Program and Abstracts

SBFTE
57 Anos
1966 - 2023

55th Brazilian Congress of Pharmacology and Experimental Therapeutics

Rafain Palace Hotel & Convention Center
Foz do Iguaçu, PR, Brazil

September
25-28
2023

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

Welcome Letter

Dear fellow SBFTE Members, Colleagues, and Friends,

I welcome you to the 55th Brazilian Congress of Pharmacology and Experimental Therapeutics, which has been organised by the Brazilian Society of Pharmacology and Experimental Therapeutics (SBFTE) since 1968. Our Society has held annual events where pharmacology and experimental therapeutics come together on diverse topics, high scientific standards, and international coverage.

The Scientific Organizing Committee, headed by Professor Emiliano Barreto, has worked hard to provide inspiring and thought-stimulating keynote presentations and symposiums exploring the latest advances in pharmacology research and education, attached with new therapeutic perspectives. *Exploring New Technologies in Pharmacology and Therapeutics* is the theme chosen for this meeting, a sensitive subject covering a substantial part of the scientific program. The Congress will assemble national and international leaders at the frontier of pharmacological and biomedical knowledge, addressing the most recent advances and progress in critical areas of pharmacology, such as inflammation and pain, cardiovascular pharmacology, neuropharmacology, and natural products. Three courses, nine lectures, eleven symposia, thirteen oral communication and two poster sessions will address educational, scientific dissemination and the popularisation of pharmacology, encouraging the maximum possible formal and informal interaction among all participants.

A highlight of the scientific program is the José Ribeiro do Valle (JRV) Award Symposium, a fantastic opportunity to congratulate the five young pharmacologists selected for the Award 2023. This timely initiative reaches 25 years of motivating post-graduate students to develop the skills necessary for a fruitful pharmacological career. Other activities of the 55th Brazilian Congress of Pharmacology that I would like to underline are the homages and presentations of the award winners of the first edition of the Women in Pharmacology in Brazil Award and the fourth edition of the Senior Pharmacologist Award. Congratulations to Professors Regina Pekelmann Markus, Regina de Sordi and Bernardo Boris Vargaftig, respectively, for their achievements. Finally, with the support of Elsevier, three abstracts submitted to the SBFTE 2023 Congress were selected by a committee of experts for the Pharmacological Research - Elsevier Award. I am already looking forward to announcing the winners of this award in our closing ceremony, along with the poster session highlights.

There are many people I would like to acknowledge for their support in bringing this annual meeting to life. The Congress committed many collaborators who helped either to set up the scientific program or rigorously refereeing the abstract submitted to the poster sessions. Many thanks to our invited speakers, session chairs, and those involved in our homage actions.

A special acknowledgement to the members of SBFTE 2023 Award Committees. The José Ribeiro do Valle Award Committee, composed of Professors Maria Martha Campos (PUC-RS, Coordinator), Ralf Jockers (Institut Cochin-CNRS, France, and Walter Koch (Temple University School of Medicine, USA). The Senior Pharmacologist Award Committee, composed of Professors Glaucius Oliva (University of São Paulo, Coordinator), Francesca Levi-Shaffer (The Hebrew University of Jerusalem, Israel), and Michel Nussenzweig (The Rockefeller University, USA). The Women in Pharmacology in Brazil Award Committee, composed of Professor Patricia Rieken Macedo Rocco (Federal University of Rio de Janeiro, Coordinator), Marzia Malcangio (King's College, London, UK) and Fernando de Queiroz Cunha (University of São Paulo, Ribeirão Preto). Their commitment and exemption were essential to select the awardees among the excellent candidates.

I thank our partners Biolab, Aché and Eurofarma for supporting the José Ribeiro do Valle Award, Senior Pharmacologist Award and Women in Pharmacology in Brazil Award, respectively. I also thank our sponsors, Alesco, Instituto de Ciências Farmacêuticas (ICF)/Simulation Plus, Oswaldo Cruz Foundation (Fiocruz), Itaipu Binacional, Elsevier, the National Council for Scientific and Technological Development (CNPq/Brazil), Coordination for the Improvement of Higher Education Personnel (CAPES/Brazil), and Foundation for Research Support of the State of São Paulo (FAPESP) for their financial support.

Finally, my special thank you to my colleagues and friends of the SBFTE Directory Board, Professors Teresa Dalla Costa, Flavia Santos, Richardt Gama Landgraf and Thiago Cunha, to the Young SBFTE Committee, headed by Professor Jamylle Ferro, to Sandra H. R Cruz (SBFTE Executive Secretary), as well as to the SBFTE Communication team and Nui Eventos for their crucial contributions to this event.

The SBFTE 2023 Congress will be the first held in person since the Covid-19 pandemic. Thus, there are many celebrations and an excellent opportunity to catch up with friends and share our most recent scientific achievements. I wish you a stimulating and productive experience at the 55th Brazilian Congress of Pharmacology and Experimental Therapeutics in Foz do Iguaçu.

Marco Aurélio Martins
President of SBFTE

Index

SBFTE Board

Board of Directors (2021-2023)

President:
Marco Aurélio Martins (Fiocruz)

Vice President:
Thiago Mattar Cunha (USP-SP)

Administrative Director:
Flávia Almeida Santos (UFC)

Executive Director:
Teresa Cristina Tavares Dalla Costa (UFRGS)

Financial Director:
Richardt Gama Landgraf (Unifesp-Diadema)

Deliberative Council

André Sampaio Pupo (Unesp-Botucatu – Past presidente)
Cláudia Lúcia Martins da Silva (UFRJ)
Paulo César Ghedini (UFG)
Rui Daniel Schröder Prediger (UFSC)
Maria das Graças Muller de Oliveira Henriques (Fiocruz-RJ)
Soraia K. P. Costa (USP-SP, President Deliberative Council)
Vinícius Frias Carvalho (Fiocruz)

Financial Council

Full Members
Cristiano Gonçalves Ponte (IFRJ)
Eduardo Koji Tamura (UESC)
Luiza Mota da Silva (Univali)

Alternate Members
Ana Lucia de Aguiar Pires (Fiocruz-RJ)
Rosane Gomez (UFRGS)

SBFTE Past Boards

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)

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)

Financial Council
Emer Suavinho Ferro (ICB-USP)
Roberto Cesar P. Lima Junior (UFC)
Vinicius de Frias Carvalho (Fiocruz)

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)
Emili,ano 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

About SBFTE Jovem

SBFTE Jovem is a committee formed by young pharmacologists' members of the Brazilian Society of Pharmacology and Experimental Therapeutics (SBFTE), founded in 2013.

We work in association with the SBFTE board of directors with the mission of creating a permanent political-scientific forum dedicated to undergraduate and graduate students, postdoctoral fellows, as well as young researchers and junior faculty.

Our goal is to discuss pharmacology-related scientific topics in order to promote early-career researchers' development and encourage our member's participation, insertion, and collaboration in SBFTE activities.

This year, SBFTE Young Committee is celebrating 10 years of work and progress and will coordinate crucial activities during the 55th Brazilian Congress of Pharmacology and Experimental Therapeutics in Foz do Iguaçu: 1) Beyond the Academy Round Table, 2) Meet the Professor luncheon, and 3) scientific dissemination to local school students. Beyond the Academy Round Table is proposed as an open discussion about innovation, new science challenges, how to engage in industry/pharmaceutical companies, or any other relevant opportunities beyond academic careers for early career scientists, scheduled to take place on September 26th, 2023 from 1:30 pm to 3:30 pm. Meet the Professor luncheon is proposed as a safe space for undergraduate and graduate students to interact with established professors about career challenges, project ideas, scientific issues, and experiences to be shared; with the aim of encouraging early career scientists to pursue their goals. This event is scheduled to take place on September 27th, 2023, from 12:20 pm to 1:20 pm (BRT). Scientific dissemination to local school students is a project in which we bring science and information to local high-school students with educational materials and accessible language, one day before the conference starts. Also, the students have the opportunity to visit our stand and poster session during the conference, to experience the world of scientists and to whiteness how we exchange our knowledge, scheduled to take place on September 27th, 2023 from 9:00 am to 11:30 am and 2:00 to 5:00 pm.

Last but not least, the third edition of SBFTE Jovem Cultural Contest for Scientific Dissemination is a contribution of this committee to science popularization, in which we encourage students to produce pharmacology-related informative videos using audiovisual resources, lays terms, metaphors, and creativity. Videos were initially analyzed by pharmacology professors and specialists, then elected by popular vote on social networks. The winners will be announced at the Closing Session of the 2023 conference. Finally, we invite the young pharmacologists to visit our stand this year as we are launching an activity to hear from you, what are your expectations, doubts, plans, and prospects!

SBFTE Young Committee

Jamylle Nunes de Sousa Ferro (UFAL, Coordinator)
Maira Assunção Bicca (Johns Hopkins Hospital, USA)
Maurício Schüler Nin (Factum)
Weverton Castro Coelho Silva (USP-RP)

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

2023 Congress Committees

Organizing Committee

Marco Aurélio Martins (Fiocruz, Coordinator)
Thiago M. Cunha (USP-RP)
Teresa Cristina Tavares Dalla Costa (UFRGS)
Flavia Almeida Santos (UFC)
Richardt Gama Landgraf (Unifesp)
Sandra Helena Rocha da Cruz (Executive Secretary)

Scientific Committee

Emiliano de Oliveira Barreto (Coordinator, UFAL)
Adriane Ribeiro Rosa (UFRGS)
André Sampaio Pupo (Unesp-Botucatu)
Geanne Matos de Andrade (UFC)
Jamil Assreuy (UFSC)
Maíra Assunção Bicca (Johns Hopkins Hospital, USA, SBFTE Jovem)
Maria Christina Werneck de Avellar (Unifesp-EPM)
Maria Fernanda de Paula Werner (UFPR)
Mauro Martins Teixeira (UFMG)
Thiago Mattar Cunha (USP-RP)
Sandra Helena Rocha da Cruz (Executive Secretariat)

Fundraising Committee

Marco Aurélio Martins (Fiocruz)
Thiago Mattar Cunha (USP-RP)
Teresa Cristina Tavares Dalla Costa (UFRGS)
Flavia Almeida Santos (UFC)
Richardt Gama Landgraf (Unifesp-Diadema)
Sandra Helena Rocha da Cruz (Executive Secretariat)
Gabriela Vieira de Souza Olivato (Nui Eventos)

SBFTE Young Trainee Committee

Jamylle Nunes de Sousa Ferro (UFAL, Coordinator)
Maira Assunção Bicca (Johns Hopkins Hospital, USA)
Maurício Schüler Nin (Factum)
Weverton Castro Coelho Silva (Unicamp)

Abstract Evaluation Committee

Flavia Almeida Santos (UFC, Coordinator)
Aleksander Roberto Zampronio (UFPR)
Alfeu Zanotto Filho (UFSC)
Carolina Demarchi Munhoz (USP-SP)
Darizy Flavia Silva Amorim (UFBA)
Enilton Aparecido Camargo (UFS)
Sandra Elisa Haas (Unipampa)
Vinicius de Frias Carvalho (Fiocruz-RJ)
Waldiceu Aparecido Verri Junior (UEL)
Ana Lucia de Aguiar Pires (Fiocruz, Secretary)

Poster Evaluation Committee

Flavia Almeida Santos (UFC, Coordinator)
Aleksander Roberto Zampronio (UFPR)
Alfeu Zanotto Filho (UFSC)
Carolina Demarchi Munhoz (USP-SP)
Darizy Flavia Silva Amorim (UFBA)
Enilton Aparecido Camargo (UFS)
Sandra Elisa Haas (Unipampa)

Vinicius de Frias Carvalho (Fiocruz-RJ)
Waldiceu Aparecido Verri Junior (UEL)
Ana Lucia de Aguiar Pires (Fiocruz, Secretary)

José Ribeiro do Valle Award Committee

Maria Martha Campos (PUC-RS, Coordinator)
Ralf Jockers (Institut Cochin-CNRS, France)
Walter Koch (Temple University School of Medicine, USA)

Aché-SBFTE Senior Pharmacologist Award Committee

Glaucius Oliva (USP-São Carlos)
Michel C. Nussenzweig (The Rockefeller University, USA)
Francesca Levi-Schaffer (The Hebrew University of Jerusalem, Israel, President-Elect IUPHAR)

Women in Pharmacology in Brazil Award Committee

Patricia Rieken Macedo Rocco (UFRJ, Coordinator)
Fernando de Queiroz Cunha (USP-RP)
Marzia Malcangio (King's College London, UK)

Abstract reviewers

Aleksander R. Zampronio (UFPR)
Alexandra Acco (UFPR)
Alfeu Zanotto Filho (UFSC)
André Sampaio Pupo (Unesp-Botucatu)
Aurea Elizabeth Linder (UFPR)
Bagnolia Araujo Costa (UFPB)
Candida A. L. Kassuya (UFGD)
Carlos Rogério Tonussi (UFSC)
Carolina Demarchi Munhoz (USP-SP)
Cilene Lino de Oliveira (UFPR)
Ciomar A. Bersani-Amado (UEM)
Claudia Lucia M. da Silva (UFRJ)
Clelia A. Hiruma Lima (Unesp-Botucatu)
Cristiane Flora Villarreal (UFBA)
Daniela de A. Cabrini (UFPR)
Darizy F. S. A. de Vasconcelos (UFBA)
Edilson D. da Silva Junior (UFRN)
Edson Antunes (Unicamp)
Elizabeth Soares Fernandes (FPP)
Emiliano de Oliveira Barreto (UFAL)
Enilton Aparecido Camargo (UFS)
Fabiola T. M. Iglesias (Unicamp)
Fernanda R. de Castro Almeida (UFPI)
Fernando M. F. Abdalla (UFPI)
Flavia Almeida Santos (UFC)
Geanne Matos de Andrade (UFC)
Giles A. Rae (UFSC)
José Carlos Tavares Carvalho (Unifap)
José Eduardo da Silva Santos (UFSC)
José Wilson do N. Corrêa (UFAM)
Lídia Moreira Lima (UFRJ)
Luis Eduardo M. Quintas (UFRJ)
Marcelo Nicolás Muscará (USP-SP)
Maria Christina W. de Avellar (Unifesp-EPM)
Maria Martha Campos (PUC-RS)
Michele Mazzaron de Castro (USP-RP)
Miriam Teresa P. Lopes (UFMG)
Patrícia M. R. Silva Martins (Fiocruz)
Paulo de Assis Melo (UFRJ)
Quintino Moura Dias Júnior (Fiocruz-RO)
Regina de Sordi (UFSC)
Regina P. Markus (USP-SP)
Richardt Gama Landgraf (Unifesp-Diadema)
Roberto Andreatini (UFPR)
Roberto César Pereira Lima Júnior (UFC)
Rosana Camarini (USP-SP)
Rosane Gomez (UFRGS)
Rosely O. Godinho (Unifesp-EPM)
Sandra Elisa Haas (Unipampa)
Soraia K. P. Costa (Unifesp-EPM)
Tereza Cristina T. Dalla Costa (UFRGS)
Thereza Cristina Barja-Fidalgo (UERJ
Valeria C. Sandrim (Unesp-Botucatu)
Vinicius de Frias Carvalho (Fiocruz)
Waldiceu A. Verri Junior (UEL)

Poster reviewers

Sponsors

Institutional Suport

Award Sponsors

Silver Sponsors

Useful Information

Secretariat

Congress Secretariat will be open from 8:00 am to 6:00 pm

Lunch

The Congress offers a complimentary lunch on September 26th and 27th. Tickets are available inside the Participant's bag.

