3], Leitão RFC[3], Cerqueira GS[3], Medeiros JVR[1] [1]UFPI, [2]UniNassau, [3]UFC

08.024 Polymeric nanoparticles as a sodium alendronate release vehicle in rats: effective study and gastrointestinal toxicity. Iles B, Pacheco G, Nolêto IRSG, Sousa GC, Oliveira ACP, Alencar MS, Araújo AR, Dourado FF, Ribeiro FOS, Silva DA, Medeiros JVR UFPI

08.025 Anti-inflammatory and antibacterial activities of new substituted n-acylidrazonic derivatives. Ramos KRLP[1], Borba EFO[1], Silva JDAG[1], Sousa RS[1], Santos VL[2], Moura RO[2], Silva TG [1]UFPE, [2]UEPB

08.026 An optimized method to evaluate expectorant drugs in mouse model. Menezes PMN[1], Brito MC[2], Sá PGS[2], Ribeiro LAA[2], Rolim LAR[2], Silva FS[2] [1]Renorbio, [2]UNIVASF

08.028 Metformin promotes gastroprotection on alendronate-induced gastric damage in normoglycemic and hyperglycemic rats. Nolêto IRSG[1], Iles B[1], Alencar MS[1], Lopes ALF[1], Oliveira AP[1], Pacheco G[1], Sousa FBM[2], Sousa NA[1], Chaves LS[1], Medeiros JVR[1] [1]UFPI, [2]UniNassau

08.029 Antidiarrheal activity of the ethanolic extract of *Terminalia fagifolia* **Mart & ZUCC in cholera toxin-induced diarrhea model**. Sousa IJO, Silva VG, Costa DS, Pacheco G, Gomes JPS, Medeiros JVR, Meneses Oliveira RC UFPI

08.030 Vascular alterations induced by experimental asthma. Castro PFS[1], Clemente LP[1], Abreu LB[1], Ribeiro MTL[2], Rocha ML[2] [1]UEG, [2]UFG

08.031 Protective effect of *Lonchocarpus araripensis* **lectin in the mechanical respiratory dysfunction induced by polymicrobial sepsis in rats**. Pires AF[1], Silva DHM[2], Assreuy AMS[2], Belo LMC[1], Rebouças BDS[2], Lopes MR[2], Laranjeira EPP[1], Sousa ARC[2], Holanda AAC[1], Cavalcante FSA[2], Cavada BSC[3] [1]Estácio, [2]UECE, [3]UFC

08.032 Adenosine receptors blockage potentiates the relaxant effects of β2-adrenoceptor agonists in rat tracheal smooth muscle. Pacini ESA, Freitas BA, Godinho RO Unifesp-EPM

08.033 Mechanisms of action involved in the anti-motility effect of (-) - fenchone in mice. Silva LMO, Silva AO, Alves Júnior EB, Serafim CAL, Pessoa MLS, Araruna MEC, Batista LM UFPB

08.034 Evidence that treatment with NaHS (A Hydrogen Sulfide Donor) ameliorates oral mucositis induced by 5-fluorouracil in hamsters. Pinho SS[1], Carvalho JL[1], Fonseca KM[1], Sousa FBM[2], Oliveira ACP[1], Sousa GC[1], Oliveira AP[1], Araújo AKS[1], Lopes ALF[1], Medeiros JVR[1] [1]UFPI, [2]UniNassau

08.035 **Antioxidant effect of McLTP1 in the experimental model of intestinal mucosite induced by irinotecan**. Costa AD, Carmo LDD, Rangel GFP, Campos DCO, Costa AS, Oliveira HD, Alencar NMN, Rabelo LMA, Duarte RS UFC

08.036 **Polymeric nanoparticles carried with bixin prevent pulmonary oxidative stress and inflammation induced by cigarette smoke in murine model**. Figueiredo Júnior ATF, Lanzetti MLDD, Valença SS, Finotelli PV, Anjos FF UFRJ

08.037 **Eugenol modulates rat alveolar macrophages activity exposed to cigarette smoke**. Oliveira MCB[1], Gonçalves MH[1], Silva FAC[1], Lanzetti M[2], Valença SS[2], Silva FS[1], Lima EKF[1] [1]UFERSA, [2]UFRJ

09. Natural Products and Toxinology

09.043 **Bioactive Fraction of** *Eugenia selloi* (**Pitangatuba**), **a Brazilian native superfruit, decrease the inflammatory process by suppress the NF-κB activation**. Lazarini JG[1], Soares JC[2], Franchin M[1], Nani BD[1], Massarioli AP[2], Alencar SM[2], Rosalen PL[1] [1]Unicamp, [2]USP

09.046 **Effect of the mixture of Triterpenes alpha, beta-amyrin in the prevention of non-alcoholic fatty disease in mice**. Lima RP[1], Nunes PIG[1], Viana AFSC[1], Oliveira FTB[1], Silva RAC[1], Freire GP[1], Silva AVL[1], Moreira TS[1], Carvalho AA[2], Chaves MH[2], Santos FA[1] [1]UFC, [2]UFPI

09.047 **Brazilian Red Propolis - HPLC Characterization and Perspectives for Use In Periodontal Diseases**. Alves AKS, Silva IMA, Nascimento TG, Penteado LAM, Porto ICCM UFAL

09.048 **Mechanistic clues of cardioprotective actions induced by hydroalcoholic extract from leaves of** *Alpinia zerumbet* **on myocardial infarction in rats**. Bernardino AC, Paulino ET, Silva JCG, Rodrigues AKBF, Oliveira KRV, Machado MLDP, Vieira SP, Oliveira WS, Santos JCC, Araújo Júnior JX, Ribeiro EAN UFAL

09.049 **Antioxidant potential of** *Maclura tinctoria* **heartwood extract using Rhamdia quelen experimentally infected with** *Aeromonas hydrophila*. Rodrigues P[1], Pires LC[1], Souza CF[1], Coldebella R[1], Garlet QI[2], Pedrazzi C[1], Baldisserotto B[1], Heinzmann BM[1] [1]UFSM, [2]FURG

09.050 **Effect of essential oil of** *Alpinia zerumbet* **on vascular reactivity of isolated rat resistance arteries**. Rocha DG, Holanda TM, Silveira JAM, Maia PHF, Moraes MEA, Fechine-Jamacaru FV, Moraes Filho MO UFC

09.051 **Braylin-induced relaxant effect in the corpus cavernosum involves NO/sGC pathway**. Araújo FA[1], Jesus RLC[2], Costa RS[2], Souza Filho OP[2], Velozo ES[2], Vasconcelos DFSA[2] [1]CPqGM-Fiocruz, [2]UFBA

09.052 **Study of the yield and evaluation of the acute toxicity of the essential oil of** *Piper marginatum* **Jacq in mice**. Lopes DCC, Pereira KDS, Sousa KTS, Castro KCF, Moraes TMP, Moraes WP, Lopes JMC, Moraes JC Ufopa

09.053 **Therapeutic potential of a physalin-rich** *Physalis angulata* **extract in a mouse model of periodontal disease**. Lauria PSS[1], Vieceli PS[1], Juiz PJL[2], Pereira RR[1], Couto RDC[1], Nogueira RC[3], Tomassini TCB[4], Ribeiro IM[4], Soares MBP[3], Villarreal CF[1] [1]UFBA, [2]UFRB, [3]CPqGM-Fiocruz, [4]Fiocruz

09.054 **Antioxidant activity-mediated neuroprotective effects of the novel ocellatins, a class of peptides from the skin secretion of the South American frog**, *Leptodactylus vastus*. Sousa NA[1], Oliveira GAL[1], Oliveira AP[1], Lopes ALF[1], Iles B[1], Araújo AR[1], Araújo TSLA[1], Nogueira KM[2], Placido A[3], Portugal C[3], Socodato R[3], Relvas J[3], Eaton P[3], Leite JRSA[4], Medeiros JVR[1] [1]UFPI, [2]UFC, [3]Universidade de Lisboa, [4]UnB

09.055 Larvicida and antioxidant activities of semi-purified samples of *Eplingiella fruticosa* Salzm. Ex. Bent leaves. Souza JD[1], Shan AYKV[2], Graça AS[1], Moraes SZC[1], Almeida SM[1], Mota DCS[1], Lima MRF[2], Santana AEG[2], Araújo SMS[1], Mota KO[2], Santos A[1], Araújo BSA[1], Souza SBS[3], Estevam CDS[1] [1]UFS, [2]UFAL, [3]Unit

09.056 *In vitro* activity of a hydric extract of *Physalis angulata* against *Trypanosoma evansi*. Povaluk AP, Cabral PFA, Borges GK, Miletti LC, Bastos-Pereira AL UESC

09.057 Phytochemical profile and cytotoxicity of the organic extracts from *Miconia pyrifolia* Naudin on leukemia cells. Borba EFO, Sousa RS, Silva JAG, Princival IMRG, Nerys LLA, Pereira PS, Lima GMD, Ramos KRLP, Leite TCC, Silva TG UFPE

09.058 Evaluation of the antinociceptive activity of *Cissus gongylodes* (BAKER) Planch. fractions in mice. Calazans MO, Perez ADC UFMG

09.059 Cardiovascular effects of d-limonene in rats. Santos MRV[1], Nascimento GA[1], Souza DS[1], Vasconcelos CML[1], Lima BS[1], Araújo AAS[1], Durco AO[1], Quintans-Júnior LJ[1], Almeida JRGS[2], Oliveira AP[3], Barreto AS[1], Santana-Filho VJ[1] [1]UFS, [2]UNIVASF, [3]UFPI

09.060 *Euterpe oleracea* Mart. (açaí) extract downregulated renin angiotensin-system expression in visceral adipose tissue of obese mice. Bem GF, Barcellos I, Romão MH, Silva DLB, Soares RA, Oliveira BC, Ognibene D, Soares de Moura R, Costa CA, Resende AC UERJ

09.061 Study of estrogenic and antiestrogenic activity and reproductive toxicity in female rats treated with ethanol extract of *Ipomoea carnea*. Fernandes MZLCM, Silva MCSS, Fernandes MLM, Fernandes MLM, Costa LB, Barbosa JGC, Borba MMP, Cardoso JFSC, Mineiro ALBB UFPI

09.062 Antiulcerogenic activity of the dry extract of pods of *Libidibia ferrea* Mart. ex Tul. (Fabaceae). Wanderley AG[1], Prazeres LDKT[1], Aragão TP[2], Brito SA[3], Almeida CLF[4], Silva AD[1], Damasceno BPGL[5], Rolim LA[4] [1]UFPE, [2]UPE, [3]FSM, [4]UNIVASF, [5]UEPB

09.063 Loss of adhesion contributes to antimetastatic activity of proteases from *Vasconcellea cundinamarcensis* latex in murine melanoma. Dittz D[1], Nunes IP[2], Souza MK[2], Salas CE[2], Lopes MTP[2] [1]UFPI, [2]UFMG

09.064 Sulfated polysaccharide fraction from marine algae *Gracilaria caudata* reduces mechanical hypernociception and inflammation during experimental arthritis in mice. Silva RO[1], Nascimento FG[2], Oliveira FFB[3], Bingana RD[3], Carmo LD[3], Chaves LS[3], Barros FCN[3], Barbosa ALDR[4], Freitas ALP[3], Soares PMG[3], Souza MHLP[3], Medeiros JVR[4] [1]UFPE, [2]INTA, [3]UFC, [4]UFPI

09.066 Vasoprotective effects of piridoxamine, an inhibitor of advanced glycation end-products, in non-alcoholic fatty liver disease associated liver microcirculation disturbances. Silvares RR, Pereira ENGS, Rodrigues KL, Flores EEI, Daliry A Fiocruz

09.067 *Ilex Paraguariensis*: A possible strategy to prevent Parkinson's disease. Chitolina B, Barbisan F, Turra BO, Rosa TSM, Azzolin VF, Silveira AF, Cunha BSN, Ribeiro EE, Ribeiro EAM, Praia RS, Cruz IBM UFSM

09.070 Locomotor activity of *Maclura tinctoria* sapwood ethanolic extractin fish. Barbosa LB, Rodrigues P, Pires LC, Ferrari FT, Coldebella R, Pedrazzi C, Baldisserotto B, Heinzmann BM UFSM

09.071 Cardiovascular effects induced by fractions of extract of leaves from *Pereskia aculeate miller* in Spontaneously Hypertensive Rats. Lopes AAA[1], Paulino ET[1], Rodrigues AKBF[1], Bernardino AC[1], Silva JCG[1], Oliveira KRV[1], Machado MLDP[1], Pinto NC[2], Scio E[2], Ribeiro EAN[1] [1]UFAL, [2]UFJF

09.072 Anti-inflammatory effects and acute toxicity investigation of *Campomanesia xanthocarpa* Berg. Seeds. Scatolin M[1], Petry F, Dall'Orsoletta BB[1], Anzollin G[1], Guzatti JGG[1], Morgan LV[1], Alves BO[1], Scapinello J[1], Oliveira JV[2], Dal Magro J, Müller LG [1]Unochapecó, [2]UFSC

09.073 Vasorelaxant effect induced by coumarins in the superior mesenteric artery. Brito DS[1], Vasconcelos DFSA[1], Alves QL[1], Araújo RSA[2], Barbosa Filho JM[3] [1]UFBA, [2]UEPB, [3]UFPB

09.074 Anti-HIV potential for *Bidens pilosa* (Asteraceae). Araújo AO[1], Carvalho SNPB[1], Ferreira RCS[1], Fonseca SA[2] [1]UFAL, [2]Cesmac

09.075 Comparison between the action of pyocyanin on the adhesion of *Escherichia Coli* UFPEDA 224 and *Staphylococcus Aureus* UFPEDA 02. Oliveira BTM, Dourado TMH, Silva ACL, Travassos RA, Vasconcelos UVRG UFPB

09.076 Antioxidant and anticholinesterase effects of *Syzygium cumini*. Borba LA[1], Wiltenburg VD[2], Santos LD[1], Negri G[3], Mendes FR[3] [1]Unesp, [2]UFABC, [3]Unifesp

09.077 Brazilian contribution to Toxinology: A Pharmaceutical perspective. Ferreira JPB, Pereira LL, Ovider IC, Sampaio TL UFC

09.078 Evaluation of antiparasitary activity using microemulsion of hydroethanolic extract of *Genipa americana* L. Souza SBS[1], Estevam CDS[2], Santos SB[2], Mota KO[3], Santos LC[2], Silva AS[2], Santos PAL[2], Santos AM[2], Araújo BS[2], Texeira KCS[2], Dolabella SS[2] [1]Unit, [2]UFS, [3]UFAL