Posters

- All posters should be on display during the whole duration of the respective Poster Session. Posters should be taken off in the end of the Session. Check below for schedule.
- Poster presenters must attend the Session scheduled by the Scientific Committee (**Poster Session 1:** Sep 26th, from 5:10 pm to 7:10 pm. **Poster Session 2**: Sep 28th, from 10:00 am to 12:00 pm), when posters will be viewed by the Poster Evaluators.
    - **Poster Session 1**: You should fix your poster at the time you arrive at the Convention Center on Sep 26th and take it off at the end of the session on Sep 26th (7:10 pm).
    - **Poster Session 2**: You should fix your poster in the morning of Sep 27th (before the beginning of the session) and take it off at the end of the Session on Sep 27th (12:00 pm).

Certificates

The Certificates will be available online in the system (https://www.nuieventos.com.br/sbfte/) until 10 days after the end of the Congress. You can download it in PDF in the Certificates area.

Courses

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

Media Desk

Media desk will be open from 8:00 am to 6:00 pm. 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 8:00 am 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 Sessions will be available at SBFTE website (https://sbfte.org.br/congressos-anteriores).

Keynote Speakers

Bernardo Boris Vargaftig

Prof. Bernardo Boris Vargaftig was born in Argentina and with Brazilian citizenship, Bernardo Boris Vargaftig graduated in Medicine from the University of São Paulo (1958-1963). In 1964, like several other prominent Brazilian scientists, Vargaftig suffered fierce political persecution during the military dictatorship, having been arrested for more than 50 days by the government's political police. Faced with challenging circumstances, and with his nomination as Assistant Professor at the Faculty of Medical Sciences of Campinas being rejected, he left for France at the end of 1964 to build an international scientific trajectory of exceptional success in the field of Pharmacology. He made notable and fundamental contributions to several domains of knowledge in Pharmacology and Experimental Therapeutics, including the pioneering studies on NSAIDs showing their effects on arachidonic acid and SRS-C that helped to better understand the role of prostanoids in inflammation; studies on PAF that clarified the role of this mediator in inflammation and especially in allergy; investigations into the mechanisms of allergic and non-allergic lung inflammation and the protective role of estrogens. In France, Vargaftig was quickly hired by the Dutch pharmaceutical company Organon, where he directed research in pharmacology at the French branch for more than a decade, having also participated in research programs in partnership with the Dutch and Scottish branches, developing anti-inflammatory potentials and innovating in understanding its mode of action, especially with regard to the pharmacological role of lipid mediators. He presented the work as a Thesis to obtain the degree of Docteur dÉtat, in 1972, with the respected biochemist Prof. Huber Clauser. This was the main focus of his study interest throughout his professional life. His trajectory included prominent positions in institutions such as the Center International de Recherches Merrell, in Strasbourg, and the Institut Pasteur in Paris, where he led pioneering research on snake venoms and phospholipids, such as the Platelet Activating Factor. Still in Strasbourg, he led a team of four technicians and a PhD at Merrell, the latter Michel Chignard, who together with the Senior Technician, Jean Lefort, were at Vargaftig's side, in a journey of more than 40 years of fraternal and fruitful partnership during your stay in France. Over the 25 years at the Pasteur Institute, numerous Brazilian researchers, including graduate students, post-doctors and established researchers, were received at the Laboratoire de Pharmacologie Cellulaire for different periods of time, such as Renato Cordeiro, Momtchilo Russo, Patrícia M.R. e Silva, Marco Aurélio Martins, Alex Keller, Poseidon da Silva, Clystenes Silva, L. G. Carmo, Manassés Fonteles, Pedro Elsas and Maria Inês Elsas, among many others. At the Institut Pasteur, in addition to successful investigations in line with the past, he expanded and strengthened cooperation with Brazilian scientists, mainly with USP, IOC-Fiocruz and UFRJ. In 1992, Vargaftig was named Doctor Honoris Causa at Unicamp. His strong conviction in the importance of public recognition of research led him to organize a large number of highly successful scientific meetings, with international speakers, many of them under the banner of the Institut Pasteur EuroConferences, São Paulo Research Conferences in 2007, and the International Congress de Inflamação in Natal, 2013. Before that, with Renato Cordeiro and other collaborators, he also organized international scientific events of great impact in Rio de Janeiro. In 1986, with Otto Gotlieb and Renato Cordeiro, he organized the successful Colloque Franco-Bresilian sur la Chimie et la Pharmacologie des Substances Naturelles en Inflammation, Allergie et Thrombose. In 1992, with Renato Cordeiro and Stephen Prescott, he organized the Lipid Mediator and Cytokine Interactions in Inflammation, a satellite event of the 4th International Congress on Platelet Activating Factor and Related Lipid Mediators, in addition to other international meetings under the PAF Club brand held with Renato Cordeiro and Pierre Braquet at Fiocruz. At the age of 65, he retired from the Institut Pasteur, returning to Brazil and to USP in 2005. In the Department of Pharmacology at the Institute of Biomedical Sciences, he joined the team of Prof. Wothan Tavares de Lima to study the mechanisms of pulmonary inflammation triggered by intestinal lesions.

Francesca Levi-Schaffer

Francesca Levi-Schaffer is a Professor at The Hebrew University of Jerusalem in the Faculty of Medicine. She holds the Isaac and Myrna Kaye Chair in Immunopharmacology. Prof. Levi-Schaffer completed her PharmD degree at the University of Milano, her PhD in Immunology at the Weizmann Institute, Israel, and her post-doctorate at Harvard Medical School. She has published 184 articles in peer-reviewed journals, 106 reviews and editorials and 27 book chapters and has three patents and three provisional patents. She is President-Elect of the International Union of Basic and Clinical Pharmacology (IUPHAR) (2022-2024) and chairperson of the National Committee of IUPHAR representing the Israel Academy of Sciences and Humanities. She was instrumental in the establishment of an Immunopharmacology Section in the IUPHAR and served as its first Chair. She is a member of the Israeli Ministry of Health Committee for Human Experimentation of New Drugs; Editorial Board of the *Journal of Allergy and Clinical Immunology* (2019-2024); President of European Mast Cell and Basophil Research Network (2019-2024); Associate Editor of *Pharmacological Reviews* (2022-2025); and Associate Editor of *Annals of Allergy, Asthma & Immunology*. Her expertise is in the area of immunopharmacology of allergy focusing on mast cells and eosinophils, their activating and inhibitory receptors, their cross-talk for a better prophylaxis/treatment of allergic diseases. Moreover, her lab studies the role of mast cells and eosinophils in hypoxia (allergy, COPD); mastocytosis and its treatment; the crosstalk between atopic dermatitis and asthma with the microbiome. She is also developing novel monoclonal antibodies and bispecific antibodies against activating and inhibiting receptors on mast cells and eosinophils for the treatment of allergy and of selected solid tumors

José Ribeiro do Valle Award

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)
2019: Douglas da Silva Prado (USP-RP) Adviser: José Carlos Alves Filho
2021: Rianne Remus Pulcinelli (UFRGS) Adviser: Rosane Gomez
2022 Fabio Bonifacio de Andrade (USP-RP) Adviser: Thiago M. Cunha

José Ribeiro do Valle Award – 2023 Finalists

	**Nathália Ferreira de Oliveira** BSc in Pharmacy (UFRJ) (2011-2017) PhD in Biological Sciences (Pharmacology and Medicinal Chemistry) (UFRJ) Adviser: Claudia Lucia Martins Silva
	**Bruna Felippe Ferreira** BSc in Biomedical Sciences (USP-RP) (2017-2021) MSc in Pharmacology (USP-RP) Adviser: Sabrina Francesca de Souza Lisboa
	**Jorge Luiz Dallazen** BSc in Pharmacy (UFPR) (2012-2016) MSc in Pharmacology (UFPR) (2017-2019) PhD in Pharmacology Adviser: Soraia Katia Pereira Costa
	**Gabriela Gomes Ferreira** BSc in Biomedicine (UVA) (2016-2020) MSc in Biosciences (UERJ) (2020-2023) PhD in Pharmacology (Fiocruz) Adviser: Patrícia Machado Rodrigues e Silva Martins
	**Bianca de Sousa Leal** BSc in Pharmacy (UNIFSA) (2014-2019) MSc in Pharmacology (UFPI) Adviser: Dalton Dittz Junior

Senior Pharmacologist Award

2017 First Senior Pharmacologist Award Recipient: Prof. Dr. João B. Calixto (UFSC, Cienp)
2019 Second Senior Pharmacologist Award Recipient: Prof. Dr. Fernando de Queiroz Cunha (USP-RP)
2021 Third Senior Pharmacologist Award Recipient: Prof. Dr. Mauro Martins Teixeira (UFMG)
2023 Third Senior Pharmacologist Award Recipient: Prof. Dr. Bernardo Boris Vargaftig (USP-SP)

Women in Pharmacology in Brazil Award

2023 First Women in Pharmacology in Brazil Award
Category Leader: Prof. Dr Regina P. Markus (USP-SP)
Category Emerging Leader: Prof. Dr Regina di Sordi (UFSC)

Scientific Program at a Glance

	25/09/2023 (Monday)	26/09/2023 (Tuesday)	27/09/2023 (Wednesday)	28/09/2023 (Thursday)
8:00 am	Venue Secretariat Opening	Venue Secretariat and SBFTE Secretariat Opening	Venue Secretariat and SBFTE Secretariat Opening	Venue Secretariat and SBFTE Secretariat Opening
7:00 am	Promoting Pharmacology in Primary Public Schools			
8:00 am		Courses	Courses	Courses
9:00 am	Pre-Congress Course Meeting of the Board of SBFTE Directors and Deliberative Council	Lectures	Lectures	Lectures
9:50 am		Coffee-break	Coffee-break	
10:00 am				Poster Session 2 (with Coffee-Break)
10:10 am		Symposia/Oral communication	Symposia/Oral communication	
12:00 am	Lunch			
12:10 pm		Lunch Meeting of the North-Northeast and Central West Region Pharmacology Network SBFTE Young Assembly	Lunch Meet the Professor Evaluation of the Use of the Educational Game Screener in Graduate Courses	
12:15 pm				Closing Lecture
1:30 pm	Meeting of SBFTE Permanent Forum of Graduate Courses in Pharmacology Pre-Congress Course			
1:15 pm				Closing Ceremony
1:30 pm		Symposia/ Roundtable	Symposium	
3:00 pm	Coffee Break			
3:20 pm	Roundtable			
3:30 pm		Coffee-break	Coffee-break	
3:50 pm		Special Session	Symposia/Oral communication	
5:10 pm		Poster Session 1		
6:00 pm			SBFTE Assembly	
7h00 pm	Opening Session			
7:30 pm	Opening Lecture			
8h30 pm	Cocktail			

Scientific Program

Sep. 25, 2023 (Monday)

8:00 am	Venue Secretariat
7:00 am-12:00 pm	**SBFTE e Divulgação de Farmacologia na Escola Pública** (Promoting Pharmacology in Primary Public Schools in Foz do Iguaçu) Colégio Estadual Jorge Schimmelpfeng (EFMP) (Turmas: 1º Ano Técnico em Farmácia, 2º e 3º Anos do Ensino Médio) Chairs: Marco Aurélio Martins (President SBFTE) / SBFTE Young Committee
9:00 am-12:00 pm | Pre-Congress Course	
Fortaleza I Room	**Learning the Discovery and Development Process of New Drugs and Medicines with the Screener Educational Game** (Aprendendo o Processo de Descoberta e Desenvolvimento de novos Fármacos e Medicamentos com o Jogo Educacional Screener) Chair: François G. Noel (UFRJ)
9:00 am-12:00 pm Foz do Iguaçu Room	Meeting of the Board of SBFTE Directors and Deliberative Council (Council and Directory Board Members only)
12:00-1:00 pm | Lunch	
1:00-3:00 pm Fortaleza II Room	Meeting of SBFTE Permanent Forum of Graduate Courses in Pharmacology
1:00-5:00 pm | Pre-Congress Course	
Fortaleza I Room	**Learning the Discovery and Development Process of New Drugs and Medicines with the Screener Educational Game** (Aprendendo o Processo de Descoberta e Desenvolvimento de novos Fármacos e Medicamentos com o Jogo Educacional Screener) Chair: François G. Noel (UFRJ)
3:00-3:20 pm | Coffee Break	
3:20-4:30 pm | Lecture	
Fortaleza II Room	**Insights at Postgraduate Evaluation in the area of Biological Sciences II** (Um olhar na Avaliação da Pós-Graduação na área das Ciências Biológicas II)Leticia Veras Costa Lotufo (USP-SP, Coordenadora de Área Ciências Biológicas II – Capes) Chair: Carolina Demarchi Munhoz (USP-SP, Coordinator Permanent Forum of Graduate Courses in Pharmacology)
Águas de Lindóia Room	
7:00-7:30 pm | Opening Session	
7:30-8:30 pm | Opening Lecture	
Sergio Ferreira Lecture L1 – **A monument to Aspirin** Bernardo Boris Vargaftig (USP-SP) SBFTE / Aché Fourth Senior Pharmacologist Award	
8:30-10:30 pm | Cocktail	

Sep 26, 2023 (Tuesday)

8:00-8:50 am	Courses
Águas de Lindóia Room	Cr1 – **Animal Models and their New Technologies for Neuroscience Studies** (Modelos Animais e suas Novas Tecnologias para Estudos em Neurociência) **Chair:** Cristiane Flora Villareal (UFBA) ♦ Class 1: **Exploring Stem Cells in Modeling Neurogenetic Diseases** (Explorando Células-Tronco na Modelagem de Doenças Neurogenéticas) Jacqueline Alves Leite (UFG)
Fortaleza Room	Cr2 – **Adrenal Gland Steroids in Health and Disease** (Esteroides da Glândula Adrenal na Saúde e na Doença) **Chair:** Maria Christina W. Avellar (Unifesp-EPM) ♦ Class 1: *Classical and recent concepts of adrenal steroidogenesis - focus on androgenic steroids, mechanism of action and function (Conceitos clássicos e recentes da esteroidogênese na adrenal - foco em esteroides androgênicos, mecanismo de ação e função*) Maria Christina W. Avellar (Unifesp-EPM)
Ribeirão Preto Room	Cr3 – **Playfulness in the Classroom: a Case of Gamification for Teaching Pharmacology** (O Império do Lúdico na Sala de Aula: um Case de Gamificação para o Ensino da Farmacologia) **Chair:** Francislaine Aparecida dos Reis Lívero (UFPR) ♦ Class 1: *New educational scenario: what does the teacher need to learn*? (*Novo cenário educacional: o que o professor precisa (des)aprender*?) Francislaine Aparecida dos Reis Lívero (UFPR)
9:00-9:50 am	Lectures
Águas de Lindóia Room	L2 – **Interpretable Machine Learning Approaches for Drug Repurposing and Side Effect Prediction** Alberto Paccanaro (FGV) Presented by Jamil Assreuy (UFSC)
Ribeirão Preto Room	L3 – **Neuroimmune Interactions and Arthritis Pain in Neurodegenerative Conditions** Marzia Malcangio (King's College London, UK) Presented by: Thiago M. Mattar (USP-RP)
9:50-10:10 am	Coffee-break
10:10 am-12:10 pm	Symposia/Oral Communication
Águas de Lindóia Room	S1 – **Novel Endothelial-Derived Catecholamines** **Chair:** Gilberto De Nucci (Unicamp) ♦ *Identification and pharmacology of novel endothelial-derived catecholamines* Gilberto De Nucci (Unicamp) ♦ *Synthesis, pKa determination and redox properties of catecholamine derivatives* Larryn Peterson (Rhodes College, USA) ♦ *Synthesis and chiral resolution of 4-nitro and 7-nitropropranolol and preparation of other nitrated or halogenated dopamine congeners* Francesco Frecentese (University of Naples Federico II, Italy)

	♦ *Production/release of 6-nitrodopamine by human umbilical cord* artery in vitro*: NO oxidative clues*? Marcelo N. Muscará (USP-SP)
Fortaleza Room	S2 – **Energy Transfer-Based Technologies (BRET, HTRF) to Characterize Receptor Function** **Chair:** Erika Cecon (Institut Cochin-CNRS, France) ♦ *Energy Transfer-Based Technologies (BRET, HTRF) to identify new therapeutic targets* Erika Cecon (Institut Cochin-CNRS, France) ♦ *Pharmacological profiling of GPCR variants in metabolic diseases* Ralf Jockers (Institut Cochin-CNRS, France) ♦ *Investigating the Physiology of putative malarial 7-transmembrane proteins in HEK293 Cells* Célia Regina da Silva Garcia (USP-SP) ♦ Oral Communication 1: 01.006 *The influence of adenosine receptor antagonism on PDE4 and PDE8 Inhibitors induced airway smooth muscle relaxation*. Satori NA, Pacini ESA, Godinho RO. Unifesp-EPM, Div. Cellular Pharmacology, Dept of Pharmacology, São Paulo, SP, Brazil ♦ Oral Communication 2: 05.017 *The antinociceptive effect of cannabinoid receptor agonists is enhanced in aspirin-triggered Lipoxin A4 treated-diabetic rats*. Ferreira MV[1], Jesus CHA[2], Bonfim JC[1], Oliveira G[1], Liebl B[1], Verri-Junior WA[3], Zanoveli JM[1], Cunha JM[1]. [1]UFPR, Dept of Pharmacology, Curitiba, PR, Brazil; [2]Indiana Univ. Bloomington, Dept of Psychological and Brain Sciences, USA; [3]UEL, Dept of Pathology, Londrina, Brazil.
Ribeirão Preto Room	S3 – **Novel Technologies Fostering Innovative Drug Discovery** **Chair:** Daniela Barretto Barbosa Trivella (CNPEM) ♦ *Putting the dynamics into compound profiling: using kinetic assays to shape early stage drug discovery* Nicholas D. Holliday (University of Nottingham, UK) ♦ *Targeting key relevant cancer proteins with marine natural products* Leticia Veras Costa-Lotufo (USP-SP) ♦ *Natural product drug discovery at LNBIO-CNPEM* Daniela Barretto Barbosa Trivella (CNPEM) ♦ *Preclinical development of MB 905, a RNA polymerase inhibitor capable of inhibiting SARS-CoV-2 replication and lung inflammation* João Batista Calixto (CIEnP)
12:10-1:20 pm | Lunch	
12:10-1:20 pm	
Águas de Lindóia Room	**Meeting of the North-Northeast and Central West Region Pharmacology Network** (with Lunch Box)
Ribeirão Preto Room	**SBFTE Young Assembly** (with Lunch Box)
1:30-3:30 pm | Symposia/Roundtable	
Águas de Lindóia Room	S4 – **Vascular Networks: The Vasculature as a Pathogenic Highway** **Chair:** Claudia Lucia Martins Silva (UFRJ) / Suellen D. Oliveira (University of Illinois Chicago, USA)

	♦ *Cardiopulmonary pathogenic networks: Schisto-PAH and the lung microbiome* Suellen D. Oliveira (University of Illinois Chicago, USA) ♦ *Vascular Networks: The vasculature as a pathogenic highway* Rita C. Tostes (USP-RP) ♦ Oral Communication 1: 06.008 *Cecal slurry as a research model for new pharmacological therapies for sepsis-induced cardiovascular dysfunction*. Delfrate G, Assreuy J, Fernandes D. UFSC Florianópolis, Dpt of Pharmacology, Brazil. ♦ Oral Communication 2: 02.029 *Gestational sepsis induces neurovascular alteration and oxidative stress in the frontal cortex and hippocampus of neonatal mice*. Granja MG[1,3], Alves LP[2,3], Moraes FM[1,3], Santos APA[3], Siqueira MFR[3], Estato V[3], Silva AR[3], Gonçalves-de-Albuquerque CF[1,3], Castro-Faria-Neto HC[1,2,3] [1]Unirio, PPG Biologia Molecular e Celular, Brazil; [2]UFRJ, PPG Imunologia e Inflamação, Brazil; [3]Fiocruz,Lab of Imunofarmacologia, Brazil
Fortaleza Room	S5 – **Metabolic Host-Microbiome Interactions in the Context of Drug, Pharmacokinetics, and Toxicology Metabolism** **Chair:** Juliana Elaine Perobelli (Unifesp-Baixada Santista) ♦ *Identifying microbiome contributions to drug metabolism and toxicity* Michael Zimmerman (European Molecular Biology Laboratory, Heidelberg, Germany) ♦ *Deconvoluting host-gut microbiota interactions at the single cell level* Patrick Daniel Varga-Weisz (University of Essex, UK) ♦ *Intestinal dysbiosis is crucial for the exacerbation of adrenal glucocorticoid steroidogenesis in diabetic mice* Vinicius De Frias Carvalho (Fiocruz) ♦ Oral Communication 1: 02.009 *P-coumaric acid derivates from Brazilian green propolis attenuate behavioral changes, oxidative stress and barriers damage in DSS-induced colitis model*. Cazarin CA[1], Bauer ER[1], Valachinski AW[1], Longo B[1], Basílio MI[1], Machado MS[1], Silva TFQ[1], Cury BJ[1], Venzon L[1], França TCS[1], Santos AC[1], Nunes RKS[1], Bastos JK[2], da Silva LM[1], de Souza MM[1].[1]Univali Itajaí, PPG Ciências Farmacêuticas, Brazil; [2]USP Ribeirão Preto, Faculdade de Ciências Farmacêuticas, Brazil. ♦ Oral Communication 2: 03.001 *Luteolin as a promissory flavonoid to improve neurobehavioral and gastrointestinal changes in autism spectrum disorders: experimental findings in rats* Longo B, Nunes RKS, Cazarin CA, Silva TFQ, Dos Santos AC, Venzon L, Da Silva LM, Pagliochi ACS, Sievers J, Pilati SFM, De Souza MM, Da Silva LM. Univali, PPG in Pharmaceutical Sciences, SC, Brazil.
Ribeirão Preto Room	MR2 – **Beyond the Academy** **Chair:** Jamylle Nunes de Sousa Ferro (SBFTE Jovem, UFAL) • *Career opportunities in forensics in Brazil (Oportunidades de carreira em perícias no Brasil)* Heitor Simões Dutra Correa (Politec-MT) • *Academic transition to clinical research industry: The role of C&MSL (Transição Acadêmica para Indústria de Pesquisa Clínica: O papel dos C&MSL)* Leticia Selinger Galant (OrphanDC) • *I finished my PhD... what's next? How my academic experience is essential for nonclinical research in the pharmaceutical industry (Terminei o*

	doutorado... e agora? *Como a minha experiência acadêmica é essencial para a pesquisa não-clínica na indústria farmacêutica*) Juliana Montenegro Parente (Aché Laboratórios Farmacêuticos)
3:30-3:50 pm | Coffee-break	
3:50-5:10 pm | Special Session	
Águas de Lindóia Room	**Women in Pharmacology in Brazil Award – 2023 Edition** **Chairs**: Teresa Dalla Costa (UFRGS) and Marco Aurelio Martins (Fiocruz) *Category Leader* **In Between Health and Disease... Stop Time or Change de Watch** Regina P. Markus (USP-SP) *Category Emerging Leader* **An Academic Career Guided by Shock and Lipids** Regina di Sordi (UFSC)
5:10-7:10 pm | Poster Session 1	
Maceió Room	01. Cellular and Molecular Pharmacology (01.001 a 01.009) 02. Neuropharmacology (02.001 a 02.010; 02.012 a 02.031) 03. Psychopharmacology (03.001 a 03.019) 04. Inflammation and Immunopharmacology (04.001 a 04.034) 05. Pain and Nociception Pharmacology (05.001 a 05.016) 06. Cardiovascular and Renal Pharmacology (06.001 a 06.020; 06.026) 07. Endocrine, Reproductive and Urinary Pharmacology (07.001 a 07.008) 08. Respiratory and Gastrointestinal Pharmacology (08.001 a 08.008; 08.013; 08.015; 08.018 a 08.022) 09. Natural Products and Toxinology (09.001 a 09.025; 09.033; 09.039) 10. Cancer Pharmacology (10.001 a 10.007) 11. Clinical Pharmacology, Pharmacokinetics, Pharmacogenomics and Toxicology (11.001 a 11.014) 12. Drug Discovery and Development (12.001 a 12.017) 13. Pharmacology Education and Technology (13.001 a 13.002) 14. Pharmacology: Other (14.001 a 14.005)

Sep. 27, 2023 (Wednesday)

8:00-8:50 am	Courses
Águas de Lindóia Room	Cr1 – **Animal Models and their New Technologies for Neuroscience Studies** (Modelos Animais e suas Novas Tecnologias para Estudos em Neurociência) **Chair:** Cristiane Flora Villareal (UFBA) ♦ Class 2: *Animal models of Parkinson's disease with an emphasis on replicability of the progressive nature of the disease* (*Modelos animais da Doença de Parkinson com ênfase na replicabilidade da natureza progressiva da doença*) José Ronaldo dos *Santos* (UFS)
Fortaleza Room	Cr2 – **Adrenal Gland Steroids in Health and Disease** (Esteroides da Glândula Adrenal na Saúde e na Doença) **Chair:** Maria Christina W. Avellar (Unifesp-EPM) ♦ Class 2: *Glucocorticoid steroidogenesis, metabolism and function in the adrenal – focus on mechanism of action and function (Esteroidogênese, metabolismo e função dos glicocorticoides na adrenal – foco em mecanismo de ação e função*) Vinicius de Farias Carvalho (Fiocruz)
Ribeirão Preto Room	Cr3 – **Playfulness in the Classroom: a Case of Gamification for Teaching Pharmacology** (O Império do Lúdico na Sala de Aula: um Case de Gamificação para o Ensino da Farmacologia) **Chair:** Francislaine Aparecida dos Reis Lívero (UFPR) ♦ Class 2: *Gamification as a teaching-learning strategy in Pharmacology* (*A gamificação como estratégia de ensino-aprendizagem da Farmacologia*) Francislaine Aparecida dos Reis Lívero (UFPR)
9:00-9:50 am	Lectures
Águas de Lindóia Room	L4 – **Novel Roles for GRK2 in the Failing Heart** Walter Koch (Temple University School of Medicine, USA) Presented by: Maira A. Bicca (Johns Hopkins School of Medicine, USA)
Ribeirão Preto Room	L5 – **How Inflammatory are Inflammatory Chemokines in Patients**? Paul Proost (Catholic University of Leuven –KU Leuven, Belgium) Presented by: Fernando de Q. Cunha (USP-SP)
9:50-10:10 am	Coffee-break
10:10 am-12:10 pm	Symposia/Oral Communication
Águas de Lindóia Room	S6 – **Nanotechnology and its Application in Pharmacotherapy** **Chair:** Patrícia Machado Rodrigues e Silva Martins (Fiocruz) ♦ *Nanopharmaceuticals: challenges and solutions* Ralph Santos-Oliveira (CNEN) ♦ *Nanotechnology applied in the treatment of inflammatory bowel disease* Sandra Helena P. Farsky (USP-SP) ♦ *Gold nanoparticles-based therapy for chronic lung inflammatory diseases* Patrícia Machado Rodrigues e Silva Martins (Fiocruz) ♦ Oral Communication 1: 04.026 *Development and evaluation of the antimalarial activity of lipid core nanocapsules (LNC) containing lumefantrine and artemether in experimental cerebral malaria model*. Moraes BPT[1,2,3], Silva KP[4], Rodrigues, SO[2,3], Moraes-de-Souza, I[2,3], Almeida MAP[1,3], Estato V[3], Bozza PT[3], Castro-Faria-Neto HC[3], Ferrarini SR[4], Silva AR[1,3], Gonçalves-de-Albuquerque CF[2]. [1]UFF, Graduate Program in Neuroscience, [2]UERJ, Immunopharmacology Lab, Rio de Janeiro, Brazil

	[3]IOC-Fiocruz, Immunopharmacology Lab, Rio de Janeiro, Brazil [4]UFMT Post-Graduate Program in Health Sciences, Sinop, Brazil ♦ Oral Communication 2: 04.043 *Histological analysis of the effect of nanoencapsulated diclofenac associated with iontophoresis on rat joints with CFA-induced arthritis*. Santos WP[1], Cherem KNN[1], Dornelles FN[1], Souza-Silva E[1], Lemos-Senna EMT[2], Tonussi CR[1]. [1]CCB-UFSC Nociception Neurobiology Laboratory, Florianópolis/SC, Brazil. [2]CCS-UFSC, Pharmacotechnical Laboratory, Florianópolis, SC, Brazil
Fortaleza Room	S7 – **Advances in Cancer Research and Therapeutics: Exploiting the Tumor Microenvironment and Chemistry-based Drug Delivery** **Chair:** Alfeu Zanotto Filho (UFSC) ♦ *Mature tertiary lymphoid structures as key niches of tumor-specific immune responses in cancer* Tiago da Silva Medina (ACCC) ♦ *Uncovering novel macrophage subsets in cancer using single-cell RNA sequencing and spatial localization* Rodrigo Nalio Ramos (USP-SP) ♦ *Bioorthogonal chemistry-based drug delivery for precision cancer therapy* Josiel Barbosa Domingos (UFSC) ♦ Oral Communication 1: 10.010 *Friedelin induces cancer cell death and attenuates tumor angiogenesis in animals with Ehrlich ascitic carcinoma*. Silva ELES, Silva FA, Souza TPM, Almeida JH, Lucena LCP, Silva EC, Barreto E, Ferro JNS. UFAL, Inst of Biological and Health Sciences, Maceió, AL, Brazil. ♦ Oral Communication 2: 12.012 *Lipid nanocarriers for chemoprevention of breast cancer: co-encapsulation of fenretinide and perillyl alcohol,* in vitro *cytotoxicity and* in vivo *localization*. Malagó ID, Salata GC, Machado-Neto JA, Lopes LB. USP, Institute of Biomedical Sciences, Dpt of Pharmacology, Brazil
Ribeirão Preto Room	S8 – **Digestive Diseases and Glycoscience: Innovation Opportunities Beyond Mere Topical Protective Materials** **Chair:** Maria Fernanda de Paula Werner (UFPR) ♦ *Biopolymers as promising molecules for the treatment of upper GI diseases: mechanistic insights and therapeutic status* Lucas Antonio Duarte Nicolau (UFDPar) ♦ *Pharmacological opportunities of natural polysaccharides in prevential of gastric and intestinal diseases* Maria Fernanda de Paula Werner (UFPR) ♦ *Biological functions, the possible mechanism of action, and application of naturally occurring polysaccharides to medical science* Daniele Maria Ferreira (FPP) ♦ Oral Communication 1: 08.005 *Doxycycline reduces inflammation in lung and gut in a murine model of Acute Respiratory Distress Syndrome*. Santos AA, Oliveira TD, Dias KT, Tavares-de-Lima W, Rodrigues SFP. USP, Dpt of Pharmacology, Brazil ♦ Oral Communication 2: 09.035 *Evaluation of the therapeutic effect of plant-derived dietary fibres rich in polysaccharides in a mouse model of polymicrobial sepsis*. Simão G[1,2], Braga LLVM[1,2], Rosa LB[1,3], Silva MLC[1,3], Ferreira DM[1,2], Cordeiro LMC[4], Fernandes ES[1,2] [1]IPP, Curitiba, PR, Brazil. [2]FPP, PPG em Biotecnologia Aplicada à Saúde da Criança e do Adolescente, Curitiba, PR, Brazil. [3]FPP, Graduação em Biomedicina,