09.079 Evaluation of toxicity and healing potential of the essential oil from the leaves and stem of *Eucalyptus saligna* Sm. (Myrtaceae) in fibroblasts. Pontes FL, Nascimento IRC, Ameida IT, Santos MC, Carmo JOS, Ferro JNS, Campessato EA, Moura IGD, Moreira MSA, Silva Neto GJ UFAL

09.080 The hydroethanolic extract of vaccinium macrocarpon fruit (cranberry) reduces cutaneous inflammation in mice. Freire KS, Oliveira AS, Andrade AV, Carvalho MBT, Santana DG, Biano LS, Camargo EA UFS

09.081 Bioprospection of molecules with anticancer potential from microorganisms associated to the *Ascidian Euherdmania* sp. from the Ceará coast. Nogueira CN, Wilke DV, Florêncio KGD, Pinto FCL, Pessoa ODL, Canuto KM, Ribeiro PRV UFC

09.082 Sulphated polysaccharide from *Acanthophora spicifera* modulates oxidative stress and enhances defense mechanisms to prevent gastric damage in mice. Nascimento FGD[1], Damasceno SRB[2], Calixto SIS[2], Pereira Júnior LDC[2], Lima GC[2], Soriano EM[3], Freitas ALP[2], Soares PMG[2], Souza MHLP[2], Medeiros JVR[4], Silva RO[5] [1]INTA, [2]UFC, [3]UFRN, [4]UFPI, [5]UFPE

09.083 (-)-Myrtenol Decreases Orofacial Inflammation and Nociception in Mice. Oliveira JP[1], Abreu FF[1], Bispo JMM[1], Soares AG[2], Cerqueira ARA[2], Santos JR[1], Costa SKP[2], Camargo EA[1] [1]UFS, [2]USP

09.084 Optimization of the process of extraction of polyphenolic compounds from the stem bark of *Mimosa tenuiflora* (Willd.) Poiret. Santos MA, Morais SA, Santos J, Soletti JI, Balliano TL UFAL

10.015 Cytotoxic potential of pacharin and bauhiniastatin-1 isolated from Bauhinia sp. on tumor cells. Souza SMD[1], Militão GCG[1], Bezerra DP[2], Santiago GMP[3], Gois RWS[3], Andrade PGF[1], Souza JLC[1], Silva VR[2], Santos LDS[2] [1]UFPE, [2]UFBA, [3]UFC

10.016 Melatonergic System, but NOT Melatonin Content, Determines Differences in the Viability of Human Urothelial Carcinoma Cell Lines. Quiles CL, Moreno MOC, Muxel SM, Kinker GS, Fernandes PACM, Markus RP USP

10.017 Antimigratory effect of a synthetic sulfonamide chalcone in metastatic melanoma cells (B16-F10). Araújo GS[1], Moura AF[1], Barros AB[1], Castro MRC[2], Peres CN[2], Marinho Filho JDB[1], Araújo AJ[1] [1]UFPI, [2]UFG

10.018 Modulation of short-chain free fatty acid receptors FFA2 and FFA3 in breast cancer cells. Muradás TC, Campos MM PUC-RS

10.020 Essential oil of *Schinus terebinthifolius Raddi* **leaves inhibits the growth of tumor in mice transplanted with sarcoma 180**. Graça AS, Almeida SM, Mota DCS, Amaral RG, Santos SA, Menezes Filho RO, Souza JB, Moraes SZC, Nogueira PCL, Carvalho AA, Shan AYKV, Araújo BS, Estevam CDS UFS

10.021 The expression of cytoplasmic CCR7 (CCR7c) and mTOR associates with tumor relapse to chemotherapy and lower overall survival in Triple Negative Breast Cancer (TNBC). Cajado AG[1], Gurgel DC[2], Gomes-Filho JV[1], Pereira AC[1], Bandeira AM[1], Torres CS[1], Borges LFC[1], Pereira JFB[1], Uchôa PLO[1], Ferreira LMM[1], Silva PGB[1], Távora FR[1]F, Wong DVT[1], Almeida PRC[1], Lima-Júnior RCP[1] [1]UFC, [1]ICC

10.022 Systemic risk analysis of a rich antitumoral fraction in clerodanic diterpenes. Amorim VR[1], Santos DB[1], Bolzani VS[2], Cavalheiro AJ[2], Machado KC[1], Almeida AAC[1], Silva JN[1], Sousa Neto BP[1], Ferreira PMP[1] [1]UFPI, [2]USP

10.023 Drugs safe association set to Neoplasis – Focus in pharmacokinetics investigation (Pilot Group). Godoy ALPC[1], Silva LP[1], Neves FMF[1], Silva ACSS[1], Yamamoto PA[2], Moraes NV[2], Machado MCA[1], Estrela-Lima A[1] [1]UFBA, [2]Unesp-Araraquara

10.024 Protective effect of *Senecio rhizomatus Rusby* **(Llancahuasi) ethanolic extract on 7, 12-dimethylbenz [a] anthracene (DMBA) induced breast cancer in female rats**. Acevedo JLA, Guerrero HJJ, Torres JC, Asmat RJC, Calderon OH, Figueroa MC, Heredia JM, Macedo EC, Bustamante CG, Sandoval JA Universidad Nacional Mayor de San Marcos

10.025 Citotoxic and antimigratory potential of methanolic, hydroalcoolic and hexanic extracts of leaves of *Montrichardia linifera* **(Arruda) Schott (Araceae)**. Pereira FIA, Pereira JIA, Silva DA, Barros AB, Marinho Filho JDB, Araújo GS, Araújo AJ UFPI

10.026 Evaluation of the cytotoxic and antitumour effects of the hydroalcoholic extract of Propolis Green. Araújo SMS, Menezes Filho RO, Mendes Neto JM, Graça AS, Moraes SZC, Souza JB, Amaral RG, Santos SA, Andrade LN, Carvalho AA UFS

10.027 Novel thiazacridine and imidazacrine derivatives and their binding behavior with bovine serum albumin. Tavares MAB, Souza GMM, Cavalcanti LAMN, Almeida SMV UPE

11. Clinical Pharmacology, Pharmacokinetics, Pharmacogenomics and Toxicology

11.011 **Biochemical effects of a two-week exposure to Aflatoxin B1 and aspartame to Wistar rats**. Silveira AR, Souto NS, Rosa EVF, Dassi M, Braga ACM, Vaz AA, Furian AF UFSM

11.012 **A study of the hypothalamic-pituitary-adrenal axis in depression and its genetic vulnerability**. Pereira SC[1], Figaro-Drumond FV[2], Menezes IC[1], Baes CW[1], Coeli-Lacchini FB[3], Juruena MFP[4], Lacchini R[2] [1]FMRP-USP, [2]EERP-USP, [3]FCFRP-USP, [4]King´s College

11.013 **Population pharmacokinetics of magnesium sulfate in pregnant women with preeclampsia**. Azeredo F[1], Costa T[2], Cunha MD[2], Ururahi M[2], Martins R[2], Oliveira A[2] [1]UFBA, [2]UFRN

11.014 **Limited sampling modeling for estimation of phenotypic metrics for CYP enzymes and the ABCB1 drug transporter using a cocktail approach**. Ximenez JPB[1], Coelho EB[1], Cusinato DAC[1], Lanchote VL[1], Suarez-Kurtz G[2] [1]USP, [2]INCa

11.015 **Pharmacokinetic assessment of two formulations of the anticancer drug Tamoxifen**. Suarez-Kurtz G[1], Ximenez JPB[2], Bello MA[1], Obadia RM[1], Iocken FHS[1], Lanchote VL[2] [1]INCa, [2]USP

11.016 **Validation of bioanalytical methodology and pharmacokinetic evaluation of Amphotericin B in Wistar rats**. Araújo JMS, Azeredo F, Santos VV, Pereira LC, Gomes CA UFBA

11.017 **Non-clinical toxicity of the cashew gum** (**a complex heteropolysaccharide extracted from the exudate of** *Anacardium occidentale* **L.**): **Absence of adverse effects in Swiss mice**. Oliveira ACP, Costa BNC, Araújo TSL, Pacheco G, Chaves LS, Pinho SS, Araújo AKS, Santos ES, Silva PC, Medeiros JVR UFPI

11.018 **Evaluation of the importance of therapeutic drug monitoring in a Teaching Hospital in Salvador- BA**. Santos LO, Carneiro TLGO, Noblat LACB, Azeredo F UFBA

11.019 **The importance of primary care and strategies used to improve adhesion to tuberculosis treatment**. Brandão CM, Fernandes G, Azeredo F UFBA

12. Drug Discovery and Development

12.010 **Cardioprotective effects induced by alpha-terpineol from** *Protium hepthaphyllum* **against myocardial infarction in rats**. Paulino ET[1], Rodrigues AKBF[1], Bernardino AC[1], Silva JCG[1], Machado MLDP[1], Oliveira KRV[1], Silva Júnior EF[1], Oliveira AP[2], Quintans-Júnior LJ[3], Ribeiro EAN [1]UFAL, [2]UFPI, [3]UFS

12.011 **Anticholinesterase-antimuscarinics**: **Study of dual agents aiming at application for Alzheimer's disease**. Guimarães MJR[1], Viegas Júnior CV[2], Castro NG[1], Neves GA[1], Romeiro LAS[3], Nascente LC[3] [1]UFRJ, [2]Unifal, [3]UnB

12.012 **Synthesis**, **structural characterization**, **and antioxidant activity evaluation by DPPH method of Palladium-Benzodiazepine derivatives**. Silva AV, Meneghetti MR, Correia WBZGB UFAL

12.013 **Cationic unilamellar liposomes as a drug carrier system to increase the efficiency of LQM168 - A Potential Antitumor Hybrid Molecule**. Lins SL, Santos PFD, Aquino TM, Abreu FC UFAL

12.014 **Synthesis**, **structural characterization**, **and evaluation of anticonvulsant and antioxidant activities of Diazepam-Palladium**(**II**) **complexes**. Correia WBZGB[1], Reys JRM[1], Oliveira MA[2], Gouveia DN[2], Quintans JSS[2], Quintans-Júnior LJ[2], Silva AMO[2], Gatto CC[3], Meneghetti MR[1] [1]UFAL, [2]UFS, [3]UnB

12.015 **Evaluation of the anti-inflammatory activity of sulphatate polymeracids of seaweed** *Hypnea musciformis*. Nascimento HG, Silva Junior PN, Soares VVM, Benevides NMB UFC

12.016 **Curcumin-nicotinamide cocrystal presents antinociceptive and anti-inflammatory activities in mice**. Zilli GAL[1], Alves BO[1], Morgan LV[1], Ribas MM[2], Lanza M[2], Aguiar GPS[1], Oliveira JV[2], Müller LG [1]Unochapecó, [2]UFSC

12.017 **Structure-based nucleosome binding peptides for controlling cell function**. Fernandes VA, Teles KT, Torres IT, Treptow WT, Santos GS UnB

12.018 *In vitro* **antiviral activity of crude and fractioned extracts of** *Hypnea musciformis* **against Zika virus**. Gomes MVSW, Souza TPMS, Silva SLOS, Brito IRR, Guedes EAC, Bassi EJ, Rodarte RS UFAL

14. Pharmacology: Other

14.011 **Toxicogenetic evaluation of hydroxyureia associated with ascorbic acid in allium cepa model**. Rêgo NTDS, Aguiar RPS, Melo APM, Marinho Filho JDB UFPI

14.013 **Nanogels for Topical Drug Delivery: Development and Influence of Composition on Cutaneous Permeability**. Mojeiko G, Lopes L ICB-USP

14.014 **Pleotropic effects of Simvastatin in an experimental model of non-alcoholic fatty liver disease**. Pereira ENGS, Martins CSM, Araújo BPD, Silvares RR, Flores EEI, Rodrigues KL, Daliry A Fiocruz

14.015 **Validation of alternative method for the content/potency assessment of Botulinum Toxin Type A**. Xavier B, Silva FS, Perobelli RF, Cardoso Júnior CDA, Cossetin LF, Escobar AF, Dalmora SL UFSM

14.016 **Antioxidant evaluation of hydroxiureia associated with ascorbic acid in model of** *Saccharomyce cerevisiae*. Marinho Filho JDB, Rêgo NTDS, Aguiar RPS, Melo APM UFPI

14.017 **Genotoxic, mutagenic and enzymatic evaluation of hydroxyurea associated with ascorbic acid**. Nascimento CC, Aguiar RPS, Melo AP, Marinho Filho JDB UFPI

14.018 **Pharmacotherapy review of hematologic patients followed by antimicrobial stewardship program in a teaching hospital**. Furtado IP, Freitas TC, Rodrigues ABF, Silva JCC, Pontes LB, Pereira CMP, Rodrigues JLN, Girão ES, Reis HPLC UFC

Lecture abstracts

Courses

Cell-based approaches in CNS (Abordagem baseada em célula no SNC). Carolina Demarchi Munhoz. Department of Pharmacology, Institute of Biomedical Sciences, University of Sao Paulo, SP-Brazil.

The proper functioning of the neuron-microglia-astrocyte triad is fundamental for the maintenance of the central nervous system (CNS), since neurodegenerative and aging processes may be related to a "defective" cellular interaction between neurons and glial cells. Activation and recruitment of glial cells are complex processes and require well-organized intercommunication between neurons and glia as well as between glial cells. The interconnectivity and the number of cells in specific brain regions could dictate the fate of such brain area after an insult. Also, the resilience of neurons could be particularly impacted in those contexts. Indeed, astrocytes in mixed, neuron- and astrocyte-enriched cultures have different responses to LPS and ischemic *in vitro* insults. In this activity, we will discuss the proof-of-concept of in vitro cell-based approaches that can provide helpful insights and potential treatment targets in distinct neurological and inflammatory diseases.