	Curitiba, PR, Brazil. [4]UFPR, Dept of Biochemistry and Molecular Biology, Curitiba, PR, Brazil
12:10-1:20 pm | Lunch	
12:10-1:20 pm	
Águas de Lindóia Room	**Meet the Professor** (with Lunch Box) **Chair**: SBFTE Jovem Committee • Alberto Paccanaro (FGV) • Francesca Levi-Schaffer (The Hebrew University of Jerusalem, Israel, President-Elect IUPHAR) • Jacqueline Alves Leite (UFG) • Mauro Perretti (Queen Mary University of London, UK) • Ralf Jockers (Institut Cochin, France) • Suellen D. Oliveira (University of Illinois Chicago, USA)
Fortaleza Room	**Beyond the Laboratory: In Silico Psoriasis Model for Rat-to-Human Translation** Frederico Martins (SimulantionsPlus)
Ribeirão Preto Room	**Evaluation of the Use of the Educational Game Screener in Graduate Courses** (Avaliação do Uso do Jogo Educacional Screener em Cursos de Pós-Graduação) (with Lunch Box) François G. Noel (UFRJ)
1:30-3:30 pm | Symposium	
Águas de Lindóia Room	**José Ribeiro do Valle Award** Chair: Thiago M. Cunha (USP-RP) *Nathália Ferreira de Oliveira* ♦ 01.003 *Crosstalk between endothelial purinergic P2Y2/P2X7 receptors increases leukocyte adhesion favoring mesenteric inflammation during Schistosomiasis*. Oliveira NF[1], Mainieri NS[1], Tamura AS[2], Coutinho-Silva R[2], Savio LEB[2], Silva CLM[1]. [1]ICB-UFRJ, Brazil; [2]ICBBF-UFRJ, Rio de Janeiro Brazil *Bruna Felippe Ferreira* ♦ 03.023 *Antagonism of TRPV1 receptors associated with FAAH inhibition is necessary to facilitate the impaired fear extinction in iNOS knockout mice*. Ferreira BF[1], Sato Y[1], Marques APA[1], Fronza MG[1], Lisboa SFS[2]. [1]USP, Dpt of Pharmacology, Ribeirão Preto, Brazil; [2]USP, Dpt of Biomolecular Sciences, Ribeirão Preto, Brazil *Jorge Luiz Dallazen* ♦ 05.015 *Analgesic Efficacy of the slow-releasing Hydrogen Sulfide (H_2S) donor, GYY4137 and the polysulfide, dimethyl trisulfide in postoperative pain model: role of transient receptor potential Ankyrin*. 1. Dallazen JL[1,2], Horváth AI[2,3], Tékus V[2], Hajna Z[2], Alsou'b DFB[2], Helyes Z[2,3,4], Pintér E[2,3,4], Costa SKP[1]. [1]ICB-USP, Dept Farmacologia, Brazil, [2]Dept Pharmacology and Pharmacotherapy, Medical School, University of Pécs, Hungary, [3]National Laboratory for Drug Research and Development, Budapest, Hungary, [4]Eötvös Loránd Research Network, Chronic Pain Research Group, University of Pécs, Hungary *Gabriela Gomes Ferreira* ♦ 04.023 *Supression by gold nanoparticles (AuNPs) of lung fibrosis target by bleomycin in mice*. Ferreira, GG; Guimarães, FV1; Fernandes, AJM; Pires, ALA; Arantes, ACS; Janinni-Sá, YAP; Martins, MA; Silva, PMR. IOC-Fiocruz, Laboratory of Inflammation. RJ, Brazil

	Bianca de Sousa Leal ♦ 10.011 *Activity of the cysteine protease cms2ms3 and the VLA-4 integrin role in stages of B16F10 melanoma metastasis*. Leal BS[1], Ferreira LPF[1], Menezes DP[1], Lopes MTP[2], Sousa JMC[3], Ferreira PMP[1], Dittz D[1] [1]UFPI PPG Pharmacology, Brazil; [2]UFMG Pharmacology, Brazil; [3]UFPI PPF Pharmaceutical Sciences
3:30-3:50 pm | Coffee-break	
3:50-5:50 pm | Symposia/Oral Communication	
Águas de Lindóia Room	S9 – **Cannabinoid Therapy: from Bench to Bedside** **Chair:** Maíra Assunção Bicca (Johns Hopkins School of Medicine, USA) ♦ *How to protect the brain against neurotoxic events with cannabinoid therapy*? Micheline Freire Donato (Unila) ♦ *Endocannabinoid system and cannabis-derivative products: perspectives for cannabis treatment in Autism* Luzia da Silva Sampaio (UFRJ) ♦ *Aging and Cannabis microdosing treatment: could we call it cannabinoid replacement*? Francisney Pinto do Nascimento (Unila) ♦ Oral Communication 1: 37709 *Randomized controlled clinical trial in patients with Alzheimer's disease: analysis of the effects of THC and CBD on biochemical markers and inflammatory cytokines*. Florentino INA, Le Quesne AM, Krefta E, Cury RM, Silva T, Cezar-dos-Santos F, Silva EG, Nascimento FP. Unila Laboratory of Medicinal Cannabis and Psychedelic Science (LCP), Foz do Iguaçu, PR, Brazil.
Fortaleza Room	S10 – **Potential Targets and Innovative Therapies for Parkinson's Disease** **Chair**: Maria Aparecida Barbato Frazao Vital (UFPR) ♦ *The clinical importance of Levodopa-Induced Dyskinesias (DIL) and its mechanisms* Vitor Tumas (USP-RP) ♦ *Targeting microRNAs to inhibit underlying mechanisms of Parkinson's disease* Ricardo Titze de Almeida (UnB) ♦ *Does activation of PPAR receptors have a neuroprotective effect in Parkinson's disease*? Maria Aparecida Barbato Frazao Vital (UFPR) ♦ Oral Communication 1: 02.032 *Therapeutic potential of β-caryophyllene on the olfactory and anhedonic-like disorders induced by a rat model of Parkinson's disease*. Santos JR[1], Gonçalves R[2], Razera A[1], Kerppes II[3], Carraro E[2], Sampaio TB[2,4].[1]Unicentro Guarapuava, Dpt. de Farmácia, Brasil; [2]Unicentro Guarapuava, Programa de Residência Multiprofissional em Atenção Primária, Brasil;[3]Unicentro Guarapuava, Dpt. de Fisioterapia, Brasil;4 UFSM Santa Maria, Dpt. de Farmacologia, Brasil. ♦ Oral Communication 2: 02.027 *The γ-benzylidene digoxin derivative BD-15 reduces oxidative stress in the hippocampus and cortex induced by LPS*. Neves EPFI[1], Fonseca MFR[1], Silva SS[1], Farias ERA[1], Ferreira PYO[1], Machado MV[2], Villar JAFP[2], Campos HM[1], Pereira RM[1], Ghedini PG[1], Barbosa LA[2], Leite JA[1] [1]UFG Dept of Pharmacology, Institute of Biological Sciences, Goiânia, Brazil. [2]UFSJ, Lab de Bioquímica Celular, São João Del Rei, Brazil

Ribeirão Preto Room	S11 – **Cardio Steroids and α-Na,K-ATPase Isoforms in Neurological Disorders: New Insights** **Chair:** Luis Eduardo Menezes Quintas (UFRJ) ♦ *Role of endogenous ouabain and Na,K-ATPase α-isoforms in the etiology of bipolar disorder*. Rif S. El-Mallakh (University of Louisville School of Medicine, USA) ♦ *Dental pulp-derived mesenchymal stem cells for modeling neurogenetic disorders associated with Na,K-ATPase* Jacqueline Alves Leite (UFG) ♦ *New pharmacological therapy for Childhood Alternating Hemiplegia (AHC): evaluation of BD-15 and development of new drugs* Leandro Augusto de Oliveira Barbosa (UFSJ)
6:00-7:30 pm	
Águas de Lindóia Room	**SBFTE Assembly**

Sep 28, 2023 (Thursday)

8:00-8:50 am | Courses

Águas de Lindóia Room	Cr1 – **Animal Models and their New Technologies for Neuroscience Studies** (Modelos Animais e suas Novas Tecnologias para Estudos em Neurociência) **Chair:** Cristiane Flora Villareal (UFBA) ♦ Class 3: *Experimental models of pain and nociception: new approaches in the study of pain in rodents and humans* (*Modelos experimentais de dor e nocicepção: novas abordagens nos estudos da dor em roedores e em humanos*) Cristiane Flora Villareal (UFBA)
Fortaleza Room	Cr2 – **Adrenal Gland Steroids in Health and Disease** (Esteroides da Glândula Adrenal na Saúde e na Doença) **Chair:** Maria Christina W. Avellar (Unifesp-EPM) ♦ Class 3: *Clinical disorders associated with adrenal steroid biosynthesis and function and therapeutic approaches (Distúrbios clínicos associados a biossíntese e função de esteroides adrenais e abordagens terapêuticas*) Maria Christina W. Avellar (Unifesp-EPM) / Vinicius de Farias Carvalho (Fiocruz)
Ribeirão Preto Room	Cr3 – **Playfulness in the Classroom: a Case of Gamification for Teaching Pharmacology** (O Império do Lúdico na Sala de Aula: um Case de Gamificação para o Ensino da Farmacologia) **Chair:** Francislaine Aparecida dos Reis Lívero (UFPR) ♦ Class 3: *Transforming the classroom: presentation of a case of gamified pharmacology classes* (*Transformando a sala de aula: apresentação de um case de aulas gamificadas de farmacologia*) Francislaine Aparecida dos Reis Lívero (UFPR)

9:00-9:50 am | Lectures

Águas de Lindóia Room	L6 – **Cardiac Fibroblast: in the Heart of Cardiac Inflammation** Guillermo Díaz Araya (University of Chile, President Chilean Society of Pharmacology, Chile) Presented by Rita C. Tostes (USP-RP)
Ribeirão Preto Room	L7 – **Resolution Pharmacology to Control the Morbidity of Chronic Diseases** Mauro Perretti (Queen Mary University of London, UK) Presented by: Patrícia M. R. e Silva Martins (Fiocruz)

10:00 am -12:00 pm | Poster Session 2 with Coffee brunch

Maceió Room	01 Cellular and Molecular Pharmacology (01.010 a 01.014) 02 Neuropharmacology (02.011; 02.032 a 02.047) 03 Psychopharmacology (03.020 a 03.027) 04. Inflammation and Immunopharmacology (04.036 a 04.056) 05. Pain and Nociception Pharmacology (05.017 a 05.022) 06. Cardiovascular and Renal Pharmacology (06.021 a 06.025; 06.027 a 06.037) 07. Endocrine, Reproductive and Urinary Pharmacology (07.009) 08. Respiratory and Gastrointestinal Pharmacology (08.009 a 08.012; 08.014; 08.016 a 08.017) 09. Natural Products and Toxinology (09.026 a 19.030; 09.032; 09.034 a 09.037; 09.040 a 09.047) 10. Cancer Pharmacology (10.008 a 10.014)

	11. Clinical Pharmacology, Pharmacokinetics, Pharmacogenomics and Toxicology (11.015 a 11.026) 12. Drug Discovery and Development (12.018 a 12.023) 14. Pharmacology: Other (14.006 a 14.015)
12:15-1:05 pm | Closing Lecture	
Águas de Lindóia Room	L8 - **The Allergic Effector Unit and the Mast Cells as Masterminds from Inflammation to its Resolution. Have we found New Druggable Targets**? Francesca Levi-Schaffer (The Hebrew University of Jerusalem, Israel, President-Elect IUPHAR) Presented by Marco Aurelio Martins (Fiocruz)
1:15-1:45 pm | Closing Ceremony	
Águas de Lindóia Room	José Ribeiro do Valle Award and Prize Announcements

Poster Session 1 – 26/08/2023

01. Cellular and Molecular Pharmacology

01.001 **CDR1as Overexpression in MPP+ Injured SH-SY5Y Dopaminergic Cells**. Ferrari SSAR, Silva LDS, Duarte CDM, Gomes GMO, Schlemmer F, Xavier ME, Titze-de-Almeida SS, Titze-de-Almeida R UnB, Brasília, Brasil

01.002 **Does the P2Y12 Receptor Adjust the Daytime Pinealocytes Melatonin Levels**? Santos UJ, Correa JC, Nekrasius LB, Markus RP, Sousa KS, Silva ZF. IB-USP, Dept of Physiology, São Paulo, SP, Brazil

01.003 **Crosstalk between Endothelial Purinergic P2Y2/P2X7 Receptors Increases Leukocyte Adhesion favoring Mesenteric Inflammation during Schistosomiasis**. Oliveira NF[1], Mainieri NS[1], Tamura AS[2], Coutinho-Silva R[2], Savio LEB[2], Silva CLM[1] [1]ICB-UFRJ, Brazil; [2]ICBBF-UFRJ, Rio de Janeiro Brazil

01.004 **Effects of Epigallocatechin-3-Gallate on Gluconeogenesis Key-Enzymes and on Mitochondria: Potential Mechanisms Underlying its Hypoglycemic Effects**. Bonetti CI, Correia BL, Souza GH, Nakanishi ABS, Comar JF, Bracht L Lab. of Hepatic Metabolism. UEM, Maringá, PR, Brazil

01.005 **Evaluation of the *in vitro* Antioxidant Effect of New Compounds LQFM348 and LQFM354 in the Human Neuronal SH-SY5Y Cell Line**. Campos HM[1], Ferreira PYO[1], Pagliarani B[2], Menegatti, R[3], Ghedini PC[1], Tarrozi A[2] [1]UFG, Dept of Pharmacology, [2]University of Bologna, Dept for Life Quality Studies, [3]UFG, Faculty of Pharmacy

01.006 **The Influence of Adenosine Receptor Antagonism on PDE4 and PDE8 Inhibitors Induced Airway Smooth Muscle Relaxation**. Satori NA, Pacini ESA, Godinho RO Unifesp-EPM, Div. Cellular Pharmacology, Dept of Pharmacology, São Paulo, SP, Brazil