In vitro **and** *in vivo* **approaches to TBI** (*Abordagens* in vitro *e* in vivo *para o estudo do TCE*). Bonnie Firestein (Rutgers University, USA)

Traumatic brain injury occurs in approximately two million people each year. In Brazil, recent epidemiological studies demonstrate that traumatic brain injury results in considerable economic and health costs. For moderately and severely head injured patients, the long-term impairments are significant and a major contributor to traumatic brain injury morbidity. In contrast, most patients with mild traumatic brain injury recover within one year following the incident, but an estimated 10-15% of even these mild cases result in a long-term disability, including seizures, emotional and behavioral issues, and long-term neurodegenerative changes in the brain. Since traumatic brain injury includes injuries of multiple severities, there are several models in which to study the molecular mechanisms and drug targets for each type of traumatic brain injury. Here, I discuss the two main *in vitro* models of traumatic brain injury, stretch injury and glutamate-induced toxicity, and *in vivo* rodent models of traumatic brain injury, including lateral fluid percussion, weight drop, blast injury, and controlled cortical impact. These models can be modified to mimic mild, moderate, and severe traumatic brain injury. The models will be compared, and there will be discussion of the strengths and weaknesses of each model. For example, *in vivo* models are more expensive and variable while *in vitro* models are limited in their relevance to brain connectivity and effects on multiple central nervous system cell types. Overall, the use of multiple models in research will aid in a better understanding of molecular mechanisms that underlie neuronal injury and in easier discovery of therapeutic targets and treatments. Funded by New Jersey Commission on Brain Injury Research

Pharmacogenomics: Current Status and Perspectives (Farmacogenômica: Status Atual e Perspectivas). Guilherme Suarez-Kurtz Rede Nacional de Farmacogenética, Instituto Nacional de Câncer

Pharmacogenetics/pharmacogenomics (PGx) relies on human genetic diversity to individualize drug therapy for greater efficacy with minimum or, ideally, no toxicity. It is well known that biogeographical ancestry (i.e. European, African or Native American) is a major determinant of genomic variation: this has been verified for PGx variants and must be taken into account in PGx studies and clinical implementation in Brazil and other Latin American countries. This course will explore various aspects of PGx, such as: Historical landmarks in PGx development; PGx

polymorphisms in drug metabolic pathways, transporters and drug targets. Rare versus common PGx variants. Population PGx: Brazil as a model case. PGx trials: gene-candidate and genome-wide association studies. Adoption of pharmacogenetics-informed prescription in clinical practice: challenges, current status and perspectives. I will present results from PGx studies carried out by members of the Brazilian Pharmacogenetics Network (www.refargen.org.br), involving anticoagulants, non-steroidal anti-inflammatory drugs, antitumoral and immunosupressant agents to illustrate the various topics covered in the course. Grant support: CNPq, DECIT/MS, FAPERJ

Methods for Cardiorenal Ethnopharmacological Research (Métodos para a pesquisa etnofarmacológica cardiorrenal). Arquimedes Gasparotto Junior (UFGD)

The use of medicinal plants in Brazil as a therapeutic resource is a very common practice among those with cardiovascular diseases, being used and disseminated by populations over several generations. Despite of ethno-knowledge, ethno-pharmacological validation is an extremely necessary conduct to ensure the safe and effective use of these natural products, and also to target the most promising species for in-depth pharmacological studies and controlled clinical trials. So, the aim of this course is to provide an integrated vision of all the necessary steps for a detailed ethno-pharmacological research on the cardiorenal system. The methodology used aims to address the ethnobotanical criteria for the selection of the natural product, the morphoanatomy of the species and the phytochemical characterization of the preparation. In addition, it addresses the toxicity potential of the species under study and emphasizes the most used methodologies to evaluate diuretic, antihypertensive and antiatherosclerotic potential, as well as clinical conditions such as heart failure and acute myocardial infarction. Finally, it intends to present current models that are intended to evaluate the association of multiple risk factors for cardiovascular diseases, such as diabetes, hypertension, high fat diet, alcohol and tobacco consumption.

Understanding Zebrafish creation and management (Entendendo a criação e o gerenciamento de Zebrafish). Monica Valdyrce dos Anjos Lopes Ferreira (IBu)

Danio rerio is a small tropical fish popularly known as *paulistinha* or zebrafish by the scientific community. Originated from the main rivers of India, Bangladesh and Nepal, it is commonly found in shallow, standing or low moving water with submerged aquatic vegetation and mud. The species is gregarious, being usually found in shoals of 5 to 20 fishes of males and females mixed individuals. They live in waters that can undergo large temperature variations (16 – 38 °C) and pH (5.9 – 8.5). Zebrafish can feed on a wide variaty of zooplanktons and small insects and it is classified as a bony fish, with its axial skeleton including spine and unpaired flippers. Under properly conditions, they reproduce continuously during sexual maturity and their great fertility rate is one of its main characteristics. The effectiveness of the mating protocol will determine the amount of viable embryo production. The quality of the water and nutrition are two of the main factors in creating zebrafish. The fish should be kept at high temperatures and the tanks and breeding systems should be equipped with thermostats and heaters to maintain the ideal water temperature around 28.5 °C. The pH should be maintained around 7.0 to 7.5 and the conductivity between 400 and 700 µS. Nitrogen compounds are also detrimental to fish and deserve close supervision. Ammonia, nitrate and nitrite are products of nitrogen excreta or food decomposition that can compromise the quality of tank water and breeding systems. Therefore, the effectiveness of the biological filter is of fundamental importance. In short, good practice will lead to successful creation of zebrafish.

Zebrafish as screening model for detecting toxicity and gabaergic drugs efficacy (Zebrafish como modelo de triagem para a detecção de toxicidade e eficácia de drogas gabaérgicas) Adriana Ximenes da Silva. Universidade Federal de Alagoas. Instituto de Ciências Biológicas e da Saúde.

Zebrafish (Danio rerio) has proven to be a model of excellence for the screening of therapeutic drugs, disease modeling, and toxicity studies. Due to its small size (3–5 cm), high fecundity and

rapid development (embryonic to early larval stage in 72h) when compared to rodents, it is a model of choice in developmental studies. Zebrafish is used as a model standard for toxicity testing methods (FET test - fish embryo test) defined in guidance from the ABNT (Brazilian Association of Technical Standards) and OECD (Organization for Economic Cooperation and Development). Gamma-Aminobutyric Acid (GABA) is the main inhibitory neurotransmitter in the developmentally mature vertebrate central nervous system. However, during the CNS maturation this neurotransmitter acts as an excitatory neurotrophic factor, which emphasizes the important role of GABA neurotransmission during brain development. Changes in the gabaergic system, specifically via $GABA_A$ receptors, are associated with some neurological pathologies - such as anxiety, chronic pain and epilepsy - and psychiatric disorders - such as Alzheimer's disease and schizophrenia. Experiments carried out in our laboratory using GABA derivatives synthesized by the Kolbe Laboratory of Organic Synthesis of the Federal University of Rio Grande have shown that GABA derivatives act on CNS according to developmental stages. Toxicity tests in embryos and adult animals were performed to determine the LC50 of each GABA derivatives selected for the definitive test. Behavioral and morphological changes found in embryos and adult zebrafish after GABA derivates toxicity test will be presented during the conference. Apoio Financeiro: ICBS/PROPEP/UFAL

Kinetics of drug-receptor interaction and residence time (Cinética da interação fármaco-receptor e tempo de residência) François Noël (Lab. Farmacologia Bioquímica e Molecular – ICB/UFRJ)
In this class, we will discuss the kinetics of drug binding to its receptor, focusing on the concept of "drug-target residence time", and its importance for the discovery and development of drugs in terms of duration of effect, efficacy and selectivity. We will also make some practical considerations on experimental protocols used, such as the competition association assay (binding) and the jump-dilution assay (enzyme kinetics), based on our experience.

Kinetics of the activation of signaling cascades and functional selectivity (Cinética da ativação de cascatas de sinalização e seletividade funcional). Claudio M. Costa Neto (USP-RP)
In this class, we will discuss the kinetics of distinct signaling pathway, from the most upstream to the most downstream events, and how they integrate in into a broader view. We will aslo discuss the kinetics aspects for designing assays. For instance, we'll discuss the influence of time when evaluating functional selectivity of a given drug, and how to overpass such drawbacks.

Integrating pharmacokinetics and pharmacodynamics *in vivo* (Integrando farmacocinética e farmacodinâmica *in vivo*). Teresa Cristina Tavares Dalla Costa (UFRGS)
In this class, we will discuss the influence of time on the observation of *in vivo* pharmacological effects and the temporal relationship between pharmacokinetics and pharmacodynamics (PK/PD) in situation of direct and indirect response, as well as direct and indirect PK/PD relationship (hysteresis, proteresis and effect compartment).

On the selection of the appropriate statistical test to analyze my experimental data (Como selecionar o teste estatístico apropriado para analisar meus dados experimentais?) Leandro Jose Bertoglio (UFSC)
In the initial class, we will discuss the main prerequisites that should be taken into account in order to select the most appropriate parametric (or non-parametric) statistical test to analyze experimental data that are commonly obtained in pharmacology. It will also be commented on strategies that can be adopted when the data do not meet the prerequisites of the parametric test (e.g. transformation of the raw data into logarithm) and what are the pros and cons of the various available post-hoc tests used to conduct multiple comparisons in experiments with more than two experimental groups. To do so, we will initially review the steps of the scientific method and the importance of adopting it, which are measures of central tendency and dispersion, what types of

variables and experimental groups, what are normal data distribution and homogeneity of variance, and how the order of analysis of these aspects varies according to the statistical software adopted.

Why the p-value matters? (Por que o valor de "p" importa?). Janaina Menezes Zanoveli (UFPR)
In this class two important themes will be discussed: Statistical hypothesis tests and the real importance of p-value in the statistical and biological significance of experimental data that are commonly obtained in Pharmacology. In this way, important definitions of the subject will be presented, such as definition of probability, null hypothesis and alternative hypothesis, p-value, and what is the hypothesis test and its relation to statistical inference. Moreover, the limitations of these applications and the main current criticisms regarding hypothesis tests, the exaggerated importance given to p-value, and the lack of reproducibility of data obtained in Pharmacology will be discussed in this lesson. Finally, it will be commented on possible solutions to overcome these limitations that involve the overestimation of the p-value in statistical inference.

Meta-analysis: Principles, applications and limitations (Meta-análise: princípios, aplicações e limitações) Cilene Lino de Oliveira (UFSC)
In this lecture will be discussed the principles, applications and limitations of meta-analysis. Meta-analysis refers to statistical methods to combine data from different studies useful to estimate the effect size, heterogeneity or risk of bias in a research field. Meta-analytic data are considered more reliable providing higher level of evidence to decision making than individual studies. In pharmacology, meta-analysis may help, for example, to estimate the effect of a particular drug in different experimental settings or the effects of different drugs on a specific type of experimental setting. More precise data may help to create stronger hypothesis and more reliable projects. Although useful to estimate risks of bias, meta-analysis is susceptible to the biases from the field of research and may reproduce or inflate bias with more severe consequences than individual studies.

Use of animals of different sizes in the production of immunobiologicals and drugs (Uso de animais de diferentes portes na produção de imunobiológicos e fármacos) Marcelo Abrahão Strauch (IVB)
The challenge of producing new therapies and drugs at different stages to the present, still can't take the definitive step without the use of animal experimentation. In addition, besides contributing with the safety and quality in the development of drugs, the use of animals is also a source of serum, immunoglobulins and the same hemostatic or complementary agents in the different therapies administered to humans and animals. Large animals are used as bioreactors in the production of active principles since the beginning of the 20th century, be in the production of humanized proteins or in the production of heterologous proteins. In the treatment of some diseases that require multiple dosages and chronic treatment, humanized proteins are used. However, there are acute treatment diseases with unique dosages, in which heterologous proteins can safely be used, such as the polyclonal antibodies antitoxins obtained in horses and ruminants for the treatment of diseases such as rabies and tetanus, as well as accidents by venomous animals. In the present course we will discuss the production of hyperimmune plasma in horses, in particular the technological route developed in the production of antiapilic serum.

Conflicts and adequacy of analgesia, anesthesia and euthanasia in the experimental design with animals (Conflitos e adequação de analgesia, anestesia e da eutanásia no projeto experimental com animais). Paulo de Assis Melo (UFRJ)
The research in basic science, as in physiology and in pharmacology doing drug development, becomes a challenger if we decide to test new compounds in animals. This decision needs a good plan and the investigators also will need to get support about the biological data on the kind of animal that they decide to use. For each specie there are details that the institutional animal care and use committee (IACUC) will analyze, approve and recommend the best directions to succeed the investigation protocol. The development of new drugs is a challenger, because the investigator

needs to be aware that most of the result and effects first described in culture cells, need to be confirmed in animals before to move ahead and perform human tests. In animal experimentation it is mandatory evaluate animal behavior under anesthesia and the pain treatment in experimental conditions. It is always relevant to discuss the anatomical and physiological basis and the pathophysiology of pain with focus on animal perceptions and reactions. Learn about the basic manifestation and animal reaction to the tissue damage and the evaluation methods and techniques to measure acute and chronic pain. Another point to be aware is about the fundaments of pharmacodynamics and pharmacokinetic of the main group of drugs that have been used in the control of pain and anesthesia, as well euthanasia in animal experimentation. It will be mandatory to raise the positive and negative points of each drug, their limitations, and how to use and get the best of each agent, as well as, to avoid the common pitfalls of the misuse. Some animals can express the response to the noxious stimulus by a grimace or facial expression, other not. At the present, it is well known that the very difficult issues to discuss are: How to use pain killer drugs without interfere on the judgments or in the results of the investigation? How to learn and quantify the animal noxious response and acquire it. Finally, the endpoint deciding the right way to performer the best euthanasia method for each kind animal that the investigator decides to use in his work. Learn these basic and valorous steps will help to minimize suffering in animal experimentation.

Lectures

Regenerative Pharmacology – Drugs that Enhance Bone Healing through the Mobilization of Mesenchymal Stem Cells Sara M. Rankin IRD Section, NHLI, Imperial College London Funding from the Wellcome Trust and British Heart Foundation.

Drugs to mobilize haematopoietic stem and progenitor cells (HSPCs) from the bone marrow are used clinically to harvest HSPCs from the blood for bone marrow transplants. While G-CSF was used traditionally for this purpose, in approximately 20% of patients (poor responders) insufficient HSPCs were harvested for a BMT. We showed that G-CSF could act synergistically with the CXCR4 antagonist, AMD3100 (plerixafor). This drug combination has since been FDA approved and is now used widely for HSPC mobilisation in poor responders. Mesenchymal stem cells (MSCs), also present in the bone marrow, have been shown to exhibit therapeutic potential as stem cell therapies in a wide range of disease, including tissue injury (bone fractures and ischemic heart disease) and autoimmune diseases. Therapeutic approaches require the intravenous injection of autologous or allogenic culture- expanded MSCs that are thought to traffic to sites of tissue injury and promote tissue regeneration. An alternative approach would be to mobilize endogenous MSCs into the blood, thereby reducing costs and obviating regulatory and technical hurdles associated with development of cell therapies. In this talk I will discuss different pharmacological strategies that can be used to mobilize MSCs from the bone marrow into the blood. We initially showed that while the G-CSF/plerixafor combination was not effective, a combination of VEGF and plerixafor was able to selectively mobilise MSCs. In this talk I will discuss our latest discoveries with respect to pharmacological strategies to mobilize MSCs, the work we have done to investigate the mechanism of action of these drugs in this context and results of collaborative work with Dr Kevin Bakers group in Michigan, showing the positive effects of these drugs on bone regeneration in a spine fusion model in the rat. Taken together our data provide proof of concept that pharmacological strategies that mobilize MSCs into the blood can stimulate tissue regeneration.

Zebrafish disease models for high throughput screens in drug development .Farhad Karbassi[1], Arman Hassanpour[1], Rui Guan[1], Jinglu Ai[1], Youdong Wang[1], Loch Macdonald[1], and Xiao-Yan Wen[1,2]
[1]Zebrafish Center for Advanced Drug Discovery, Keenan Research Centre for Biomedical Science &

Li Ka Shing Knowledge Institute, St. Michael's Hospital, Toronto, Ontario; [2] Department of Medicine, University of Toronto, Ontario, Canada

The zebrafish has emerged as a robust model organism for high throughput drug screening because of its fecundity, transparent embryos and rapid development. In contrast to traditional cell-based screening, the zebrafish provides a whole vertebrate system for drug screening. It combines the biological complexity of in vivo models with the ability of performing high-throughput screening (HTS) in microplates and quick assessment of potential drug toxicity, providing valuable data for preclinical drug development. The zebrafish is also a robust model system for studying cardiovascular development, functioning and related diseases. Within 48 hours of fertilization, the zebrafish develops a functional circulating vascular system and a beating heart. Intracerebral hemorrhage (ICH) is a severe and debilitating form of stroke that is most common due to hypertension, amyloid angiopathy, brain vascular malformations or secondary to medications including antiplatelet and anticoagulant drugs. Spontaneous ICH comprises 10% of strokes and is associated with death or disability in more than 50% of the approximately 90,000 patients affected each year in North America. Clinical studies also have disclosed a link between cholesterol-lowering 3-hydroxy-3-methylglutaryl-coenzyme A reductase (HMGCR) inhibitors (statins) and increased risk of ICH. Other than treatment of hypertension, there is no prophylactic treatment to prevent ICH. Our team has developed a unique zebrafish embryonic ICH model where brain hemorrhage is induced by statins. Using induced zebrafish ICH model in screening NIH Clinical Collections library (727 drugs), we identified a small molecule drug EZF-100 with potent anti-ICH properties. Furthermore, EZF-100 effectively rescued hemorrhage after morpholino knockdown of the pathway proteins downstream of HMGCR. Studies on cultured human endothelial cells demonstrated that EZF-100 enhanced vessel stability by de-phosphorylating the endothelial junction protein VE-Cadherin. The anti-ICH efficacy of EZF-100 was validated on mouse LPS-induced brain microbleed model. Through lead optimization, we generated EZF-100 analogs with improved drug efficacy and lower toxicity on zebrafish models. Larger animals are being employed for drug PKPD and toxicity studies for preclinical development. Our data suggests that zebrafish is a valid tool for phenotype-based high-throughput screens. EZF-100/analogs confer vascular stabilization and could potentially be developed as drugs for ICH prevention. *This study was funded by Canada Foundation for Innovation (CFI), Brain Canada Foundation and Genome Canada GAPP Research Program.

Use of 3D structure in quest for pharmacological modulators of the Na,K-ATPase activity. Natalya U. Fedosova (Aarhus University, Denmark)

Na,K-ATPase maintains an uneven distribution of Na^+ and K^+ ions over membrane, forming the basis for the resting membrane potential and excitability, as well as the driving force for transport of nutrients and other ions. The enzyme's minimal functional unit is an oligomeric complex αβ built of 4 α- and 3 β-isoforms expressed in a tissue-specific fashion. α1 is common in all cells while the isoforms other than α1 are particularly important for the function of the specialized cells. The above findings prompt the idea to design isoform-specific ligands instead of the known compounds with sweeping action and significant systemic effects. Derivatization of the cardiotonic steroids (CTS) is an obvious strategy since they have nearly absolute specificity for the enzyme. In addition, CTS bind extracellularly thereby eliminating the issue of membrane permeability. We have solved crystal structures of the high affinity complexes of the α1β1 Na,K-ATPase with three CTS, bufalin, ouabain and digoxin, varying in the structure of lactone ring and in the degree of glycosylation. These structures revealed similar binding modes for all three ligands, yet with some differences related to the number, size and electrostatic properties of the substituents at the CTS core. Since the isoform-related differences in amino acid sequences are found within the cavity leading to the CTS-binding site, we supplement the existing description of crystallized enzyme-CTS complexes with the

data obtained under physiological conditions. Electron Paramagnetic Resonance (EPR) spectra of spin-labelled CTS with varying spacer arms report on the radius of the binding cavity at corresponding distances from the steroid core. In parallel, molecular dynamics simulations reveal possible interactions or steric clashes. We expect to identify the isoform-specific amino acid residues and suggest CTS derivatization that improves interactions with the binding sites of particular isoforms and thereby design the isoform-specific drugs targeting Na,K-ATPase in a selected tissue. Financial support from The Danish Council for Independent Research (DFF-7016-00125) and The A.P. Møller Foundation for the Advancement of Medical Science.

A Pluridimensional View of GPCR Biased Agonism: Insights from Synthetic and Endogenous Agonists Claudio M. Costa-Neto (USP-RP)

G protein-coupled receptors (GPCRs) are membrane proteins that can transduce signals from a plethora of extracellular molecules to the intracellular environment. For decades GPCRs were believed to transduce their signals by exclusively coupling to G proteins, which would subsequently activate different effectors and lead to production of respective second messengers (e.g. IP3, cAMP). However, GPCRs were later described to activate G protein-independent signaling pathways, such as β-arrestin-dependent activation of kinases, and more recently some ligands were reported to preferentially trigger some pathways, being called "biased agonists". Therefore, although for decades the functionality of GPCRs have been evaluated and interpreted linearly, such as an ON/OFF switch, it is currently clear that these receptors may be stabilized in different active states, triggering several signaling pathways depending on the interacting ligand and influenced by factors such as cellular location, time, and others. In the light of such pluridimensional view of GPCR signaling, we have broadly characterized novel synthetic as well as recently discovered endogenous agonists for different GPCRs. Our data show that modification in ligands' structure can result either in remarkable or subtle and specific changes in signaling profiles; in some cases, resulting in distinct physiological responses. This illustrates the exceptional plasticity of GPCRs as signal transduction entities, but also opens new perspectives for designing and developing ligands with altered signaling properties, which may become future drugs with therapeutic benefits and/or reduced side-effects.

History of Pharmacology: From the origins to Modern Era. François Noël (Lab. Farmacologia Bioquímica e Molecular – ICB/UFRJ)

In this lecture we will make a little trip through time and space to better understand how pharmacology was born and strengthened, and where it is going. From ancient times through Greece, the medieval and renaissance periods, we will reach the seventeenth and nineteenth centuries when great advances in physiology and chemistry have made possible the emergence of pharmacology as a new discipline. After a look on how appeared the first synthetic drugs and the birth of the German pharmaceutical industry, we will describe the modern era and point out what could be the pharmacology of the future. Finally, we will propose a brief history of pharmacology in Brazil.

Peripubertal Stress and Hippocampal Damage as Risk Factors in the Pathophysiology of Schizophrenia: Implications for Treatment & Prevention Anthony A. Grace, PhD Departments of Neuroscience, Psychiatry and Psychology University of Pittsburgh Pittsburgh, PA USA

Substantial evidence demonstrates that schizophrenia involves a dysregulated dopamine system driven by overactivity in the hippocampus. Schizophrenia brains show a substantial loss of parvalbumin GABAergic interneurons in the hippocampus which likely drives the hyperactivity, leading to an over-responsive dopamine system. Our studies suggest that when the hippocampus is hyperactive the dopamine system is hyper-responsive to stimuli, which can underlie psychosis. A

major question is why there is interneuron loss in the hippocampus. Parvalbumin interneurons early in life are susceptible to damage due to stress. In a developmental disruption model of schizophrenia, we found that prepubertally these rats are more anxious, hyper-responsive to stress, and show hyperactivity in the amygdala; furthermore relieving the stress early in life prevents the transition to "psychosis." Thus, schizophrenia susceptibility may be due to heightened sensitivity to the deleterious effects of stress. Indeed, multiple stressors given during this sensitive period to normal rats leads to the schizophrenia phenotype. Moreover, elimination of the ability of the medial prefrontal cortex to regulate stress enables minor stressors to yield the schizophrenia phenotype. In contrast, multiple stressors given to adult rats result in a depression-like phenotype. However, if the critical developmental period is first re-opened in the adult rat via histone decarboxylase inhibition, the same stressors now yield a schizophrenia phenotype. This suggests that genetic predisposition does not cause schizophrenia, but instead causes the individual to be hypersensitive to the deleterious effects of stress. Moreover, stress susceptibility may be a common link in familial risk for schizophrenia and depression. Therefore, controlling stress early in life in susceptible individuals may be an effective means to prevent transition to schizophrenia later in life. Supported by USPHS MH57440

Novel targets for therapeutic intervention in Parkinson's disease. Tiago Fleming Outeiro (University Medical Center Goettingen, Germany)

The aggregation of alpha-synuclein (ASYN) in Lewy bodies and Lewy neurites is the typical pathological hallmark of Parkinson's disease (PD) and other synucleinopathies. Furthermore, mutations in the gene encoding for ASYN are associated with familial and sporadic forms of PD, suggesting this protein plays a central role in the disease. However, the precise contribution of ASYN to neuronal dysfunction and death is still unclear. By taking advantage of studies in model organisms, we are investigating the molecular underpinnings of PD, and found that prefibrillar soluble aSyn oligomers are crucial associated with synaptic dysfunction. We identified the cellular prion protein (PrP^C) as a key mediator in aSyn-induced synaptic impairment. We found that extracellular aSyn oligomers formed a complex with PrP^C that induced the phosphorylation of Fyn kinase, triggering a series of downstream effects that culminate with synaptic dysfunction. In total, our studies provide novel insight into the molecular mechanisms associated with cognitive impairment in PD and other synucleinopathies.

The end of medicine as we know it. Ana I Casas[1], Cristian Nogales[1], Eva Geus[2], Friederike Langhauser[2], Emre Guney[3,4], Manuela G. López[5], Jan Baumbach[6], Christoph Kleinschnitz[2] & Harald H.H.W. Schmidt[1] 1 Department of Pharmacology and Personalised Medicine, Maastricht Center for Systems Biology, Faculty of Health, Medicine and Life Sciences, Maastricht University, The Netherlands 2 Department of Neurology, University Clinics Essen, Essen, Germany 3Research Programme on Biomedical Informatics, The Hospital del Mar Medical, Barcelona, Spain 4 Research Institute and Pompeu Fabra University, Barcelona, Spain 5Instituto Teofilo Hernando, Departamento de Farmacología, Facultad de Medicina, Universidad Autónoma de Madrid, Madrid, Spain 6 Chair of Experimental Bioinformatics, TUM School of Life Sciences Weihenstephan, Technical University of Munich, Munich, Germany

Existing drugs fail to provide benefit for most patients. The efficacy of drug discovery is in a constant decline. This poor translational success of biomedical research is due to false incentives, lack of quality/reproducibility and publication bias. The most important reason, however, is our current concept of disease, i.e. mostly by organ or symptom, not by mechanism. Systems Medicine will lead to a mechanism-based redefinition of disease, precision diagnosis and therapy eliminating the need for drug discovery and a complete reorganization of how we teach, train and practice medicine. Moreover, explosion of systems medicine opened a new concept of therapeutic treatment focused

on the so-called network pharmacology, where several targets modulated at the same time lead to the first effective therapy for high unmet medical need indications with no treatment so far.

Symposia and Roundtables

H_2S-based anti-inflammatories: GI-safe and enhanced effectiveness. John L. Wallace, Peter Nagy, Troy Feener, Thibault Alain, Tamas Ditroi, David Vaughan, Marcelo N. Muscara, Gilberto de Nucci & Andre Buret. University of Calgary (Canada), National Institute of Oncology (Hungary), Antibe Therapeutics Inc. (Canada), University of São Paulo (Brasil) and University of Campinas (Brasil)
Hydrogen sulfide (H S) is a naturally occurring mediator produced by intestinal bacteria and various eukaryotic cells, which can exert protective and analgesic effects. ATB-346 is a H S-releasing derivative of naproxen. In animals, ATB-346 produces negligible gastrointestinal (GI) damage and bleeding. In humans, ATB-346 was found to be much more potent and long-acting than naproxen. A human efficacy study demonstrated that ATB-346 (250 mg daily) was effective at significantly reducing pain in patients with osteoarthritis of the knee and inhibiting systemic cyclooxygenase (COX) activity. COX is the target enzyme of all NSAIDs. Aim: The aim of the present study was to determine if ATB-346 (250 mg once daily) would induce significantly less upper GI ulceration than standard dose sodium naproxen (550 mg twice daily). More specifically, we aimed to determine if healthy subjects taking ATB-346 (250 mg once daily) for 14 days would develop significantly less gastroduodenal ulcers ($\geq$3mm diameter with unequivocal depth) than subjects taking equi-effective anti-inflammatory doses of naproxen (550 mg twice daily). Design: This was a double-blind, active control study. 244 healthy volunteers completed the study. Upper GI endoscopy was performed prior to and on day 14 after commencing treatment with naproxen (550 mg twice daily) or ATB-346 (250 mg once daily in the morning and placebo once daily in the evening). Whole blood thromboxane synthesis (COX activity) was measured on days 0, 7 and 14. Results: For the primary endpoint, incidence of ulcers more than 3 mm in diameter, 53 subjects (42%) taking naproxen developed at least one ulcer, while only 3 subjects (2.5%) taking ATB-346 developed at least one ulcer (p=0.00001). The two drugs produced comparable suppression of systemic COX activity. Subjects in the naproxen group developed more ulcers (an average of 4/subject) than in the ATB-346 group (an average of 1.3/subject), and a greater incidence of larger (more than 5 mm diameter) ulcers (125 vs 0, respectively; see figure). The incidence of abdominal pain, gastroesophageal reflux and nausea were markedly lower with ATB-346 than with naproxen. Systemic COX activity was inhibited by 95% in both the ATB-346 and naproxen groups (no significant difference) and plasma H2S levels were significantly elevated in subjects treated with ATB-346 (by 50%; p=0.001). Conclusions: As in pre-clinical studies, this phase 2 clinical trial demonstrated a dramatic increase in the GI safety of ATB-346 versus one of the most widely used NSAIDs, naproxen. ATB-346 produced equivalent suppression of COX to naproxen, consistent with a previous Phase 2A trial that demonstrated significant pain relief in patients with osteoarthritis. ATB-346 appears to be an effective and much safer alternative to existing NSAIDs.