01.007 **The Gasotransmitter Hydrogen Sulfide (H_2S) Potentiates the *ex vivo* Secretion of a-Amylase Induced by Both Adrenergic and Cholinergic Agonists on Murine Salivary Glands**. Oliveira-Alves MC, Almeida ARB, Teixeira SA, Costa SKP, Muscará MN. USP, Dpt of Parmacology, Lab. of Biochemical Pharmacology of Free Radicals, Inflammation and Pain, Brazil

01.008 **The Role of Alveolar Macrophages-Expressed Plet1 In Alveolar Repair After Viral Pneumonia**. Pervizaj-Oruqaj L[1,2,3], Selvakumar B[1,5,6], Ferrero MR[1,2,3,5,6], Cohen M[6], Fagundez C[6], Heiner M[1,2,3], Malainou C[1,2,3], Glaser RD[2], Wilhelm J[2,3,4], Bartkuhn M[2], Weiss A[3,4], Alexopoulos I[1,2,3], Seeger W[2,3,4,5,6], Vazquez-Armendariz AI[1,2,3], Herold H[1,2,3] [1]Universities of Giessen and Marburg Lung Center, Dept of Internal Medicine, German Center for Lung Research, Giessen, Germany. [2]Justus Liebig University Giessen, Inst. for Lung Health, Giessen, Germany. [3]Excellence Cluster Cardio-Pulmonary Institute. [4]Universities of Giessen and Marburg Lung Center Dept of Internal Medicine, [5]Max Planck Institute for Heart and Lung Research, Bad Nauheim, Germany, [6]Instituto de Investigación en Biomedicina de Buenos Aires, Buenos Aires, Argentina

01.009 **Activation of β-adrenoceptor-Adenylate Cyclase System Promotes cAMP Efflux via ABCC/MRP Transporters in Rat Vas Deferens, Prostate, Bladder and Aorta**. Pacini ESA, Satori NA, and Godinho RO Unifesp-EPM, Div. Cellular Pharmacology, Dept of Pharmacology, São Paulo, SP, Brazil

02. Neuropharmacology

02.001 **Effects of the Poloxamer P188 and the Dispersion P188 and Hydroalcoholic Extract of Propolis in Mice Submitted to Bilateral Occlusion of the Common Carotid Arteries.** Candido G[1]; Kohara NAN[1]; dos Santos RS[2]; Bruschi ML[2]; Milani H[1]; de Oliveira RMW[1]. [1]UEM Maringá, Lab. of Pharmacology and Therapeutics, Brazil; [2]UEM Maringá, Lab. of Research and Development of Drug Delivery Systems, Brazil

02.002 **Autophagy and Brain Ischemia: Effects of Cannabidiol**. Kohara NAN, Splendor MC, Chinen LY, Meyer E, Bonato JM, Oliveira RMMW, Milani H UEM, Lab. of Cerebral Ischemia and Neuroprotection, Maringá, PR, Brazil

02.003 **Ferulic Acid-loaded Nanostructure Prevents Morphine Reinstatement: The Involvement of Dopamine System, NRF2 and δfosb in the Striatum Brain Area of Wistar Rats**. Fontoura MB[1], Milanesi

LH[1], Rossato DR[1], Da Rosa JLO[1], Burger ME[2] [1]UFSM, Graduate Program in Pharmacology, Brazil, [2]UFSM, Dept of Physiology and Pharmacology, Brazil

02.004 **Diacylglycerol Kinase Inhibition Attenuates Endotoxic Fever by Regulating Prostaglandin E2 Production in Rat Hypothalamus**. Assis DAS, Guimaraes NC, Gomes BRB, Sousa GLS, Teixeira DMT, Souza PEN, Veiga-Souza FH. UnB, DF, Brazil

02.005 *In silico* **Drug Repurposing Identifies Potential Therapeutic Candidate for Bipolar Disorder Mood States**. Mezzomo G[1] [2], Rampelotto PH[1] [2], Rosa PH[1] [2], Schons T[1], Ziani PR [1] [2], Rosa AR[1] [2] [3]. [1]HCPA, Lab. of Molecular Psychiatry, Porto Alegre, Brazil; [2]UFRGS, PPG in Biological Sciences: Pharmacology and Therapeutics, Instituto de Ciências Básicas da Saúde, [3]Dept of Pharmacology, Instituto de Ciências Básicas da Saúde, UFRGS, Porto Alegre, Brazil

02.006 **Immobilization and Social Isolation Stress in the Juvenile Phase Cause Different Effect in Anxious-Type Behavior in Adolescent Male and Female**. Barilli LA[1]; Dalben MB[2]; Pereira GH[2]; de Melo SR[2]. [1]UEM PPG Pharmaceutical Sciences, Brazil, [2]UEM, Dpt of Morphological Sciences, Brazil

02.007 **Effect of Oubain on Marker Expression of Neural Progenitor Cells in Dental Pulp Stem Cells**. Cunha JCL[1], Coelho LDS[3], Farias ERA[2], Fonseca MFR[2], Neves EPFI[2], Oliveira LC[2], Silva SS[2], Oliveira LLR[3], Lima AP[3], Valadares MC[3], Leite JA[2]. [1]UFG Goiânia PPG Biological Sciences, Dpt of Pharmacology, Brazil, [2]UFG Goiânia, Dpt of Pharmacology, Brazil, [3]UFG Goiânia, School of Pharmacy, Brazil

02.009 **P-coumaric Acid Derivates from Brazilian Green Propolis Attenuate Behavioral Changes, Oxidative Stress and Barriers Damage in DSS-induced Colitis Model**. Cazarin CA[1], Bauer ER[1], Valachinski AW[1], Longo B[1], Basílio MI[1], Machado MS[1], Silva TFQ[1], Cury BJ[1], Venzon L[1], França TCS[1], Santos AC[1], Nunes RKS[1], Bastos JK[2], da Silva LM[1], de Souza MM[1].[1]Univali Itajaí, PPG Ciências Farmacêuticas, Brazil; [2]USP, Faculdade de Ciências Farmacêuticas, Ribeirão Preto, Brazil

02.010 **Effect of Taurine on GABA Levels in the Nucleus Accumbens of Rats Chronically Treated with Alcohol or Abstinent: A Microdialysis Study**. Pulcinelli RR[1], Caletti G[1], SantAna BH[1], Nin MS[2], Izolan LR[3], Oliveira TF[4], Eller S[4], Gomez R[1],[3]. [1]UFRGS, PPG Farmacologia e Terapêutica, Brazil; [2]Universidade Factum, Porto Alegre, Brazil; [3]UFRGS, PPG Neurociências, Porto Alegre, Brazil; [4]UFCSPA, Porto Alegre, Dep Farmacociências, Brazil

02.012 **Disintegration of the Blood-Brain Barrier in Male BCCAO Mice**. Splendor MC, Humberto M, Oliveira RMMW. UEM, Dept of Pharmacology and Therapeutics, Maringá, PR, Brazil

02.013 **Evaluation of TRPA1 Involvement in Oxidative and Inflammatory Processes Induced by Corticosterone in Microglial Cells (BV-2 cells)**. Brum GF[1]; Fontana T[2], Pappis L[3], Piton E[1]; Machado AK[4], Montagner TRS[4]; Machado AK[2]; Bochi GV[1] [1]UFSM Santa Maria, PPG Farmacologia, Brazil; [2]UFN, Santa Maria, PPG Nanociências, Brazil; [3]University of Toronto, Dpt of Pharmacology and Toxicology, Canada [4]UFN Santa Maria, Curso de Biomedicina, Brazil

02.014 **Pharmacologically-Enhanced Memory Destabilization allows the Impairing Effects of Reconsolidation Blockers in Male and Female Rats**. Soares LA[1], Gazarini L[2], Bertoglio LJ[1] [1]Lab. of Neuropsychopharmacology, Dept of Pharmacology; UFSC, Florianópolis, SC, Brazil. [2]UFMS, Três Lagoas, MS. Brazil

02.015 **Physical Exercise Provides Beneficial Changes on Neurotrophic Factors in Brain Areas after AMPH Relapse**. Rosa JLO[1], Rosa HZ[1], Segat HJ[1], Barcelos RCS[1], Roversi K[1], Rossato DR[1], Burger ME[2]. [1]UFSM, PPG em Farmacologia, Santa Maria, RS, Brazil, [2]UFSM, Depto de Fisiologia e Farmacologia, Santa Maria, RS, Brazil

02.016 **The Effects of Chronic Treatment with Semaglutide on Cerebral Vascular Inflammation in Mice with Metabolic Syndrome**. Chateaubriand PHP[2], Curty M[2], Lustosa R[2], Baroni M[2], Ritta JCS[3], Costa M[2], Figueiredo V[2], Obadia N[2,3] Castro-Faria-Neto HC[1], Estato V[1,2]. [1]IOC-FIOCRUZ, Lab. de Imunofarmacologia, Rio de Janeiro, Brasil; [2]Idomed-Unesa, Rio de Janeiro, Brasil; [3]Unesa, Faculdade de Farmácia, Rio de Janeiro, Brasil

02.017 **The Effects of GLP-1 Receptor Activation on Hippocampal Neuronal Integrity in Animals with Metabolic Syndrome**. Curty M[2], Chateaubriand PHP[2], Lustosa R[2], Baroni M[2], Ritta JCS[2], Costa M[2],

Figueiredo V², Castro-Faria-Neto HC¹, Obadia N³, Estato V[1,2] [1]IOC-Fiocruz, Lab. de Imunofarmacologia, Rio de Janeiro, Brasi, [2]Idomed-Unesa, Rio de Janeiro, Brasil. [3]Unesa, Faculdade de Farmácia, Rio de Janeiro, Brasil

02.018 **Investigating the Impact of Prebiotic Supplementation on Inflammation in the Cerebral Microcirculation of Animals with Metabolic Syndrome: Exploring with Intravital Microscopy**. Baroni M², Curty M², Chateaubriand PHP², Lustosa R², Ritta JCS³, Costa M², Figueiredo V², Obadia N[1,3], Castro-Faria-Neto HC¹, Estato V[1,2] [1]IOC-Fiocruz, Lab. de Imunofarmacologia, Rio de Janeiro, Brasil, [2]Idomed-Unesa, Rio de Janeiro, Brasil. [3]Unesa, Faculdade de Farmácia, Rio de Janeiro, Brasil

02.019 **Intermittent Taurine Administration Increases Alcohol Consumption in Adolescent Male Rats Exposed to the Binge Drinking Model**. SantAna BH, Zilli GAL, Bastiani CS, Pulcinelli RR, Izolan LR, Leal MB, Gomez R UFRGS

02.020 **A Systematic Review of the Role of Thalamic Nucleus Reuniens in Memory Acquisition and Consolidation in Lab. Rodents**. Batista LP[1], Soares LA[1], Panzenhagen AC[2], Bertoglio LJ[1] [1]UFSC [2]UFRGS

02.021 **Beta-caryophyllene Exerts Protective Effect after Pilocarpine Induced-Status Epilepticus**. Bariviera JL, Mallmann MP, Oliveira MS UFSM, Dpt of Physiology and Pharmacology, Santa Maria, Brazil

02.022 **Semaglutide Improves Capillary Density and Cerebral Microvascular Function in a Mouse Model of Metabolic Syndrome**. Costa M², Lustosa R², Baroni M², Curty M², Chateaubriand PHP², Ritta JCS ³, Figueiredo V², Obadia N³, Faria Neto HC¹, Estato V[1,2] [1]IOC-Fiocruz, Lab. de Imunofarmacologia, Rio de Janeiro, Brasil, [2]Idomed-Unesa, Rio de Janeiro, Brasil. [3]Unesa, Faculdade de Farmácia, Rio de Janeiro, Brasil

02.023 **Semaglutide Restores Astrocytic Coverage in Cerebral Capillaries of Animals with Diet-Induced Metabolic Syndrome**. Lustosa R², Baroni M2², Curty M², Chateaubriand PHP², Ritta JCS³, Costa M², Figueiredo V², Obadia N[1,3], Faria Neto HC1¹, Estato V[1,2] [1]IOC-Fiocruz, Lab. de Imunofarmacologia, Rio de Janeiro, Brasil, [2]Unesa- Idomed, Rio de Janeiro, Brasil., [3]Unesa, Faculdade de Farmácia Rio de Janeiro, Brasil.

02.024 **Cannabidiol prevents amphetamine relapse in rats**. Souza LEM¹, Rosa JLO², Metz VG², Burger ME³, Pase CS³. [1]UFSM, Centro de Ciências da Saúde, [2]UFSM, PPG em Farmacologia, [3]UFSM, Depto de Fisiologia e Farmacologia

02.025 **Antipsychotic-Like Activity of Micronized Naringenin Particles Produced by Supercritical CO_2**. Tavares VB¹, Oliveira PV², Sanaiotto O¹, Kuhn KZ¹, Daniel CF¹, Provinelli AC¹, Schio ACZ¹, Siebel AM³, Bortoluzzi A², Lanza M², Oliveira JV², Müller LG¹ [1]Unochapecó [2]UFSC, UFSC [3]FURG

02.026 **Omega-3 (DHA) Downregulates Inflammatory State in Microglial Cell Line**. Moraes-de-Souza I¹, Moraes BPT[1,3], Almeida MAP[2,3], Bozza PT², Castro-Faria-Neto HC², Silva AR[2,3], Gonçalves-de-Albuquerque CF[1,2,3] [1]Unirio, Immunopharmacology Lab., Dpt of Physiological Sciences, Rio de Janeiro, Brazil; [2]IOC-Fiocruz, Immunopharmacology Lab., Rio de Janeiro, Brazil; [3]UFF, PPG Neuroscience, Niterói, Brazil

02.027 **The γ-benzylidene digoxin derivative BD-15 reduces oxidative stress in the hippocampus and cortex induced by LPS** Neves EPFI[1], Fonseca MFR[1], Silva SS[1], Farias ERA[1], Ferreira PYO[1], Machado MV[2], Villar JAFP[2], Campos HM[1], Pereira RM[1], Ghedini PG[1], Barbosa LA[2], Leite JA[1] [1]UFG, Dept of Pharmacology, Institute of Biological Sciences, Goiânia, Brazil. [2]UFSJ, Lab de Bioquímica Celular, São João Del Rei, Brazil

02.028 **Alterations in Molecular Targets in Dopaminergic Areas of the Brain Induced by Cannabidiol in Rats Previously Exposed to Amphetamine**. Rossato DR[1], Rosa JLO[1], Metz VG², Burger ME[2], Pase CS[2] [1]UFSM, PPG em Farmacologia, [2]UFSM, Depto de Fisiologia e Farmacologia

02.029 **Gestational Sepsis Induces Neurovascular Alteration and Oxidative Stress in The Frontal Cortex and Hippocampus of Neonatal Mice**. Granja MG[1,3], Alves LP[2,3], Moraes FM[1,3], Santos APA³, Siqueira MFR³, Estato V³, Silva AR³, Gonçalves-de-Albuquerque CF[1,3], Castro-Faria-Neto HC[1,2,3]

[1]Unirio, PPG Biologia Molecular e Celular, Brazil; [2]UFRJ, PPG Imunologia e Inflamação, Brazil; [3]Fiocruz, Lab of Imunofarmacologia, Brazil

02.030 **Eriodictyol Protects Mice with Streptozotocin-Induced Sporadic Alzheimer Disease: In Silico, *in vitro* and *in vivo* Study**. Caracas P[1], Tavares J[1], Andrade LM[2], Albuquerque A[2], Silva JHM[2], Andrade GM[1]. [1]UFC, Dpt Center for Research and Development of Medicines, Brazil; [2]Fiocruz, Lab. of Structural and Functional Biology.