Biofilm control: A key for better treatments? Nathalie Vergnolle, JP Motta Digestive Health Research Institute, Toulouse, France
Biofilms grow at mucosal surfaces in organized community, resisting to pathogen invasion, but also making it more difficult for drugs to be absorbed. Hence, biofilm might also be responsible for metabolizing drugs. Drugs themselves are known to induce microbial dysbiosis. It is now clear that biofilms have to be considered in drug development either as potential helpers for drug metabolism or absorption, but also sometimes as additional barrier to be overcome. The composition, the size and the biophysical properties of biofilms are important in determining whether biofilms are beneficial or in the contrary detrimental to drug treatments. Evidences have been raised demonstrating the dysbiotic effects of certain drugs on microbiota, and biofilm organization. Here

will be discussed how drug design might take into account biofilm organization, with a particular focus on the effects of H_2S. Further, evidences of the control of biofilms at mucosal surfaces by host proteins, and in particular by epithelial proteases will be discussed. Luminal control of proteolytic activity impacts microbial biofilms at mucosal surfaces. We have demonstrated that total protease inhibition alters spatial segregation of microbiota biofilms, allowing bacteria to invade the mucus layer and to translocate across the epithelium. Epithelial proteases cleaved the biofilm matrix of reconstituted mucosa-associated human microbiota. We demonstrate a previously unknown physiological role for epithelial proteases that constrains biofilms at mucosal surfaces. This will be further discussed in the context where drugs, by altering host protein expression, might also impact biofilms. Altogether, these elements point to new potential therapies targeting or at least considering biofilms, important for a broad range of disorders in the gut and beyond.

Glucagon inhibits ovalbumin-induced lung inflammation and remodeling. Vinicius de Frias Carvalho (Fiocruz)

Glucagon is a hyperglycemic pancreatic hormone that has been shown to be beneficial as a treatment for bronchospasm in asthmatics. We investigated the role of this hormone on airway smooth muscle contraction and lung inflammation using both in vitro and in vivo approaches. Glucagon partially inhibited carbachol-induced tracheal contraction in a mechanism clearly sensitive to a glucagon receptor (GcgR) antagonist. In addition, the glucagon-mediated impairment of cholinomimetic agents-induced contraction was prevented by blocking COX (indomethacin) or COX-1 (SC-560). Glucagon induced CREB phosphorylation and increased PGE2 levels in the lung tissue without altering COX-1 expression. Glucagon inhibited AHR and eosinophilia in BAL and peribronchiolar region, subepithelial fibrosis, and T lymphocytes accumulation in BAL and lung induced by ovalbumin (OVA) challenge. The inhibitory action of glucagon occurred in parallel with reduction of OVA-induced generation of IL-4, IL-5, IL-13, TNF-α, eotaxin-1/CCL11, and eotaxin-2/CCL24 but not MDC/CCL22 and TARC/CCL17. The inhibitory effect of glucagon on OVA-induced AHR and collagen deposition was reversed by pre-treatment with indomethacin. These findings suggest that glucagon possesses airway-relaxing properties and reduces crucial features of asthma mediated by COX-1-PGE2-dependent mechanisms.

Abnormal T-cell development in the thymus of non-obese diabetic mice: **Possible relationship with the pathogenesis of type 1 autoimmune diabetes**. Wilson Savino (Fiocruz)

Type 1 diabetes (T1D) is an autoimmune disease caused by the destruction of beta cells in the pancreas, by direct interactions with autoreactive pancreas infiltrating T lymphocytes (PILs). Alterations in the non-obese diabetic (NOD) mouse thymus during the pathogenesis of the disease have been reported. From the initial migratory disturbances to the accumulation of mature thymocytes, including regulatory $Foxp3^+$ T cells, important mechanisms seem to regulate the repertoire of T cells that leave the thymus to settle in peripheral lymphoid organs. A significant modulation of the expression of extracellular matrix and soluble chemoattractant molecules, in addition to integrins and chemokine receptors, may contribute to the progressive accumulation of mature thymocytes and consequent formation of giant perivascular spaces (PVS) that are observed in the NOD mouse thymus. The abnormal T-cell development in NOD mice is related to the intrathymic expression of different migration-related molecules, peptides belonging to the family of insulin and insulin-like growth factors as well as the participation of high levels of circulating corticosterone and their possible influence on the onset of aggressive autoimmunity during the pathogenesis of T1D.

Polyunsaturated fatty acid receptors, **GPR40 and GPR120**, **are expressed in the hypothalamus and control energy homeostasis and inflammation**. Licio A Velloso Obesity and Comorbidities research Center State University of Campinas

The consumption of large amounts of dietary fats is one of the most important environmental factors contributing to the development of obesity and metabolic disorders. GPR120 and GPR40 are polyunsaturated fatty acid receptors that exert a number of systemic effects that are beneficial for metabolic and inflammatory diseases. Here, we evaluate the expression and potential role of hypothalamic GPR120 and GPR40 as targets for the treatment of obesity. In this talk we show that both receptors are expressed in the hypothalamus; GPR120 is primarily present in microglia, whereas GPR40 is expressed in neurons. Upon intracerebroventricular treatment, GW9508, a non-specific agonist for both receptors, reduced energy efficiency and the expression of inflammatory genes in the hypothalamus. Reducing GPR120 hypothalamic expression using a lentivirus-based approach resulted in the loss of the anti-inflammatory effect of GW9508 and increased energy efficiency. Intracerebroventricular treatment with the GPR120- and GPR40-specific agonists TUG1197 and TUG905, respectively, resulted in milder effects than those produced by GW9508.

Interaction of Biperiden on Alcohol-Seeking Behaviors. Rodrigo Molini Leão[1,2]; Clarice Ribeiro Lira[2]; Paola Palombo[3]; Fábio Cardoso Cruz[3,4]; José Carlos Fernandes Galduróz[5]. 1. Departamento de Biorregulação (ICS/UFBA) 2. Programa de Pós-Graduação em Farmácia (FACFAR/UFBA) 3. Programa de Pós-Graduação em Farmacologia (EPM/UNIFESP) 4. Departamento de Farmacologia (EPM/UNIFESP) 5. Departamento de Psicobiologia (EPM/UNIFESP)

Alcohol dependence and other drugs are a subject of extreme importance and intense discussion among researchers around the world. The psychotropic substances are capable of inducing dependence, and ethanol is one of the most prominent. Its harmful use is related to numerous health problems, besides the difficulty of family and social relationship, unemployment, domestic violence and death. The understanding of the mechanisms by which psychoactive substances lead to addiction is still in the beginning, and since several factors participate in these processes an approach become limited from a single focus. In general, alcohol is a depressant drug of the central nervous system. Studies have shown that alcohol interacts with various neurotransmitter systems, such as GABA, glutamate, dopamine, acetylcholine and serotonin. Alcohol, when administered acutely, activates the mesolimbic dopaminergic system and, after chronic administration, promotes important functional alterations in this reward system. The reward system has as main neurotransmitter dopamine and is responsible for positive reinforcement. In this way, the subject is urged to use the substance repeatedly, creating a specific memory for this drug-seeking behavior. In addition, acetylcholine also plays a key role in the functioning of the mesolimbic system, interacting with important regions in this reward circuit of the brain. It is well established that the modulation of cholinergic neurotransmission through nicotinic receptors alters the behavior of alcohol consumption. However, it is not yet known whether drugs that interact with muscarinic receptors, such as biperiden (muscarinic receptor antagonist type 1), would have similar effects. Thus, it is very importance to perform studies that verify the effect of biperiden in decrease the contingency of reinforcement involved in alcohol dependence, thus having a great potential for a new pharmacological treatment. Apoio Financeiro: FAP UNIFESP – 99/2016

Synaptic plasticity mechanism common to learning and alcohol disorder. *Karina Possa Abrahão, PhD* Professora Adjunta Departamento de Psicobiologia Universidade Federal de São Paulo

Alcohol use disorders include drinking problems that span a range from binge drinking to alcohol abuse and dependence. Plastic changes in synaptic efficacy, such as long-term depression (LTD) and long-term potentiation (LTP), are widely recognized as mechanisms involved in learning and memory as well as in responses to drugs of abuse. Alcohol exposure triggers cognitive deficits and executive dysfunction, which is associated with

poor decision-making towards drinking. These effects may be associated with the fact that acute and prolonged ethanol exposure produces or alters LTD and LTP. Indeed, ethanol affect striatal plasticity, but much less is known about ethanol's effect on the efferent pathways of the striatum projecting neurons: the substantia nigra *pars reticulada* (SNr) and the globus pallidus (GP), which are essentials for the decision-making function of the Basal Ganglia. Thus, we aim to investigate the effect of acute ethanol on the synapse strengthen of the striatum projection to the SNr and GPe. We used Ca^{2+} activity photometry (GCamp6f), ChR2 optogenetics and patch-clamp recordings to evaluate the striatonigral and striatopallidal synapses onto SNr and GPe neurons. Acute ethanol effects on the pre-synaptic bottoms of the striatopallidal pathway does not change the efficacy of pallidal neurons response. On the other hand, acute ethanol induces a transient decrease of the pre-synaptic activity of the the striatonigral pathway which is translated as a LTD effect on the post-synaptic neuron. The disbalance between the activity of the striatonigral and striatopallidal pathways may induce changes in decision-making and ethanol seeking behavior. Funding: Laboratory of Dr. David Lovinger - Division of Intramural Clinical and Biological Research of the National Institute on Alcohol Abuse and Alcoholism (NIH - ZIA AA000407, USA); 2014 IBRO John G. Nicholls Research Fellowship and; Ciências sem Fronteiras program (Coordenadoria de Aperfeiçoamento de Pessoal de Nível Superior - CAPES 2496/13-5, Brazil).

Aging and Neuroprotection: **Effects of Klotho protein in energetic metabolism**, **Na,K-ATPase signaling and adaptative response in Central Nervous System** Cristoforo Scavone Departamento de Farmacologia, Instituto de Ciências Biomédicas, Universidade de São Paulo, São Paulo.

Since its accidental discovery, α-Klotho has been implicated with the aging process and aging phenotype in several organs. With a very limited expression pattern, mainly in the kidney and brain, Klotho produces its general effects through local action in the kidney, regulating phosphate serum levels, and acting as a hormone via its cleaved and/or secreted form. Neuronal-produced Klotho actions, especially, still need clarification. Studies from our laboratory reported an age-related decrease of Na+,K+-ATPase activity linked to cyclic GMP– PKG (cyclic GMP-dependent protein kinase) in cerebellum, which are signalling pathways closely related to N-Methyl-D-aspartate receptor (NMDAR) function. Many other studies support the idea of Na^+,K^+-ATPase and NMDAR-related alterations leading to learning, memory, affective and motor disturbances during the aging process. In addition, we have now evidence that the drastic reduction in αKlotho protein levels in *klotho* hypomorphic mice ($kl^{-/-}$), led to significant molecular changes in cerebellum, therefore, corroborating previous data on Na^+,K^+-ATPase and NMDAR relevance to age-related alterations and proper cerebellar function. Additional studies in primary astrocytes culture also showed that soluble Klotho, acting through astrocytic FGFR1, induces ERK phosphorylation and lactate formation and release. This aerobic glycolysis induced by Klotho treatment is achieved by hindering pyruvate metabolism through the mitochondria, forcing the energy substrate to be processed by lactate dehydrogenase (LDH). Additionally, we demonstrate not only that insulin, but also glutamate stimulation is capable of elevating Klotho levels in cultured hippocampal neurons, whereas AMPA and NMDA antagonism has a negative effect on Klotho protein content. Taken together these data show Klotho as a new candidate to participate in the metabolic cooperation between neurons and astrocytes, with Klotho being produced and released by neurons in response to glutamatergic activity in order to stimulate astrocytic lactate formation and release, which in turn can be used by neurons to meet their elevated energy needs. Funded by FAPESP, CNPq and CAPES

Chemogenetic approaches to dissect redox stress pathways in the cardiovascular system.
Thomas Michel, MD, PhD Division of Cardiovascular Medicine, Brigham and Women's Hospital, Harvard Medical School, USA
Reactive oxygen species (ROS) are associated with heart failure. The roles of H_2O_2 in cardiac dysfunction are unclear owing to a paucity of tools for the precise manipulation of intracellular redox state. We developed a novel chemogenetic approach to selectively express and activate a recombinant yeast H_2O_2-generating enzyme in the heart by providing its specific D-amino acid substrate in vivo. We constructed a fusion protein between a yeast D-amino acid oxidase (DAAO) and the H_2O_2-sensitive biosensor HyPer in a cardiotropic AAV9 vector that simultaneously generates and quantitates H_2O_2 in the heart. We achieved robust recombinant DAAO expression in the hearts of rats infected with the virus. *In vitro* stimulation of cardiac myocytes from these animals with D-alanine induced a significant transcriptional stress response mediated by the transcription factors Nrf2 and NF-kB. *In vivo* activation of DAAO by adding D-alanine to the animals' drinking water rapidly resulted in severe systolic dysfunction. We developed and applied a novel chemogenetic system in which *in vivo* generation of H_2O_2 in the heart rapidly induces a dilated cardiomyopathy with significant systolic dysfunction. Treatment with either valsartan or sacubitril-valsartan led to the reversal of the heart failure phenotype. We anticipate that advances in chemogenetic technology will enable future studies of ROS biology both in the heart and in other organ systems and will also need to novel screening approaches for new therapeutic agents. *Funding: These studies were support in part by funds from the National Heart Lung and Blood Institute of the National Institutes of Health (USA); from Novartis; and from the Brigham Biomedical Research Institute.*

Vascular thiol isomerases: novel redox mechanisms and therapeutic opportunities.
Francisco R. M. Laurindo Associate Professor and Director, Vascular Biology Laboratory University of São Paulo School of Medicine, São Paulo. Brazil
Protein Disulfide Isomerases (PDI) are thiol oxidoreductase chaperones from thioredoxin superfamily. As redox folding catalysts from the endoplasmic reticulum (ER), their roles in ER-related redox homeostasis and signaling are well-studied. PDIA1, the family prototype, exerts thiol oxidation/reduction and isomerization, plus chaperone effects. Substantial evidence indicates that PDIA1 regulates thiol-disulfide switches in other cell locations such as cell surface and possibly cytosol. Subcellular PDIA1 translocation routes remain unclear and seem Golgi-independent. Our work has shown that PDIA1 is required for agonist-triggered superoxide production via Nox NADPH oxidase activation and VSMC migration. This led us to hypothesize that PDIA1 is involved in vascular remodeling, a crucial mechanism of vascular caliber regulation in patho(physio)logical conditions. Neutralization of the cell-surface pool of PDIA1 promoted an anticonstrictive remodeling effect during arterial repair in vivo. Results from a novel transgenic model of PDIA1 overexpression further support the effects of PDIA1 on expansive remodeling. Moreover, PDIA1 appears to exert important effects on the noise minimization of the polarized cytoskeletal organization in response to a variety of mechanostimuli in VSMC. These data allow the proposal of a redox/biomechanical paradigm for vascular remodeling. The mechanisms of PDIA1 effects in vascular remodeling may include effects on vascular

smooth muscle cell (VSMC) differentiation via redox mechanisms. Also, redox modulation of integrins were identified as a relevant PDIA1 target. Furthermore, PDIA1 modulates RhoGTPases involved in cytoskeletal regulation and a physical association between PDIA1 and the RhoGTPase regulator RhoGDIalpha was reported by us recently. Moreover, the PDI family genes display a remarkable microsyntenic arrangement with RhoGDI genes, conserved through >800 million-years of evolution. Novel results in human plasma show that distinct PDIA1 levels reveal protein signatures involved in contrasting endothelial phenotypes. PDIA1 is redox-sensitive, although probably not a mass-effect redox sensor due to kinetic constraints. Rather, the "all-in-one" organization of its peculiar redox/chaperone properties likely provide PDIs with precision and versatility in redox signaling, making them promising therapeutic targets.

Protein Disulfide Isomerase: A novel therapeutic target to regulate Nox1 signaling in atherosclerosis. Lucia Rossetti Lopes (USP-SP)

My research interest is to understand the mechanisms that contribute to the generation of reactive oxygen species by NADPH oxidases in inflammatory and vascular disease. We are currently focused on the role of the redox endoplasmic reticulum chaperone protein disulfide isomerase (PDI) on NADPH oxidase dependent signaling. We initially showed that PDI can interact and regulate Nox1 activation and migration in vascular smooth muscle cells (VSMCs). Recently, we demonstrated that in neutrophils PDI can interact with p47phox, a regulatory subunit of Nox2 NADPH oxidase in these cells, through a redox dependent association enhancing ROS generation. Molecular processes underlying ROS-induced cardiovascular functional and structural alterations involve activation of NADPH oxidase dependent signaling pathways. In this context, our group has shown that over expression of PDI increases ROS generation and Nox1 signaling in resistance arteries during hypertension and atherosclerosis, through a redox association with the Nox1 regulatory subunit p47phox. Therefore, we have identified PDI as a novel protein that contributes to oxidative stress and vascular dysfunction in vascular disease. We also have described a role for Nox2 in controlling inflammation through the regulation of thioredoxin redox state. Furthermore, our findings indicate that Thioredoxin Reductase inhibition could represent a novel therapeutic strategy in the treatment of sepsis. Recently, I am studying the redox mechanisms that control melanoma response to chemotherapy with a focus on PDI as a novel therapeutic target to overcome resistance to B-RAF inhibitors.

Ultrasonic vocalizations as a maker for affective states in animal models of mood disorders. Roberto Andreatini, Department of Pharmacology, Federal University of Paraná, Curitiba, Brazil

Rodents emit ultrasonic vocalizations (USV) which have been considered an index of affective state of the subject. In rats, 50-kHz USV would be associated with positive affective state while 22-Khz USV would be related to negative affective state. Thus, it is proposed that an increase emission of 50-kHz may represent the increase emotional tone in animal models of mania while increase 22-kHz USV emission (or blunted 50-kHz emission) may represent the negative affective state (or anhedonia) in animal models of depression [1,2,3]. In this line, it will be presented the USV emission of rats submitted to animal models of mania and depression. At general, in animal models of mania (e.g. sleep deprivation, amphetamine/ lixdexanfetamine) there is an increase in 50-kHz USV, which is blocked by antimanic drugs (e.g. lithium) [1,2]. In animal models of depression, chronic stress reduced 50-kHz induced by trickling and increase 22-kHz. Moreover, 22-kHz emission can be a marker for resilience for helplessness behaviour. In conclusion, USV can be a very interesting readout for affective state in animal models of mood disorders [3]. However, it could be stressed that very few studies evaluated USV in these models. [1] Pereira, Psychopharmacology, 231: 2567,

2014. [2] Wendler ,Prog Neuropsychopharmacol Biol Psychiatry, 88: 142, 2019. [3] Simola, Neuropharmacology, S0028-3908:30845, 2018.

Characterization of ultrasonic vocalizations in different pain states and social contexts in rats. Juliana Geremias Chichorro, Pharmacology Department, Federal University of Parana.

Rats emit ultrasonic vocalizations (USVs) in the range of 22-kHz and 50-kHz to communicate the presence of negative or positive emotional states, respectively. The calling behavior may be influenced by several factors, including environmental factors. Likewise, pain behavior can be modulated according to the social context, and also can be transferred to conspecifics. Herein we investigated if acute (i.e. formalin test) and chronic (i.e. constriction of the infraorbital nerve, CION) orofacial pain conditions were related to changes in the emission of aversive and appetitive calls and how different social contexts affected the nociceptive behavior and USVs. Our results demonstrated that orofacial formalin injection in rats was able to induce aversive calls concomitantly to the nociceptive behavior. Exposure of formalin injected rats to familiar cage mates had no effect on the nociceptive behavior or calls emitted by the demonstrator, but the observer showed emotional contagion of pain. In contrast, exposure of formalin-injected rats to non-familiar cage mates or females decreased the nociceptive behavior of the demonstrator. In sharp contrast, rats subjected to CION did not emit aversive calls, but showed a significant reduction in the emission of appetitive calls. Likewise, CION rats displayed ongoing pain (assessed on the conditioned place preference paradigm, CPP) and anxiety-like behavior (assessed on the elevated plus maze). Analysis of cfos expression in CION rats revealed a significant increase in the amygdala, medial prefrontal cortex (mPFC), and nucleus accumbens (NAc), in which a significant reduction of tyrosine hydroxylase was also detected. Our data suggest that acute pain is related to emission of 22kHz calls, which may indicate aversiveness. Chronic pain is associated to spontaneous pain, reduction of 50-kHz calls emission and anxiety-like behavior, which may be related to reduction in dopamine in the Nac. Changes in the social context also modulate 50-kHz emission, and our data suggest that emotional contagion of pain depends on familiarity and analgesia may be a result of social interaction with a stranger or with a female. Financial support: Capes and CNPq.

The challenge of career changing: From basic science to drug development. Gabriela Westerlund Peixoto Neves[1] [1] Drug Development Project Analyst, Biozeus, Rio de Janeiro, Brazil Contact information:

Developing a scientific career in basic science is not an easy task. Basically, a student spends years investing in his/her education, starting from undergraduate studies until completing a doctorate. The main goal is usually the same, to become a Professor and/or a Researcher at Universities or Basic Science Research Institutes. Nevertheless, to achieve these stable and permanent positions a Ph.D. usually has to spend a few more years in post-doctorate positions, in order to achieve more research experience and be better prepared for the big career opportunity. A Ph.D. is usually an experienced professional, with sophisticated and complex technical skills, trained to quickly solve problems, with a strong self-criticism and a multi-task ability. Moreover, this professional has experience in managing projects, writing scientific texts and discussing highly complex scientific subjects. This broad range of skills allows a Ph.D. to explore professional paths outside the academic field. These abilities could be explored in different careers in the pharmaceutical and biotechnology field, in positions like: medical science liaison, drug development project analyst and manager, clinical research associate, specialist in regulatory affairs, technicians in Contract Research Organization and etc. This presentation will cover the professional paths a Ph.D. can enroll outside the academy and basic research institutions, addressing from a personal experience the challenges one may find by changing the career from basic science to the pharmaceutical industry. Overall,

this lecture will encourage students and basic scientists to think outside the box when making their career choices.

Challenges for the development of new drugs to treat tropical and neglected disease: The importance of cooperation between academia and industry. Anna Caroline Campos Aguiar Universidade de São Paulo- São Carlos. Instituto de Física.

Infectious tropical diseases and neglected tropical diseases (NTDs) mainly affect Low- and Middle-Income countries. The relationship between NTDs diseases and the low income of the poorest populations is evidenced by the fact that infectious diseases rank first among the leading causes of death and permanent disability in developing countries. The current treatments for many of these diseases are unsatisfactory and there are few or no suitable drugs, in addition, the development of new drugs is unattractive from a market perspective due to the lack of sufficient financial incentives and low return on investment. The drug development process is characterized by its relevant multidisciplinary nature, covering various specialties such as organic and medicinal chemistry, biochemistry, pharmacology, information technology, and molecular and structural biology among others. In this sense, the implementation of multilateral collaborations leads to continued efforts in drug discovery. The academy plays a key role in the understanding of the pathogen biology and biochemical pathways, in the investigation of new validated molecular drug targets, development of new Large-scale cell-based phenotypic and enzymatic screening, among other issues that may help to fill the major gaps in this field. Despite the long road that still needs to be covered, the recent progress in drug development in malaria, tuberculosis and other diseases show that with concerted efforts of governments, charities, foundations, product development partnerships, academic institutions and pharmaceutical companies, headway can be made. Financial Support: FAPESP

Public awareness of science: How to attract a bigger audience to what we discover. Fabrício Alano Pamplona (Mind the Graph)

The need to communicate what is discovered to a broader audience is an additional challenge to scientists like us. This demands complementary skills and is often required by the scientific journals and even more by magazines, internet websites and social media. What's the value of some wonderful discover that remain hidden from the public? Here I will discuss the role of scientists in the communication of science and raising of public awareness. Particularly, my experience as an entrepreneur at Mind the Graph, a startup company founded in 2015 that currently impacts 250.000 people over the world with a product to produce impactful scientific infographics and presentations.

Pharmacological Modulation of Pain and Inflammation in Chronic Disease

Neutrophils as a source of autoantigens in Lupus: What is happening? Marc Pouliot, Sandrine Huot, Cynthia Laflamme, Philippe A. Tessier, Martin Pelletier, Eric Boilard and Paul R. Fortin. Department of Microbiology-Infectiology, and Immunology, Faculty of Medicine, Université Laval, and ARThritis Research Center, Quebec City, Canada.

Systemic lupus erythematosus (SLE) is a life-long, autoimmune disease, affecting approximately one in every 2000 individuals, most of them women of childbearing age. There is currently no cure to SLE. It is characterized by impaired immune tolerance resulting in the generation of pathogenic immune complexes, and by an increase in abnormal neutrophils in circulation. SLE also features an overexpression of type I interferon (IFN) regulated genes, denoted as an IFN signature. Compelling evidence implicates neutrophils in the inflammatory flares associated with SLE. However, explanations at the molecular level are deficient. Goals/Research Aims. We hypothesize that lupus-relevant factors affect neutrophils and promote the release of autoantigens, thereby fueling overt inflammation. To test this hypothesis, we are addressing the two following questions: 1) What are

the conditions preferably leading to neutrophil demise and release of auto-immunogenic materials? We stimulate human neutrophils from healthy volunteers with agonists relevant both to neutrophils and monitor their viability. In parallel, we measure adhesion molecules, gene expression, secretion of cytokines, adhesion to endothelial cells, and the release of damage-associated molecular patterns (DAMPs). 2) What are the factors at play in the serum of patients with lupus that can de-regulate neutrophil viability and promote the release of immunogenic materials? We incubate neutrophils from healthy volunteers with sera obtained from patients with lupus and measure the onset of neutrophil apoptosis, necrosis, the release of cytokines and DAMPs. We will select the sera that are amongst the most active in those regards and we will consider molecular pathways suspected of causing these pro-inflammatory phenotypes in order to identify potential therapeutic targets. Expected outcomes. This project shall identify conditions that alter neutrophil functions and promote the release of pro-inflammatory materials. The integration of data emerging from experiments containing purified agonists combined to manipulations with blood samples obtained from patients with lupus gives us a unique opportunity to improve our understanding of the implication of neutrophils in lupus, thus bringing us closer to better treatments. Funded in part by the Canadian Institutes of Health Research (CIHR).

Peripheral macrophage activation drives pathological pain. Thiago M. Cunha Associate Professor of Pharmacology Center for Research in Inflammatory Diseases, Department of Pharmacology, Ribeiro Preto Medical School University of Sao Paulo

Chronic pain is an important social and health problem and pharmacological treatments are not effective. Among the subtypes of chronic pain, neuropathic pain is one of the most prevalent. Regarding the pathophysiological mechanisms involved in the development of neuropathic pain, it is becoming clear that central neuroimmune-glial interactions play a critical role. Besides, peripheral neuro-immune mechanisms seems to be also very important. In this context, this talk will focus on the importance of sensory ganglia resident macrophages (NAMs) for the development of neuropathic pain. Two main aspects will be covered. First, it will be revealed whether peripheral macrophages are able to infiltrate sensory ganglia after peripheral nerve injury. Second, possible mechanisms involved in the activation of NAMs after peripheral nerve injury, and their contribution for the development of neuropathic pain will be presented. These mechanisms could favor the discovery of novel pharmacological targets that could be used in the development of novel drugs for neuropathic pain prevention/treatment.

Symposium: Vascular Dysfunction: From Vascular Injury to Remodeling

Mechanistic Insights into Caveolin-1 Depletion-dependent Endothelial-to-Mesenchymal Transition. Richard D. Minshall, PhD[1,2] - Departments of Anesthesiology[1] and Pharmacology[2], University of Illinois at Chicago, USA.

Caveolin-1 (Cav-1) expression in endothelial cells (ECs) is critical for maintenance of vascular homeostasis including regulation of vascular tone, adhesivity, permeability and angiogenesis. Cav-1 regulates the expression and function of several key proteins in ECs including endothelial nitric oxide synthase (eNOS) and nitric oxide plays a critical role in regulating vascular homeostasis. Depletion of Cav-1 in ECs leads to eNOS hyperactivation, uncoupling, and formation of peroxynitrite which we hypothesized promotes endothelial-to-mesenchymal transition (EndoMT). Primary murine lung ECs (MLECs) isolated from *Cav1*$^{-/-}$*;Flk1*$^{-/+GFP}$ mice exhibited a mesenchymal or muscle-like phenotype with reduced potential to form endothelial tubes in Matrigel as compared to *WT;Flk1*$^{-/+GFP}$ MLECs. In absence of Cav-1, ECs co-expressing endothelial cell (Flk1, PECAM-1, VE-cadherin) and mesenchymal markers (smooth muscle alpha actin, vimentin) may contribute to pulmonary vascular remodeling. Interestingly, we observed that the defect in tube formation in *Cav1*$^{-/-}$ ECs was abolished when eNOS was also genetically removed (i.e. in *Cav1*$^{-/-}$*;eNOS*$^{-/-}$ MLECs)

suggesting eNOS-derived oxidants in absence of Cav-1 may contribute to unproductive EC tube formation. In support of these findings, elevated levels of peroxynitrite were observed in *Cav1*$^{-/-}$ MLECs in association with reduction in junctional PECAM and VE-cadherin staining, Notch-1 cleavage and accumulation of the intracellular domain in the nucleus, and expression of Notch-1 effector *Hey1* when compared to WT or *Cav1*$^{-/-}$*;eNOS*$^{-/-}$ MLECs. Moreover, reduced expression of Notch-1 and -4 mRNA and increased expression of Notch-2 and -3 were observed in *Cav-1*$^{-/-}$ but not *Cav1*$^{-/-}$*;eNOS*$^{-/-}$ MLECs. Finally, direct treatment of *Cav1*$^{-/-}$*;eNOS*$^{-/-}$ MLECs with peroxynitrite donor SIN-1 reconstituted the Notch-1 cleavage defect. Thus, eNOS-derived peroxynitrite in absence of Cav-1 may promote pathological angiogenesis by inhibiting Notch 1 and 4 and upregulating Notch 2 and 3 expression associated with disorganized and unproductive EC outgrowths with a mesenchymal phenotype. Funding: NIH HL60678, HL71626, and HL125356, and DOD W911NF1510410.