02.031 **Effects of Low-Dose Cannabis Extract on Non-Motor Symptoms and Quality of Life in Parkinson's Disease Patients - Five Case Report**. Pauli KB, Ruver-Martins AC, Silva T, Souza BL, Hollas VG, Silva EG, Nascimento FP. Unila, Lab. of Medicinal Cannabis and Psychedelic Science, Foz do Iguaçu, PR, Brazil

03. Psychopharmacology

03.001 **Luteolin as a Promissory Flavonoid to Improve Neurobehavioral and Gastrointestinal Changes in Autism Spectrum Disorders: Experimental Findings in Rats**. Longo B, Nunes RKS, Cazarin CA, Silva TFQ, Dos Santos AC, Venzon L, Da Silva LM, Pagliochi ACS, Sievers J, Pilati SFM, De Souza MM, Da Silva LM. Univali, Postgraduate in Pharmaceutical Sciences, SC, Brazil.

03.002 **Potential Antidepressant-like Effect of *Centella asiatica* Extract and Active Compound Madecassic Acid in Animals Submitted to Material Deprivation and Social Isolation**. Bertollo AG[1], Kreuz K[1], Medeiros J[1], Mingoti MED[1], Silva BV[1], Cassol JV[1], Dallagnol P[1], Narzetti RA[1], Roman Junior WA[2], Bohnen LC[2], Ignacio ZM[1]. [1]UFFS; [2]Unochapecó

03.003 **Affinity of Antidepressants to dDAT: Is More Aromatic Rings Better**? Triches FF[1], Triches F[2], Oliveira CL[1] [1]CCB-UFSC, Lab. of Behavioral Neurobiology, Brazil; [2]CFM-UFSC Dept of Mathematics, Brazil

03.004 **Effects of Inflammatory Preconditioning on Behavior, Molecular and Oxidative Parameters in Mice Subjected to Chronic Restraint Stress**. Piton E[1], Pereira GC[1], Viero FT [1], Arboit F[2], Andrade LG[2], Portela Junior VVM[2], Guilherme Vargas Bochi[1], [1]UFSM Santa Maria, PPG Farmacologia, Brazil, [2]UFSM Santa Maria, PPG Medicina Veterinária, Brazil.

03.005 **Repeated Treatment with Sodium Butyrate Attenuated Deficits of Contextual Fear Extinction Induced by Social Defeat Stress in Mice**. Coelho AA[1,2], Souza-Junior FJC[1,2], Lisboa SF[2] [1]FMRP-USP, Dept of Pharmacology, Ribeirão Preto, Brazil [2]FMRP-USP, Dept of BioMolecular Sciences, School of Pharmaceutical Sciences of Ribeirão Preto, USP, Brazil

03.006 **Effects of Ayahuasca on the Extinction of Contextual Aversive Memories in Rats**. Werle I, Nascimento LMM, Bertoglio LJ UFSC, Dept of Pharmacology, Florianópolis, Brazil

03.007 **Involvement of the Endocannabinoid System in the Effect of Cocaine on the Conditioned Place Preference Test: A Systematic Review and Meta-Analysis**. Santos AC, Iglesias LP, Moreira FA ICB-UFMG, Lab. of Neuropsychopharmacology, Dept of Pharmacology, Belo Horizonte, MG, Brazil

03.008 **Antidepressant-like Effect of the Hydroalcoholic Extract of *Solidago chilensis* and Quercitrin in Rats Submitted for Stress of Maternal Separation**. Bohnen LC[1], Lindemann H[1], Buzatto MV[1], Capoani GT[1], Lopes MCB[1], Kunst FM[1], Ansolin LD[1], Bertollo AG[2], Medeiros J[2], Ignacio ZM[2], Gutiérrez MV[3], Roman Junior WA[1] [1]Unochapecó, [2]UFFS [3]Universidad the Sonora, México

03.009 **Effectiveness of Prototypic Antidepressants in the Forced Swimming Test: A Stratified and Network Meta-Analysis**. Martins T, Bolzan JA, Triches FF, Costa JEM, Eckert FB, Lino de Oliveira C UFSC, Dpt of Physiological Sciences, PPG in Pharmacology, Florianópolis, Brazil, [2]UFSC, Florianópolis, Brazil

03.010 **How Antidepressants Affect Flies' Behavior? A Systematic Review**. Eckert FB[1], Triches FF [1], Costa JEM[1], Suman PR[2], de Toni DC[3], Marino-Neto J[4], Lino de Oliveira C[1]. [1]UFSC, Dpt of Physiological Sciences, PPG in Pharmacology, Florianópolis, Brazil; [2]IBCCF-UFRJ Rio de Janeiro, Brazil; [3]UFSC Florianópolis, Dpt of Cellular Biology, Embryology and Genetics, Brazil; [4]UFSC Florianópolis, Institute of Biomedical Engineering, Brazil

03.011 **The Activity of Phosphodiesterase 4 Favors Extinction Instead of Reconsolidation – The Potential Involvement of PKA and proBDNF**. Sohn JMB[1 2], Cardoso NC[1], Raymundi AM[1], Prickaerts J[2], Stern CAJ[1] [1]UFPR, Dpt. of Pharmacology, Curitiba, Brazil; [2]University of Maastricht, Dpt. of Psychiatry and Neuropsychology, The Netherlands.

03.012 **Influence of *Aloysia citriodora* Palau (Cedrón Paraguay) (Verbenaceae) Extract and its Main Fraction on Behavioral Performance in Experimental Models of Anxiety and Depression Induced in Mice**. Martinez PEY, Báez WJA, Díaz DAI, Universidad Nacional de Asunción, Depto de Farmacología. Facultad de Ciencias Químicas, San Lorenzo, Paraguay

03.013 **Disruption of Fear Memory Reconsolidation by ∆9-Tetrahydrocannabinol Involves Hippocampal CB1 and PPARγ Receptors and Microglia Activation**. Raymundi AM[1], Sohn JMB[1], Guimarães FS[2], Bertoglio LJ[3], Stern CAJ[1]. [1]UFPR, Dpt of Pharmacology, Curitiba, Brazil, [2]FMRP-USP Ribeirão Preto, Dpt of Pharmacology, Brazil, [3]UFSC, Dpt of Pharmacology, Florianópolis, Brazil

03.014 **Doxycycline Induces Rapid Antidepressant-Like Effects Through Reduction of Nitric Oxide Levels**. Sales AJ[1], Del Bel EA[2], Gomes FV[1], Joca SRL[3], Guimarães FS[1] [1]FMRP-USP, Dpt of Pharmacology, Ribeirão Preto, Brazil, [2]FORP-USP, Dpt of Basic and Oral Science, Ribeirão Preto, Brazil, [3]Aarhus University, Dpt of Biomedicine, Denmark.

03.015 **Cannabigerol Prevents Behavioral Impairments Induced by Psychotomimetic Drugs in Animal Models for Schizophrenia**. Pedrazzi JFC[1], Hallak JEC[1], Zuardi AW[1], Del-Bel EA[1 2], Guimarães FS[3], Crippa JA[1] [1]FMRP-USP, Dept of Neurosciences and Behavioral Sciences, Ribeirão Preto, SP, Brazil, [2]FORP-USP, Dept of Basic and Oral Biology, Ribeirão Preto, SP, Brazil, [3]FMRP-USP, Dept of Pharmacology, Ribeirão Preto, SP, Brazil

03.016 **Preventive Treatment with Pro-Resolving Lipid Mediator Resolvin D5 (Rvd5) and its Precursor Docosahexaenoic Fatty Acid (DHA) Induces Anxiolytic-Like Effect in Male Rats**. Zanoveli JM, Silva AHBL, Matos JHB UFPR, Dept of Pharmacology, Curitiba, PR, Brazil

03.017 **Spermidine Prevents the Reinstatement of Alcohol Conditioned Place Preference**. Silva A.A1, Henriques GM1, Rocha VN1, Dias Júnior BC 1, Santos AA 1, Oliveira-Lima AJ1, Marinho EAV1, Rubin MA2, Mello CF[3] [1]UESC, Dept of Health Sciences, Ilhéus, BA, Brazil. [2]UFSM, Dept of Biochemistry, Center of Natural and Exact Sciences, [3]UFSM, Dept of Physiology and Pharmacology, Center of Health Sciences, Santa Maria, RS, Brazil

03.018 **Evaluation of the Anticonvulsant Potential of Synthetic Cannabinoid Compounds in a Seizure Model Induced by Pentylenetetrazole in Zebrafish (*Danio rerio*)**. De Souza MM[1], Souza FL[1], Valachinsk AW[1], Teixeira NC[1], Costa BG[1], Escorteganha Pollo, LA[2], Biavatti, MW[2] [1]NIQFAR/Univali, Chemical Pharmaceutical Research Center, Brazil, [2]PPGFAR-UFSC, Graduate Program in Pharmacy, Brazil

03.019 **Mice Infected with *Plasmodium berghei* ANKA Strain and Healed with Antimalarial Drugs Present Late Cognitive Impairment**. Dias QM, Noleto TG, Passos TG, da Silva, AC, de Oliveira, LM. Fiocruz-Rondonia, Lab. de Neuro e Imunofarmacologia

04. Inflammation and Immunopharmacology

04.001 **Development of an Anti-Inflammatory Gel Containing the Extract of an Agave Genus Agro-Industrial Waste Associated with a Polyphenol**. Ferreira FY[1], Fracasso JAR[2], Costa LTS[2], Ximenes VF[3], Paes JTR[1], Dos Santos L[1] [1]UNESP Assis, Dpt of Biotechnology, Brazil; [2]Unesp Araçatuba, PPG of Science, Brazil; [3]Unesp Bauru, Dpt of Chemistry, Brazil

04.002 **Evaluation of Oxidative Stress Parameters in Patients with Systemic Lupus Erythematosus**. Sampaio AMKV[1], Safraid GF[2], Petreceli RR[3], Bulegon JS[3], Vida RL[2], Correa GL[1], Brucker N[1,2,3]. [1]UFSM, Dpt of Pharmacology and Physiology, Brazil; [2]UFSM, PPG in Pharmacology, Brazil; [3]UFSM, PPG in Pharmaceutical Sciences, Brazil

04.003 **Type 1 Diabetes Did Not Modify Zymosan-Induced Arthritis in Mice**. Barbosa BLSS, Guimarães FV, Carttman L, Chaves AS, Cotias AC, Martins MA, Silva PMR, Carvalho VF IOC-Fiocruz Lab. of Inflammation, Rio de Janeiro, Brazil

04.004 **Astrocytes Respond to Different Inflammatory Stimuli**. Almeida, M.A.P[1,2,3], Costa, M.F[1,2], Moraes, B.P.T[1,2,3], Bozza, P.T[1], Castro-Faria-Neto, H.C[1], Gonçalves-de-Albuquerque, C.F[1,2,3]., Trindade,

P.4, Silva, A.R[1,2,3]. [1]IOC-Fiocruz, Immunopharmacology Lab., Rio de Janeiro, Brazil; [2]Unirio, Immunopharmacology Lab., Dept of Physiological Sciences, Rio de Janeiro, Brazil; [3]UFF, PPG in Neurosciences, Niterói, Brazil; [4]UFRJ, Dept of Clinical and Toxicological Analyses, Pharmacy Faculty, Rio de Janeiro, Brazil

04.005 **Phosphodiesterase 4 is Involved in cAMP Degradation Induced by Prostaglandin E2 and Endothelin-1 in the Hypothalamus**. Amatnecks JA, Costa RA, Zampronio AR UFPR Curitiba, Dpt of Pharmacology, Brazil

04.006 **The Therapeutic Potential of *Arrabidaea chica* Verlot (Bignoniaceae) in Pulmonary Sepsis**. Brito MASM[1,2,3], Chagas MSS[1,2], Moragas-Tellis CJ[3], Silva AR[2], Behrens MD[3], Gonçalves-de-Albuquerque CF[1,2] [1]Unirio Rio de Janeiro, Dpt of Physiological Sciences, Brazil, [2]IOC-Fiocruz, Rio de Janeiro, Immunopharmacology Lab., Brazil, [3]Farmanguinhos, Natural Products Lab., Rio de Janeiro, Brazil

04.007 **Evaluation of the Anti-inflammatory and Antinociceptive Effect of the Aqueous Extract of *Allophylus edulis* (A.St.-Hil., Cambess. & A. Juss.) Radlk. Leaves.** Fava de Souza M[1], Santos SM[1], Faoro JAM[1], Oliveira Junior PC[2], Narcizo LL [3], Santos JM[1], Silva ME [1], Passos BP[3], Rhoden SL[3], Formagio ASN[1,3] [1]UFGD, PPG in Health Sciences, [2]Rede Pró-Centro Oeste, PPG in Biotechnology and Biodiversity, [3]UFGD, PPG in Biodiversity and Environment

04.008 **Effects of Cyanidin 3-Glucoside on some Immunoregulatory Properties of Mesenchymal Stem Cells**. Freitas S[1], Makiyama EN[1], Neves BRO[1], Gonçalves, CES[1], Borelli P[1], Fock RA[1] [1]USP Dpt of Clinical and Toxicological Analyses, PPG Pharmacy: Physiopathology and Toxicology, Brazil.

04.009 **Evaluation of Cannabinoid Receptor Modulation in the Activation of Human Peripheral Neutrophils**. Correa AMC[2,3], Pádua TA[2], Seito LN[2], Silva PRO[2], Santos SOS[2], Henriques MGMO[1,2,3] [1]IBRAG-UERJ, Lab. of Cellular and Molecular Pharmacology, Dept of Cell Biology, Rio de Janeiro, Brazil, [2]Fiocruz-Farmanguinhos, Lab. of Applied Pharmacology, , Rio de Janeiro, Brazil [3]UERJ-IBRAG - PPG in Biosciences

04.010 **Sexual Dimorphism in Hypothalamic Serotonin Levels During Systemic Inflammation**. Costa RA, Amatnecks JA, Zampronio AR [1]UFPR, Dpt of Pharmacology, Curitiba, Brazil;

04.011 **Potential Role of Thrombin and PAR-1 in Lung Fibrosis Caused by Silica Particles in Mice**. Souza, LM[1], Ferreira, TPT[1], Martins, MA[1], Lagente, V[2], Silva, PMR[1] [1]IOC-Fiocruz, Lab. of Inflammation, Rio de Janeiro, Brazil

04.012 **Anti-Inflammatory Potential of Gamma Terpinene in a Zymosan-Induced Arthritis Model**. Silva GHO, Amaral CF, Rocha EMT, Cuman RKN, Silva-Comar FMS UEM Lab. of Inflammation, Brazil

04.013 **Effects of Gamma Terpinene on the Inflammatory Response**. Amaral CF[1], Silva GHO[1], da Rocha EMT[2], Cuman RKN[3], Silva-Comar FMS[3]. [1]UEM, PPG in Health Sciences, Maringá, PR, Brazil; [2]UEM, PPG Pharmaceutical Sciences, Maringá, PR, Brazil; [3]DFT-UEM Dpt of Pharmacology and Therapeutics, Maringá, PR, Brazil

04.014 **Studies on the effects of ethanol on allergic lung inflammation**. Bohrer GP[1], Oliveira MA[1], Moriya HT[2], Marianno P[1], Melhado IVS[1], Alves VF[1], Teixeira SA[1], Kiataki LGS[1], Ribeiro MR[1], Muscará MN[1], de Sá Lima L[1], Scavone C[1], Camarini, R[1], Tavares de Lima, W[1] [1]ICB-USP, Dept. of Pharmacology, São Paulo, Brazil. [2]USP, Dept. of Telecommunication and Control Engineering, São Paulo, Brazil

04.015 **Release of Neutrophil Extracellular Traps (NETs) Contributes to Silica-Induced Lung Fibrosis in Mice**. Ferreira GC[1], Guimarães FV[1], Pires TC[2], Foguel D[2], Schneider A[3], Cunha FQ[3], Martins MA[1], Silva PMR[1]. [1]IOC-FIOCRUZ, Lab. de Inflamação, [2]IBBqM-UFRJ, [3]FMRP-USP

04.016 **Effect of the Tyrosine Kinase Inhibitor Bosutinib on Sepsis-Induced Brain Dysfunction**. Cunha CMCD[1,2,3], Moraes BPT[1,2,3], Abreu VHP[1,2], Soares GVM[1,2], Moraes-de-Souza IM[1,2], Almeida MAP[1,2,3], Estato V[3], Sayão PGF[1,2], Souto HA[1,2], Bozza PT[2], Castro-Faria-Neto HC[2], Silva AR[2,3], Gonçalves-de-Albuquerque CF[1,2,3] [1]Unirio, Immunopharmacology Lab, Dept of Physiological Sciences, Rio de Janeiro, Brazil, [2]IOC-Fiocruz, Immunopharmacology Lab, Brazil, [3] UFF, PPG in Neurosciences, Niterói, Brazil

04.017 **The Specialized Pro-Resolving Mediator Maresin 2 Accelerates the Wound Healing Process in a Murine Model of Dorsal Skin Lesion**. Pierotti SM, Semeão LO, Saraiva-Santos T, Zaninelli TH, Bertozzi MM, Ritter PD, Franciosi A, Ferraz CR, Ferrante LF and Casagrande R UEL, Londrina, PPG Health Sciences, Brazil

04.018 **PI3KG Inhibition Drives Lymphocyte Polarization Towards a TH2 Phenotype AND Attenuates Irinotecan-induced Intestinal Mucositis**. Cajado AG[1], Rangel GFPR[1], Choquenaira-Quispe C[1], Freitas GL[1], Maia IFVC[1], Silva RL[1], Da Silva FDM[1], Alencar NMN[1], Alves APNN[1], Hirsch E[2], Wong DVT[1], Lima-Junior RCP[1] [1]UFC, [2]Università degli Studi di Torino, Italy

04.019 **SARS-CoV-2 Spike Glycoprotein Ectodomain Induces Gut Inflammation, Luminal Hydroelectrolyte Imbalance, and Impairs Mucosal Integrity in a Novel Murine Model**. Nascimento RR[1], Aquino CC[1], Sousa JK[1,4], Cajado AG[1], Gadelha KKL[1], Rocha JA[2], Medeiros JVR[2], Magalhães PJC[1], Gois BM[3], Wong DVT[1], Lima-Junior RCP[1], Lima AAM[1], Engevik AC[5], Nicolau LAD[2], Vale ML[1] [1]UFC, Dpt of Physiology and Pharmacology, Fortaleza, Brazil, [2]UFDPar, Biotechnology and Biodiversity Center Research, Parnaíba, Brazil, [3]UFR, Faculty of Health Sciences, Rondonópolis, Brazil; [4]University of Virginia School of Medicine, Division of Infectious Diseases & International Health, Charlottesville, USA; [5]Medical University of South Carolina, Dpt of Regenerative Medicine and Cell Biology, Charleston, USA.

04.020 **Anti-inflammatory and Antinociceptive Effects of *Dipteryx alata* Leaves**. Santos JM[1], Souza MF[1], Santos SM[1], Oliveira-Junior PC[2], Brait DRH[1], Narcizo LL[3], Rhoden S[3], Silva ME[1], Marangoni JA[1], Borges JT[1], Passos BP[3], Trichez VDK[1], Formagio ASN[1]. [1]UFGD, PPG Health Sciences, Dourados, Brazil, [2]UFGD, PPG Biotechnology and Biodiversity, Dourados, Brazil, [3]UFGD, PPG Biological and Environmental Sciences, Dourados, Brazil

04.021 **Effect of β-myrcene Treatment on Leukocyte Activity *in vitro* and *in vivo*** da Rocha EMT[1], Amaral CF[1], Silva GHO[1], Silva IVM[1], Batistela VR[1], Silva-Comar[1], Cuman RKN[1] UEM

04.022 **Methyl Gallate Effect on Chikungunya Arthritis in Mice**. Oliveira TAL[1], Correa LB[1], Pereira LM[1], Nunes PCG[2], Azeredo EL[2], Rosas EC[1]. [1]Fiocruz-Farmanguinhos, Lab. of Applied Pharmacology. Institute of Drug Technology, Brazil; [2]IOC-Fiocruz, Lab. of Viral Immunology, Brazil

04.023 **Supression by Gold Nanoparticles (AuNPs) of Lung Fibrosis Target by Bleomycin in Mice**. Ferreira, GG; Guimarães, FV1; Fernandes, AJM; Pires, ALA; Arantes, ACS; Janinni-Sá, YAP; Martins, MA; Silva, PMR. IOC-Fiocruz, Laboratory of Inflammation. RJ, Brazil

04.024 **Role of Glucocorticoid-Induced Leucine Zipper in a Pre-Clinical Model of Pneumonia caused by *Pseudomonas aeruginosa***. Carvalho AFS[1], Cardoso C[2], Lara ES[1], Augusto IL[3], Caixeta RS[3], Zaidan I[2,7], Montuori-Andrade ACM[2,8], Lima EBS[1], Carneiro FS[1], Monteiro AHA[2], Queiroz-Junior CM[4], Russo RC[5], Bruscoli S[9], Teixeira MM[6], Sousa LP[1,2,3]. [1]UFMG Belo Horizonte, PPG Clinical and Toxicological Analysis, Brazil, [2]UFMG Belo Horizonte, PPG Pharmaceutical Sciences, Brazil, [3]UFMG Belo Horizonte, Dpt of Clinical and Toxicological Analysis, Brazil, [4]UFMG Belo Horizonte, Dpt of Morfology, Brazil, [5]UFMG Belo Horizonte, Dpt of Physiology and Biophysics, Brazil, [6]UFMG Belo Horizonte, Dpt of Biochemistry and Immunology, Brazil, [7]USP Ribeirão Preto, Dpt of Cellular and Molecular Biology, Brazil, [8]USP Ribeirão Preto, Dpt of Immunology, Brazil, [9]University of Perugia, Dpt of Medicine and Surgery, Italy.

04.025 **Effect of Diabetes on the Neutrophil Release from the Bone Marrow**. Pacheco, FS[1], Chaves, AS[1], Insuela, DBR[1], Souza, LM[1], Brasiel, PGA[1], Silva, PMR[1], Martins, MA[1], Neto, HCF[2], Carvalho, VF [1]. [1]IOC-Fiocruz, Lab. of Inflammation, [2]IOC-Fiocruz, Immupharmacology Lab., Rio de Janeiro, Brazil

04.026 **Development and Evaluation of the Antimalarial Activity of Lipid Core Nanocapsules (LNC) Containing Lumefantrine and Artemether in Experimental Cerebral Malaria Model**. Moraes, BPT[1,2,3], Silva, KP[4], Rodrigues, SO[2,3], Moraes-de-Souza, I[2,3], Almeida, MAP[1,3], Estato, V[3], Bozza, PT[3], Castro-Faria-Neto, HC[3], Ferrarini, SR[4], Silva, AR[1,3], Gonçalves-de-Albuquerque, CF[2] [1]UFF, PPG in Neuroscience, [2]UFRJ, Immunopharmacology Lab., Rio de Janeiro, Brazil, [3]IOC-Fiocruz, Immunopharmacology Lab., Rio de Janeiro, Brazil [4]UFMT, PPG in Health Sciences, Sinop, Brazil

04.027 **Annexin A1/FPR-2 Axis promotes Resolution of Inflammation during Experimental Bacterial Pneumonia**. Lara ES[1], Carvalho AFS[1], Cardoso C[2], Zaidan I[2,7], Grossi L[2], Carneiro FS[1], Caixeta RS[3], Augusto IL[3], Montouri-Andrade ACM[2,8], Queiroz-Junior CM[4], Russo RC[5], Costa VV[6], Teixeira MM[6], Tavares LP[9], Sousa LP[1,2,3] [1]UFMG, PPG Clinical and Toxicological Analysis, Belo Horizonte, Brazil, [2]UFMG, PPG Pharmaceutical Sciences, Belo Horizonte, Brazil, [3]UFMG, Dpt of Clinical and Toxicological Analysis, Belo Horizonte, Brazil, [4]UFMG, Dpt of Morfology, Belo Horizonte, Brazil, [5]UFMG, Dpt of Physiology and Biophysics, Belo Horizonte, Brazil, [6]UFMG, Dpt of Biochemisty and Immunology, Belo Horizonte, Brazil, [7]USP, Dpt of Cellular and Molecular Biology, Ribeirão Preto, Brazil, [8]USP, Dpt of Immunology, Ribeirão Preto, Brazil, [9]Harvard University, Dpt of Medicine, Massachusetts, USA

04.028 **Topical Anti-inflammatory Activity of Gel Based on *Momordica charantia* L. in a Model of Monoarthritis Induced by Complete Freund's Adjuvant**. Moreira FAS[1], Silva ACA[1], Pinheiro S[1] Santos BLB[1], Sousa Neto BP[1], Rufino ADD[1], Almeida FRC[1], Cornélio ML[2], Sousa MC[1], Oliveira FA[1] [1]UFPI, Medicinal Plants Research Center, Teresina, Brazil. [2]UFPB, Lab. of Cosmetic Technology, Dept of Chemical Engineering, Brazil

04.029 **Immunomodulatory Activity of Red Propolis on Human Monocytes and its Killing Activity on Methicillin-Resistant *Staphylococcus aureus* (MRSA)**. Ripari N, Sartori AA, Honorio MS, Bastos JK, Sforcin JM. UNESP-Botucatu, Dept of Chemical and Biological Sciences, Institute of Biosciences, Brasil.

04.030 **Glucagon Resolves Lipopolysaccharide-Induced Lung Neutrophilic Inflammation in Mice**. Insuela DBR[1], Ferrero MR[1], Chaves AS[1], Coutinho DS[1], Magalhães NS[2], Silva AR[3], Silva PMR[1], Martins MA[1], Carvalho VF[1] [1]IOC-Fiocruz, Lab. of Inflammation,Rio de Janeiro, Brazil; [2]IOC-Fiocruz, Lab. of Hospital Infection Research, Rio de Janeiro, Brazil, [3]IOC-Fiocruz, Lab. of Immunopharmacology, Rio de Janeiro, Brazil; University of Rio de Janeiro, Rio de Janeiro, Brazil

04.031 **Effect of JMXiBn, a Non-Anesthetic Bupivacaine Analogue, on a Murine Model of Asthma Marked by Steroid Resistance**. Cotias AC, Serra MF, Azevedo CT, Costa JCS, Bernardi A, Carvalho, VF, Cordeiro RSB, Silva PMR, Martins MA IOC-Fiocruz, Lab. de Inflamação, [2]Farmanguinhos-Fiocruz, RJ, Brazil

04.032 **Evaluation of Ouratein D as Potential Therapeutic Alternative in the Coronavirus-Induced Infection**. Monteiro AHA[1], Montuori-Andrade ACM[1], Cardoso C[1], Souza JAM[1], Carvalho AFS[2], Lara ES2, Zaidan I[1], Lima EBS[2], Augusto IL[3], Caixeta RS[3], Rocha MP[1], Costa VV[4], Teixeira MM[4], Braga FC[1], Sousa LP[1,2,3] [1]UFMG, PPG Pharmaceutical Sciences, Belo Horizonte, Brazil [2]UFMG, PPG Clinical and Toxicological Analysis, Belo Horizonte, Brazil [3]UFMG, Dpt of Clinical and Toxicological Analysis, Belo Horizonte, Brazil [4]UFMG, Dpt of Biochemistry and Immunology, Belo Horizonte, Brazil

04.033 **Anti-inflammatory Role of Annexin A1 during Chikungunya Infection: Implications for Therapeutic Intervention**. Araújo S[1] [3], Costa VRM[1], Gonçalves MR[1], Santos FM[1], Queiroz-Júnior CM[1], Lima EBS[2], Perretti M5, Costa VV[1] [3], Teixeira MM[1,4] [1]ICB-UFMG, Drug Research and Development Center, Belo Horizonte, Brazil, [2]FF-UFMG, Dpt of Clinical and Toxicological Analysis, [3]UFMG, PPG in Cell Biology, Dpt of Morphology, [4]ICB-UFMG, Dept of Biochemistry and Immunology, [5]Queen Mary University of London, UK

04.034 **Effect of Transplantation of Interleukin-4 Programmed Macrophages in Severe Acute Respiratory Syndrome Induced by Murine Betacoronavirus**. Felix FB[1], Beltrami VA[1], Martins DG[1], Sousa LP[2], Teixeira MM[3], Pinho V[1]. [1]ICB-UFMG, Dpt of Morphology, Belo Horizonte, Brazil; [2]FF-UFMG, Dpt of Clinical and Toxicological Analysis, Belo Horizonte, Brazil; [3]UFMG, Dpt of Biochemistry and Immunology, Belo Horizonte, Brazil

05. Pain and Nociception Pharmacology

05.001 ***In Silico* and *in vivo* Analysis of Terpinolene's Antinociceptive Mechanisms in Neuropathic Pain Induced by Paclitaxel**. Cavalcante KDM[1], Acha BT[1,2], Pimentel VD[2], Ferreira PMP[1,2], Sousa DP[3], Almeida FRC[2], Dittz D[1,2]. [1]UFPI, Lab. of Experimental Cancerology, Brazil, [2]UFPI, PPG Pharmacology, Brazil; [3]UFPB, Lab. of Pharmaceutical Technology, Brazil

05.002 **Antinociceptive and Antioxidant Activities of Terpinolene in a Paclitaxel-Induced Neuropathic Pain Model and its Antiproliferative Effect on Human Breast Cancer Cells**. Paixão MS[1], Acha BT[1,2], Cavalcante MSC[1,2], Ferreira PMP[1,2], Sousa DP[3], Almeida FRC[2], Dittz D[1,2]. [1]UFPI, Cancerology Lab. - Federal University of Piauí, Brazil, [2]UFPI PPG Pharmacology, Brazil,

[3]UFPB, Pharmaceutical Technology Lab., Brazil

05.003 **Effect of Maresin 2 Treatment on Neuropathic Pain, Depression, and Anxiety Associated with Experimental Diabetes**. Oliveira G[1], Ferreira MV[1], Bonfim JPC[1], Verri WAJ[2], Zanoveli JM[1], Cunha JM[1]. [1]UFPR, Dpt of Farmacology, Curitiba, Brazil, [2]UEL, Dpt of Patology, Londrina, Brazil,