Perivascular adipose tissue and vascular dysfunction in sepsis. Jamil Assreuy, Clarissa Germano Barp and Patricia Oliveira Benedet Department of Pharmacology, Universidade Federal de Santa Catarina-UFSC- Florianópolis (SC), Brazil.
Recent evidence shows that perivascular adipose tissue (PVAT) participates in the physiological regulation of vascular contraction/dilation via the release of vasoactive mediators such as nitric oxide (NO) and adipokines such as leptin and adiponectin. In conditions affecting the cardiovascular system such as hypertension and obesity, there are changes in the mediators released by PVAT contributing to the ensuing vascular dysfunction. Sepsis is a complex pathological condition in which vascular dysfunction, characterized by hypotension e hyporesponsiveness to vasoconstrictors plays a fundamental role. PVAT putative role in this scenario is unknown. Therefore, the present work was designed to evaluate how PVAT contributes to the altered contraction of two vessels, namely the aorta and the superior mesenteric artery from the rat. Wistar female rats (200-250 g) were anesthetized and septic shock was induced by cecal ligation and puncture (CLP). Twenty-four hours after sepsis induction, aorta and superior mesenteric arteries with or without PVAT were cut in rings and mounted in tissue organ baths. For the molecular analysis, vessels were collected 12 h and 24 h after sepsis induction and then frozen in Tissue-Tek® medium, cut in slices of 10 µm and the production of ROS and NO was assessed by the fluorescent probes DCF-DA and DAF FM-DA, respectively. S-nitrosothiol content was measured by a modification of the Biotin Switch assay. The anti-contractile effect of PVAT was greater in vessels of septic animals ($logEC_{50}$ -6.3 ± 0.2 PVAT– and -5.5 ± 0.2 PVAT+ for aorta, and -5.5 ± 0.1 in PVAT– and -4.8 ± 0.2 PVAT+ for superior mesenteric artery). The maximal response value to noradrenaline was reduced in sepsis 0.70 ± 0.03 PVAT- and 0.54 ± 0.03 PVAT+ aorta; 0.43 ± 0.01 PVAT- and 0.35 ± 0.03 PVAT+ for mesenteric artery. Septic animals showed increases in NO, ROS and S-nitrosylated proteins in PVAT. Therefore, the presence of PVAT reduces the contractile effects of norepinephrine in aorta from normal rats. Sepsis induction increased further the anti-contractile effect of PVAT and it may be mediated by the increased production of NO, ROS and protein S-nitrosylation. Therefore, PVAT should be considered as a new and relevant player in sepsis vascular dysfunction. Financial support: CNPq, CAPES and FINEP. Research approved by the Institutional Animal Ethics Committee: CEUA/UFSC PP2264190617.

Endothelial Cell - Macrophage Crosstalk in Vascular Repair and Remodeling. Suellen D.S. Oliveira, PhD, Dep. of Anesthesiology, University of Illinois at Chicago, Chicago - IL, USA.
Endothelial cell (EC) activation and damage is the first step of several inflammatory vascular diseases including pulmonary arterial hypertension (PAH). PAH is characterized by pulmonary vasoconstriction and remodeling, increased right ventricular systolic pressure, right ventricular hypertrophy, and premature death. While our understanding of the pathogenesis of PAH have

significantly advanced in recent years, in about 40% of PAH patients the cause remains idiopathic (IPAH). Microvascular muscularization and development of plexiform vascular lesions, hallmark of IPAH, is also observed in Schistosomiasis-associated PAH indicating their formation in both groups may share similar mechanistic features. In this sense, research efforts from our group indicate that persistent exposure of ECs to inflammatory mediators induce a dysfunctional EC phenotypic switch leading to remodeling of the microvasculature. The molecular events that promote phenotypic and morphologic alterations in ECs remain incompletely understood, although expression of Caveolin-1 (Cav-1), a critical determinant of EC homeostasis, is reduced as a result of the lung inflammatory response and thus appears to be a key determinant of inflammatory vasculopathies, such as PAH. In absence of EC-Cav-1, the primary regulator of eNOS expression and activity, we observed increased levels of $ONOO^-$ at the expense of NO bioavailability resulting in loss of BMPRII expression and disruption of the cell-cell signaling required for maintenance of the EC quiescence and vascular homeostasis. Our data also indicates EC damage leads to appearance of Cav-1+ microvesicles and small apoptotic bodies in the circulation simultaneous to depletion of lung Cav-1. Finally, we have observed that this damage-associated vesicular endothelial signals, *i.e.* Cav-1-containing vesicles, can activate macrophages-induced TGF-β secretion, which in turn may stimulate EC transdifferentiation into a proliferative phenotype, highly observed in the obliterative inflammatory vascular lesions of PAH patients. Sources of funding: Postdoctoral Fellowship from CNPq/CsF & an Award from the American Heart Association and the Circle of Service Foundation (18POST34020037).

Neurometabolism, Inflammation and Brain Damage

Mitochondria dynamics and metabolism regulation. Sabrina Diano[1,2,3,4] [1]Program of Integrative Cell Signaling and Neurobiology of Metabolism, [2]Departments of Cellular & Molecular Physiology, [3]of Neuroscience and [4]of Comparative Medicine, Yale University School of Medicine and Graduate School, New Haven, Connecticut, 06520 USA.

Our research has been focusing on deciphering intracellular mechanisms that enable hypothalamic cells to sense and respond to changes in circulating nutrient and hormone levels in the control of food intake, energy and glucose metabolism. Our findings have unmasked mitochondrial dynamics as critical player in the central regulation of metabolism. By altering their size, shape and function, mitochondria enable cells to adjust their activity, which in turn alters behavior and peripheral tissue functions to fine tune systemic metabolism. This presentation will highlight these cellular biological processes in the hypothalamic regulation of energy and glucose homeostasis. This work was supported by NIH R01s DK097566, DK105571, DK107293, DK120321

Diet, Mitochondria and Energy Metabolism. Alicia J. Kowaltowski Departamento de Bioquímica, Instituto de Química, Universidade de São Paulo

Similarly to humans, in which obesity is related to a variety of age-related diseases, the lifespan of laboratory rodents is limited by obesity, including that promoted by *ad libitum* access to standard chow. Indeed, daily limitation of caloric intake (calorie restriction) has been widely shown to enhance lifespans and prevent age-related diseases in rodents. We will discuss the metabolic differences between caloric restriction and other dietary interventions that promote weight loss, such as intermittent fasting. We will also show how mitochondrial form, function and ion transport are altered in caloric restriction, and how changes in energy metabolism promoted by this dietary intervention prevent age-related diseases and modifications in the brain, liver, skin and cells. Overall, our results show that caloric intake, mitochondrial form and function are intimately interconnected, and present central regulatory roles in age-related diseases.

Mitochondrial dysfunction and changes in high-energy compounds in different cellular models of hypoxia: **implication to Schizophrenia**. Tatiana Rosado Rosenstock. Faculdade de Ciências Médicas da Santa Casa de São Paulo, São Paulo, Brasil

Schizophrenia (SZ) is a multifactorial mental disorder, which has been associated with a number of environmental factors, such as hypoxia. Considering that numerous neural mechanisms depends on energetic supply (ATP synthesis), the maintenance of mitochondrial metabolism is essential to keep cellular balance and survival. Therefore, in the present work, we evaluated functional parameters related to mitochondrial function, namely calcium levels, mitochondrial membrane potential, redox homeostasis, high-energy compounds levels and oxygen consumption, in astrocytes from control (Wistar) and Spontaneously Hypertensive Rats (SHR) animals exposed both to chemical and gaseous hypoxia. We show that astrocytes after hypoxia presented depolarized mitochondria, disturbances in Ca^{2+} handling, destabilization in redox system and alterations in ATP, ADP, Pyruvate and Lactate levels, in addition to modification in NAD^{+}/NADH ratio, and *Nfe2l2* and *Nrf1* expression. Interestingly, intrauterine hypoxia also induced augmentation in mitochondrial biogenesis and content. Altogether, our data suggest that hypoxia can induce mitochondrial deregulation and a decrease in energy metabolism in the most prevalent cell type in the brain, astrocytes. Since SHR are also considered an animal model of SZ, our results can likewise be related to their phenotypic alterations and, therefore, our work also allow an increase in the knowledge of this burdensome disorder. Funding: FAPESP (2015/02041-1), CAPES and FAP Santa Casa 2016/2018.

Inflammatory signaling effects on neural progenitors proliferation and metabolismo. Isaias Glezer (Unifesp-EPM)

Inflammatory signaling effects on neural progenitor cells proliferation and metabolism Isaias Glezer Escola Paulista de Medicina/UNIFESP Immune cells activation and neuronal injury impact adult neurogenesis, resulting in different outcomes for regenerative responses. Adult neural progenitor cells (NPCs) display varied capacities to proliferate and differentiate into either neuronal or macroglial cells depending on the neurogenic niche. We and others have previously shown that corticosteroid-based anti-inflammatory strategies may impact NPCs through mechanisms that do not necessarily involve the innate immune system cell activity or derived molecules. In contrast, models that directly interfere with components of pro-inflammatory pathways provide direct inference of how the innate immune signaling impacts on neurogenesis. Brain injury in the hypothalamus provoke early proliferative responses in NPCs and prime these cells to acquire persistent changes, including metabolic plasticity, even when removed from their microenviroment. We also verified that global or cell-specific deletion of a key pro-inflammatory transducer results in different outcomes that may impact cellular responses to brain injury or inflammation. These data contribute to understand mechanisms of regenerative responses in the nervous system. Apoio Financeiro: FAPESP, CEPID-Redoxoma e CNPq

Symposium: Pharmacology of Natural Products: Challenges and Opportunities

Experimental and Neuropsychopharmacological Characterization of Natural Products with Epileptogenic, **Anti-epileptogenic and Neuroprotective Actions** Olagide W. Castro Institute of Biological Sciences and Health, Federal University of Alagoas (UFAL), Maceio, Brazil.

The hippocampus is one of the most susceptible regions in the brain to be distraught with status epilepticus (SE) induced injury. SE can occur from multiple causes and is more frequent in children and the elderly population. Administration of a combination of antiepileptic drugs can abolish acute seizures in most instances of SE but cannot prevent the morbidity typically seen in survivors of SE such as cognitive and memory impairments and spontaneous recurrent seizures. This is primarily due to the inefficiency of antiepileptic drugs to modify the evolution of SE induced initial

precipitating injury into a series of epileptogenic changes followed by a state of chronic epilepsy typified by spontaneous recurrent seizures, and cognitive and memory impairments, associated with chronic inflammation, significantly waned neurogenesis and abnormal synaptic reorganization. Thus, alternative approaches that are efficient not only for curtailing SE-induced initial brain injury, neuroinflammation, aberrant neurogenesis, and abnormal synaptic reorganization but also for thwarting or restraining the progression of SE into a chronic epileptic state are needed. Here we confer the promise of two emerging therapies for preventing or easing SE-induced neurodegeneration, neuroinflammation, cognitive and memory impairments. Specifically, therapeutic efficacy of natural products *Resveratrol* and *Cannabidiol*, as well as the neurotoxicity and epileptogenic effect of the S*tar Fruit* is discussed.

Integrative metabolomics analysis of the Brazilian Biodiversity. Norberto Peporine Lopes. *NPPNS-FCFRP, USP.*

Plants and other living organisms have long been used as source for different useful human products. Traditional medicines have always been a source for the cure of many diseases since antiquity. However, their rational use was possible only after the understanding of how the compounds present in plants had their activities proved. Then the search for new bioactive compounds had a huge development and as consequence, a number of new molecules with different spectra of activities were found. Numerous examples of bioactive natural products are known; however their discoveries have always been associated with the development of new analytical techniques. Recently metabolomics strategies based on mass spectrometry improved dereplication process and also open new perspectives for chemical biology investigations. In this talk we provide an integrative overview of MS strategies helping integrative metabolomics analysis and imaging generation for the Brazilian Biodiversity.

Symposium: New Pharmacological Approaches for Fibrosing Disorders

Influence of activation of the inflammasome pathway on tissue remodeling and fibrogenic activities. Vincent Lagente NUMECAN Institute, INSERM, INRA, University of Rennes, France

Fibrosis is a basic connective tissue lesion defined by the increase in the fibrillar extracellular matrix (ECM) components in tissue or organ. Matrix metalloproteinases (MMPs) are a major group of proteases known to regulate the turn-over of ECM and so they are suggested to be important in tissue remodeling observed during fibrogenic process associated with chronic inflammation. Tissue remodeling is the result of an imbalance in the equilibrium of the normal processes of synthesis and degradation of ECM components markedly controlled by the MMPs/TIMP imbalance. We previously showed an association of the differences in collagen deposition in the lungs of bleomycin-treated mice with a reduced molar pro-MMP-9/TIMP-1 ratio with increased expression and release of tissue inhibitors of metalloproteinase (TIMP)-1 both at 24 h and 3 weeks later. This suggests an early altered regulation of matrix turnover involved in the development of fibrosis. We also demonstrated an activation of NLRP3-inflammasome pathway associated with the IL-1R/MyD88 signaling in the development of experimental fibrosis both in lung and liver. This was also associated with the MMPs/TIMP imbalance. To further analyse the cell-cell interaction on the development of fibrosis, we co-cultured human macrophages (THP-1 cell line or human monocyte-derived macrophages (MDMs)) with human myofibroblasts (LX-2 cell line or primary myofibroblasts). The results showed that the activation of inflammasome pathway in macrophages leads to a pro-inflammatory environment for myofibroblasts with enhanced reactivity. Finally, these observations emphasize those effective therapies for these disorders must be given early in the natural history of the disease, prior to the development of tissue remodeling and fibrosis.
Financial support: INSERM and Fondation de la Recherche Médicale (FRM, France)

The Pharmacological Role of Neuropeptides in Inflammation, Pain and Beyond

New insights into the role of TRP receptors in arthritis. Alawi KM, de Sousa Valente J and Brain SD. King's College London SE1 9NH,

Transient Receptor Potential Canonical 5 (TRPC5) is a non-selective ion channel. We are investigating the role of TRPC5 in murine models of arthritis. The expression of TRPC5 was reduced in the synovium ($p<0.01$) in murine CFA-induced arthritis over 14 days. This was accompanied by a hyperalgesic and pro-inflammatory profile in the TRPC5 knockout (KO) compared to wildtype (WT) mice with enhanced primary (weight-bearing) and secondary (mechanical) hyperalgesia. The pro-inflammatory profile was associated with increased levels of swelling and bio-markers including TNFα and matrix metalloproteases. The results were supported by use of the selective TRPC4/5 antagonist ML204. Analysis of human joint tissue with defined arthritis revealed that TRPC5 expression was reduced in OA as well as RA (Alawi et al. 2017). We hypothesised that TRPC5 may be involved in osteo-arthritis (OA). To examine this, the partial meniscectomy (PMNX) model of OA and the monoiodoacetate (MIA) models were investigated. PMNX mice demonstrated enhanced hyperalgesia during the chronic phase (days 42-56; $n=7$; $p<0.05$). Walking patterns provided evidence of differences between the TRPC5 KO compared with WT PMNX mice ($n=7$; $p<0.05$ from 42-77 days). This provides the first in vivo evidence of the contribution of TRPC5 to arthritic conditions. These results provide novel evidence of a mechanism by which loss or blockade of TRPC5 leads to increased suffering associated with RA and OA. Alawi, K.M., et al. Ann Rheum Dis, 2017 76:252-260. Supported by Versus Arthritis UK

Somatostatin sst_4 receptor agonists, as novel analgesic and antidepressant drug candidates. Zsuzsanna Helyes, Eva Szoke, Boglarka Kantas, Eva Borbely, Agnes Hunyady, Junaid Ashgar, Valeria Tekus, Csaba Hetenyi, Rita Borzsei, Peter Banhegyi, János Szolcsányi, Erika Pintér. Department of Pharmacology and Pharmacotherapy of Pécs, Medical School & János Szentágothai Research Centre, University of Pécs, Hungary

Background: Somatostatin released from the capsaicin-sensitive peptidergic nociceptors at the periphery and GABAergic interneurons in the brain inhibits pain, anxiety and depression. Its sst_4 receptor is not involved in the endocrine actions, but it has potent analgesic and anti-depressant functions proposing drug developmental perspectives. Since it is expressed on glutamatergic and cholinergic neurons of pain and mood-related brain regions, we investigated the effects of our novel small molecule sst_4 receptor agonists in mouse models of neuropathic pain and depression-like behavior. Methods: Sst_4 receptor binding of our pirrolo-pirimidine compounds was determined *in silico*, activation by the gamma-GTP-binding, cAMP inhibition and beta-arrestin activation assays on sst_4-expressing CHO cells. The effects of the 4 most potent and efficacious agonists were tested on mechanical hyperalgesia in the partial sciatic nerve ligation-induced traumatic mononeuropathy model, spontaneous locomotor activity and anxiety in the open field and elevated plus maze tests, depression-like behaviour in the tail suspension test. Results: Our novel compounds bind to the high affinity binding site of the receptor, activate the G-protein binding and inhibit cAMP formation. However, despite the reference sst_4 agonists, they do not induce beta-arrestin activation responsible for tolerance upon chronic use. They exert 65-80% maximal anti-hyperalgesic effects in the neuropathy model after a single oral administration of 100-500 microg/kg doses, as well as significantly inhibit anxiety and depression-like behavior without influencing spontaneous locomotion. Conclusion: Our sst_4 agonists are promising drug candidates for neuropathic pain, anxiety and depression that are mediated by common mechanisms and frequently occur as co-morbidities. Financial support: National Brain Research Program (2017-1.2.1-NKP-2017-00002); GINOP-2.3.2-15-2016-00050 „PEPSYS"; EFOP-3.6.1-16-2016-00004

Participation of TRPA1 in neuropathic pain mechanisms. Gabriela Trevisan dos Santos (UFSM)

The external or internal stimuli that constantly bombard organisms are detected by complex physiological sensory systems. Among ion channels, transient receptor potential (TRP) channels have been identified as sensors for physiological or noxious stimuli. The TRP ankyrin 1 (TRPA1) exhibits sensitivity to thermal stimuli and chemical substances and has been suggested as a potential drug target. Thus, studying the mechanisms of TRPA1 expression, regulation, and activation is essential for understanding its role in sensory neurons. TRPA1 participation have been investigated particularly during the inflammatory process, where it contributes to pain hypersensitivity and usually undergoes an increase in expression and persistent stimulation by endogenous agonists. Thus, various studies demonstrated the involvement of TRPA1 and TRPV1 in neuropathic pain induced chronic hypersensitivity. In this view, we will report the recent advances, challenges, and unresolved issues regarding TRPA1 studies and discuss the possible discovery of new therapies that could target the TRPA1 channel. The focus of our symposium will be in TRPA1 role in neuropathic pain, including peripheral neuropathic pain caused by nerve injury and central neuropathic pain induced by multiple sclerosis. Apoio Financeiro: CNPq, Capes, e Prêmio Loreal para Mulheres na Ciência

Regulatory role of TRPA1 in the pathomechanism of experimental and human psoriasis. Ágnes Kemény[1,2], Xenia Kodji[3], Szabina Horváth[4], Rita Komlódi[1], Éva Szőke[1], Zoltán Sándor[1,], Anikó Perkecz[1], György Sétáló[2], Susan D Brain[3], Erika Pintér[1], Rolland Gyulai[4] *(1) Department of* Pharmacology and Pharmacotherapy, University of Pécs Medical School, H-7624 Pécs, Szigeti str. 12, Hungary (2) Department of Medical Biology, University of Pécs Medical School, H-7624 Pécs, Szigeti str. 12, Hungary (3) Vascular Biology & Inflammation Section, BHF Centre of Cardiovascular Excellence, King's College London, London SE1 9NH, UK (4) Department of Dermatology, Venereology and Oncodermatology, University of Pécs, H-7632 Pécs, Akác str. 1, Hungary Introduction: Psoriasis is a chronic, recurrent immune-mediated inflammatory skin disease, affecting 2-3% of the population. The critical roles for immune cells and cytokines in psoriasis pathogenesis is supported by the observation that treatments targeting the immune system, such as antibodies against TNF-α, IL-12/23 or IL-17, are highly effective in improving the disease. Imiquimod (IMQ)-induced psoriasiform skin inflammation in mice is the most frequently used animal model to study the pathomechanism. Methods: The present study revealed the modulatory role of Transient Receptor Potential Ankyrin 1 (TRPA1) and Vanilloid 1 (TRPV1) cation channels in Aldara-induced (5% imiquimod, IMQ) murine psoriasis model using selective antagonists and gene deleted genetically altered animals. We have also developed a refined localized model to enable internal controls and reduce systemic effects. Skin pathology was quantified by measuring skin thickness, scaling, blood flow, and analyzing dermal cellular infiltrate, while nocifensive behaviors were also observed. Cytokine gene expression profiles were measured ex vivo. Results: Psoriasiform dermatitis was significantly enhanced in TRPA1 KO mice and with TRPA1 antagonist (A967079) treatment. By comparison, symptoms were decreased when TRPV1 function was inhibited. IMQ induced Ca2+ influx in TRPA1-, but not in TRPV1-expressing cell lines. Compared to the TRPV1 KO animals, additional elimination of the TRPA1 channels in the TRPV1/TRPA1 double KO mice did not modify the outcome of the IMQ-induced reaction, further supporting the dominant role of TRPV1 in the process. Conclusion: Our results suggest that the protective effects in psoriasiform dermatitis can be mediated by the activation of neuronal and non-neuronal TRPA1 receptors. Further studies are required, however, to fully characterize and exploit the pro- and anti-inflammatory potential of the TRPA1 receptor in cutaneous inflammatory reactions. Acknowledgement: Research grant GINOP-2.3.2-15-2016-00050 „PEPSYS"

Roundtable: Main Challenges for Innovation in Pharmacology

Challenges for the development of cannabinoid products in Brazil Fabrício Alano Pamplona (Mind the Graph)

The talk will address the opportunities and challenges in the development of cannabinoid products in Brazil. On the one hand, our country represents one of the biggest potential markets in the world, but even tough Medical Cannabis is a reality since March 2016, it is still to a great extent, an unregulated market. My experience as scientist in the field turned out to be useful in pharmaceutical product development. I will share my perspective on what's happening in Latin America, and how Brazil compares to other environments for drug development, particularly for this kind of products. The regulatory landscape is changing fast and what is now a forbidden plant that produces controlled substances, may soon become a medicinal plant from where one may produce even OTC products and food supplements, according to WHO. The complexity is even bigger, as different plant strains and different production methods may yield different extract compositions. This implies in different clinical indication. In this environment of poor regulation and much social pressure, what are the opportunities and challenges for an entrepreneur?

Rethinking Preclinical Drug Research – Human Based 3D Tumor Models as an Example. Monika Schaefer-Korting and Christian Zoschke. Freie Universität Berlin, Pharmacology and Toxicology, Königin-Luise-Str. Berlin, Germany

Animals are still considered essential for testing the efficacy and safety in preclinical drug development. Yet, most of the drug candidates fail in phase II clinical trials although they proved effective in preclinical studies (Smietana et al., 2016). This shortcoming emphasizes the need for reliable and relevant disease models prior to the *in vivo* testing in patients. Herein, we develop and characterize human based models of skin and mucosa carcinomas to understand better the pharmacology of drug candidates. For start, we analyzed the effects of fibroblast age and origin as well as the glycation of the extracellular matrix on the epithelial differentiation in the reconstructed tissue (Hausmann et al., 2019, Rigon et al., 2018). Since both strongly altered the construct´s morphology, aging must be taken into account also for the carcinoma models. Next, we qualified the carcinoma models by testing clinically used anticancer drugs, the effects induced were correlated to the outcome in patients. Moreover, we unraveled the efficacy and safety of investigational new drugs. Finally, we are studying the pharmacokinetic profiles in the *ex vivo* drug application to mimic better the drug treatment regimen in patients. These data will lay the foundation for a combined *ex vivo - in silico* approach, which allows to extrapolate from *ex vivo* (model) to *in vivo* (patient) dosing. In conclusion, human cell-based models with tissue like architecture have been proving highly useful for pharmacological studies. Nevertheless, the culture methods strongly influence the results in drug efficacy and safety. Thus, model qualification and relation of *ex vivo* with *in vivo* data presents the major challenge to be met prior to routine use of those models. In addition, these models allow the co-culture with more cell types to answer most complex pharmacological questions, if needed. References: Smietana K, et al. Nat Rev Drug Discov. 15: 379 (2016) Balansin Rigon R et al., Int J Mol Sci: 19 (2018) Hausmann C et al., Sci Rep 9: 2913 (2019). Funding The project is embedded in the research platform BB3R receiving financial support of the Federal Ministry of Education and Research (Germany).

EU-OPENSCREEN - An International Research Infrastructure initiative to facilitate Chemical Biology and early Drug Discovery. Bahne Stechmann (EU-OPENSCREEN, Germany)

Modern life science research often requires an interdisciplinary approach as well as access to state-of-the-art technologies, expertise and resources. In Europe, an increasing number of academic technology platforms and research groups at universities and institutes established research infrastructures in chemical biology and other scientific fields to facilitate the collaboration between international researchers. Research projects in chemical biology aiming at the discovery of novel

small molecular probes, which can be used as versatile tools in cell biology, are complex and often require access to screening platforms, large compound collections and chemical hit-to-lead optimization expertise, which are not always available to academic researchers. EU-OPENSCREEN (www.eu-openscreen.eu) is an academic, publicly funded, not-for-profit initiative, which supports international scientists who developed assays amendable to high-throughput screening to implement their research projects in early drug discovery to collaboratively develop novel small molecular probes for their proteins-of-interest, by providing access to high-throughput screening platforms, compound collections and medicinal chemistry groups. EU-OPENSCREEN is establishing an open-access bioactivity database which will be accessible on a global basis. Chemists and pharmacologists can provide compounds to be incorporated in the EU-OPENSCREEN compound collection, which is screened against a wide range of biological assays, thereby delivering extensive information about the biological activities of these compounds. Having compounds screened as part of this collection opens the perspective that some of these compounds will be identified as hits. In that case, the chemist will be asked to be involved in the following research projects and novel collaborations with the assay providers. Furthermore, EU-OPENSCREEN profiles these compounds in a set of standard assays to annotate them for basic physico-chemical and biological properties (e.g. cytotoxicity, antibiotic activity). Thus, chemists will rapidly receive data on the biological activities of their compounds. EU-OPENSCREEN receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 823893, 824063, 654248, 823798.

Sociedade Brasileira de Farmacologia e Terapêutica Experimental (SBFTE)
Executive Secretary
http://www.sbfte.org.br
sbfte@sbfte.org.br

Authors Index

A

B

C

D

E

F

G

H

I

J

K

L

H

M

P

Q

R

S

SBFTE thanks
the following organizations for their Sponsorship

Coordination for the Improvement of Higher Education Personnel (CAPES) Financial Support	**National Council for Scientific and Tecnological Development** Financial Support	**State of São Paulo Research Foundation** Financial Support
Federal University of Alagoas Financial Support	**State of Alagoas Research Foundation** Financial Support	**Hemerson Casado Gama Institute**
Aché Senior Pharmacologist Award	**Biolab-Sanus-Farmacêutica** Financial support José Ribeiro do Valle Award	**Alesco Ind e Com** Exhibitor
Greiner Bio-One Brasil Produtos Médicos Hospitalares Ltda Exhibitor	**Marken Brasil Serviços de Cadeia de Suprimentos Ltda** Meeting bag Folders	**British Journal of Pharmacology** Meeting bag Folders
Instituto Nacional de Ciência e Tecnologia de Fármacos e Medicamentos	**Centro de Inovação e Ensaios Pré-Clínicos**	**Usina Ciência da Universidade Federal de Alagoas**
		Nui Eventos Meeting Secretariat