05.004 **Effect of Zinc Dietery Restriction and Supplementation on Pain and Inflammation in Mice CFA Model**. Silva MC, Poblete LS, Matias DO, Lima LMTR, Miranda ALP. UFRJ, Faculty of Pharmacy, Rio de Janeiro, Brazil

05.005 *Schinus terebinthifolius* **Essential Oil and its Main Component Delta-3-Carene Induce Antinociception Via Serotonergic Receptors**. Santana GCS[1], Lima AA[2], Souza TA[3], Silva MS[3], Soares MBP[2, 4], Viana MDM[1], Villarreal CF[1] [1]UFBA, School of Pharmacy, Salvador, Brazil, [2]Fiocruz, Gonçalo Moniz Institute, Salvador, Brazil [3]UFPB, João Pessoa, Brazil [4]SENAI-CIMATEC Salvador, Brazil

05.006 **Pharmacological Effects of Cannabidiol in the Nitroglycerin (NTG)-Induced Migraine in Mice**. Amaral FKCW1[1], Stern CAJ[1], Nassini R[2], De Logu F[2], Silva RR[1], Rosa Filho SP[1], Werner MFP[1] [1]UFPR, Pharmacology, [2]UNIFI, Clinical Pharmacology

05.007 **Evaluation of TRPV4 Channel Participation in a Type I Complex Regional Pain Syndrome Induced Nociception Model in Mice**. Ruviaro NA[1], Rodrigues P[2], Peres DS[2], Frare JM[2], Trevisan G[1] [1]UFSM, PPG Biological Sciences: Toxicological Biochemistry, Brazil. [2]UFSM, PPG Pharmacology, Brazil

05.008 **Paclitaxel Induces Neurotoxicity in Human Sensory Neuron-Like Cell**. Schiess MC[1], Silva GSA[1], Bufalo MC[2], Zambelli VO[1] [1]IBu, Lab. of Pain and Intracellular Signalization, Sao Paulo, SP, Brazil, [2]IBu, Centre of Excellence in New Target Discovery, Sao Paulo SP, Brazil

05.009 **The role of the meningeal lymphatic system in the development of neuropathic pain**. Castro RS, Anibal CES, Pigatto GR, Cunha TM FMRP-USP, Dept of Pharmacology, Ribeirão Preto, Brazil

05.010 **Study and Development of New Candidates for Anti-Inflammatory and Antinociceptive Drugs that Inhibit the P2X7 Receptor**. Salles JP[1], Galvão RMS[1], Faria RX[2], Miranda ALP[1] [1] LEFEx-UFRJ, Brazil; [2]LAPSA-FIOCRUZ, Brazil

05.011 **Advanced Oxidation Protein Products (AOPPs) are Involved in Nociception and Neuroinflammation in a Relapsing-remitting Experimental Autoimmune Encephalomyelitis Model in Mice**. Rodrigues P[1], Vieiro FT[1], Frare JM[1], Peres DS[1], Stein CS[2], Brum ES[3], Silva AM4, Dalenogare DP[1], Moresco RN[2], Oliveira SM[3], Ferreira J[4], Pillat MM[1], Bochi GV[1], Trevisan G[1] [1]UFSM, Graduated Program in Pharmacology, Santa Maria, RS, Brazil. [2]UFSM, Graduated Program in Pharmaceutical Sciences, Santa Maria, RS, Brazil. [3]UFSM, Graduated Program in Biological Sciences, Santa Maria, RS, Brazil, 4UFSC Graduated Program in Pharmacology, UFSC, Florianópolis, SC, Brazil

05.012 **Investigation of the Mechanisms of Antinociceptive Action of α-Phellandrene through Molecular Docking and its Toxicity to U87 Cell Lines**. Pinheiro-Neto FR[1], Pereira SAP[1], Acha BT[1], Ferraz SLNS[1], Gomes LS[1], Cavalcante MLS[1], Freitas GBL[1], Dittz-Júnior D[2], Ferreira PMP[2], Cavalcante MLS[2], Almeida FRC[2] UFPI

05.013 **Collagen-Derived Advanced Glycation End-Products Sensitize Human Sensory Neuron-Like cells to Capsaicin-Induced Calcium Influx**. Silva GSA[1], Bufalo MC[2], Souza MM[2], Chudzinski-Tavassi AM[2,3], Picolo G[1], Zambelli VO[1]. [1]IBu, Lab. of Pain and Signaling, São Paulo, Brazil; [2]IBu, Center of Excellence in New Target Discovery, São Paulo, Brazil; [3]IBu, Innovation and Development Lab., Innovation and Development Center, São Paulo, Brazil

05.014 **The Antinociceptive Action of Isopulegol Involves Neuronal Plasma Membrane Stabilization leading to GABAergic Neuroinhibition in Detriment of Glutamatergic Excitation in the Rat Spinal Cord**. Próspero DFA[1], Pereira SAP[1], Acha BT[1], Cavalcante MLS[2], Dittz-Júnior D[2], Ventura T[3], Lobo MGB[3], Ferreirinha F[3], Correia-de-Sá P[3], Almeida FRC[1] [1]UFPI, Lab. of Pain Pharmacology, [2]Lab. of

Experimental Cancerology, Teresina, Brazil. [3]University of Porto, Lab. of Pharmacology and Neurobiology, School of Medicine and Biomedical Sciences Abel Salazar (ICBAS), Porto, Portugal.

05.015 **Analgesic Efficacy of the Slow-Releasing Hydrogen Sulfide (H_2S) Donor, GYY4137 and the Polysulfide, Dimethyl Trisulfide in Postoperative Pain Model: Role of Transient Receptor Potential Ankyrin 1**. Dallazen JL[1,2], Horváth AI[2,3], Tékus V[2], Hajna Z[2], Alsou'b DFB[2], Helyes Z[2,3,4], Pintér E[2,3,4], Costa SKP[1]. [1]ICB-USP, Dept Farmacologia, Brazil, [2]Dept Pharmacology and Pharmacotherapy, Medical School, University of Pécs, Hungary, [3]National Laboratory for Drug Research and Development, Budapest, Hungary, [4]Eötvös Loránd Research Network, Chronic Pain Research Group, University of Pécs, Hungary

05.016 **Therapeutic Effects of B-Caryophyllene on Oxaliplatin-Induced Neuropathy in Mice: Analysis of Antinociceptive, Anti-Inflammatory and Redox Modulation Activity**. Agnes, JP[1], Schran, RG[2], Ferreira J[2], Goldoni FC[3], Benvenutti L[3], Santin JR[3], Quintão NLM[3], Zanotto-Filho A[1] [1]UFSC, Lab. de Farmacologia e Bioquímica do Câncer, PPG em Farmacologia, Depto de Farmacologia, Florianópolis, SC, Brasil, [2]UFSC, Lab. de Farmacologia Experimental, PPG em Farmacologia, Depto de Farmacologia, Florianópolis, SC, Brasil, [3]Univali, Lab. Farmacologia e Toxicologia, PPG em Ciências Farmacêuticas,. Itajaí, SC, Brasil

06. Cardiovascular and Renal Pharmacology

06.001 **Evaluation of Long-Term Hemodynamic Response in Wistar Rats Treated with Topiramate During Childhood**. Oliveira GR, Silva KGN, Bonancea AM, Miguel MVO, Pelosi GG UEL, Dpt of Physiological Science, Brazil

06.002 **Elastase-2 Deletion Impact on Cardiac Remodeling by Angiotensin II Infusion in Mice Models**. Kovacs HZ[1], Mestriner F[1], Dugaich VF[1], Dantas PB[1], Nakagi VS[2], Ribeiro MS[1], Becari C[1,3] [1]FMRP-USP, Division of Vascular and Endovascular Surgery, Dept of Surgery and Anatomy, [2]FMRP-USP, Dept of Physiology, Ribeirão Preto, SP, Brazil. [3]FOB-USP, Dept of Biological Science, Bauru-SP, Brazil

06.003 **Analysis of Renin and Angiotensin Converting Enzyme 2 in Aorta from Human Abdominal Aortic Aneurysm**. Francisco DF[1], Dugaich VF[1], Mestriner F[1], Corsi C[1], Campos LCB[1], Couto AES[1], Vasconcelos J[1], Jordani MC[1], Ribeiro MS[1], Becari C[2]. [1]FMRP-USP, Division of Vascular and Endovascular Surgery, Dpt of Surgery and Anatomy, Ribeirão Preto, SP, Brazil; [2]FOB-USP, Dpt of Biological Science, Bauru, SP, Brazil

06.004 **Upregulated Hexosamine Pathway contributes to Aneurysmal Vascular Lesion**. Hosomi N[1,2,3], Silva JF[1,4], Alves JV[1], Costa R[1,5], Mestriner F[6,7], Nguyen TAV[2], Becari C[6,7], Yanagisawa H[2,8], Tostes R[1] [1]FMRP-USP, Dpt of Pharmacology, Brazil, [2]TARA-University of Tsukuba Life Sciences Center for Survival Dynamics, Ibaraki, Japan, [3]University of Tsukuba, School of Medicine and Health Sciences, College of Medical Science, Ibaraki Japan, [4]University of Arizona, Dpt of Physiology, Tucson, USA, [5]UFJ, Academic Unit of Health Sciences, Brazil, [6]FMRP-USP, Dpt of Surgery and Anatomy, Brazil, [7]FOB-USP, Dpt of Biological Sciences, Brazil, [8]University of Tsukuba, Faculty of Medicine, Ibaraki Japan.

06.005 **Nebivolol Prevents Redox State Changes Induced by Cyclophosphamide in Mouse Heart**. Marchetti BM, Pimenta GF, Dourado TMH, Tirapelli CR EERP-USP, Lab. of Cardiovascular Pharmacology,

06.006 **Activation of Vascular Autophagy as a Counter-Regulatory Mechanism in Aldosterone-Induced Vascular Dysfunction: Role of Protein O-GlcNAcylation**. Rodrigues D[1], Costa RM[1], Vargas P[1,2], Barros PR[1], Oliveira-Neto JT[1], Machado MR[1], Freitas-Filho EG[3], Hosomi N[1], Okada LY[1], Martins NS[2], Bonato VD[2], Cunha LD[3], Tostes R[1] [1]FMRP-USP, Depto. of Pharmacology, [2]FMRP-USP, Depto. of Biochemistry and Immunology, [3]FMRP-USP, Cellular and Molecular Biology and Pathogenic Bioagents

06.007 **Proteomics and Therapeutic Responsiveness in Preeclampsia**. Pinto-Souza CC[1], Rossini BC[2], Dos Santos LD[2], Sandrim VC[1] [1]IBB-Unesp-Botucatu, Dept of Biophysics and Pharmacology, PPG Biotechnology, Botucatu, SP, Brazil, [2]IBTEC-Unesp-Botucatu, Botucatu, SP, Brazil

06.008 **Cecal Slurry as a Research Model for New Pharmacological Therapies for Sepsis-Induced Cardiovascular Dysfunction**. Delfrate G, Assreuy J, Fernandes D UFSC, Dpt of Pharmacology, Florianópolis Brazil

06.009 **Basal Release and Action of 6-Nitrodopamine from Human Popliteal Artery and Vein** *in vitro*. Lima AT, Oliveira LFG, Britto-Júnior J, Campos R, De Nucci G FCM-Unicamp, Dept of Pharmacology, Campinas, São Paulo, Brazil

06.010 **Protein SUMOylation is involved in Renal Resistance against Ischemia after Hemorrhagic Shock**. Oliveira FRMB[1], Soares ES[1], Ramos HP[1], Lättig G[2], Harms C[2], Cimarosti HI[1], Sordi R[1]. [1]UFSC, PPG Pharmacology, Florianópolis, Brazil; [2]Charité Hospital, Center for Stroke Research, Germany.

06.011 **External Quality Assessment from the Systematic Review and Meta-Analysis about the Effects of Antidepressants on Blood Pressure of Male and Female Rats**. dos Santos TM, Linder AE [1]UFSC, Dpt of Pharmacology, Florianópolis, Brazil

06.012 **Effects of Chronic Treatment with** *Alpinia zerumbet* **Leaf Extract on Cardiovascular changes in the Model of Renovascular Hypertension 2 Kidney, 1 Clip**. Menezes MP[1], Santos GP, Silva DLB, Gouveia JF, De Oliveira BC, Cavalheira MA, Silva EM, Soares RA, Da Costa CA, De Bem GF, Resende AC, Ognibene DT. UERJ, Dept of Pharmacology, Rio de Janeiro, Brazil

06.013 **The Resveratrol during Pregnancy and Lactation Reduces Oxidative Stress, Matrix Metalloproteinase (MMP)-2 Activity, and Hypertension in Adult Offspring**. Neves VGO, Gomes BQ, Rocha EV, Mello MM, Assis VO, Tirapelli CR, Castro MM FMRP-USP, Dept of Pharmacology

06.014 **Potentiation by 6-Nitrodopamine of the Chronotropic Effect of Dopamine, Noradrenaline, and Adrenaline in the Rat Isolated Atria**. Fuguhara V, Britto-Júnior J, Lima AT, Antunes E, De Nucci G Unicamp, Dpt of Pharmacology, Campinas, Brazil

06.015 **Elastase-2, an angiotensin II forming enzyme, is upregulated in human abdominal aortic aneurysm**. Dugaich VF[1], Mestriner F[1], Carlos Corsi[1], Franco D[1], Vasconcelos J[1], Jordani MC[1], Ribeiro MS[1], Becari C[2]. [1]FMRP-USP, Div. of Vascular and Endovascular Surgery, Dept of Surgery and Anatomy, Ribeirão Preto, SP, Brazil. [2]FOB-USP, Dept of Biological Science, Bauru, SP, Brazil

06.016 **6-Nitrodopamine and 6-Cyanodopamine are Released by Human Washed Platelets**. Campos R[1], Mathias-Netto FC[1], Nash CES[1], Moraes MO[2], Moraes MEA[2], De Nucci G[3] [1]UNICAMP, Dept of Pharmacology, Campinas, Brazil, [2]UFC Fortaleza, Dept of Pharmacology, Brazil, [3]USP, Dept of Pharmacology, São Paulo, Brazil

06.017 **Basal Release and Smooth Muscle Relaxation Induced by 6-Nitrodopamine in Isolated Mouse Urinary Bladder, Urethra and Prostate**. Oliveira MG[1], Britto-Júnior J, Chiavegatto S[2], Monica FZ[1], Antunes E[1], Zatz R[3], De Nucci G[1] [1]Unicamp, [2]ICB-USP, [3]FM-USP

06.018 **Loss of Beta-2 Adrenergic Receptor S-Nitrosylation Protects Against Myocardial Ischemia Reperfusion Injury**. Rosales TO[1], Roy R[1], Gao E[2], Premont RT[3], Stamler JS[3], Koch WJ[1]. [1]Duke University School of Medicine, Dept of Surgery, Durham, NC, USA; [2]Temple University, Center for Translational Medicine, Philadelphia, PA, USA; [3]Case Western Reserve University School of Medicine, Institute for Transformative Molecular Medicine, Cleveland, OH, USA; University Hospitals Cleveland Medical Center, Harrington Discovery Institute, Cleveland, OH, USA

06.019 **AT1r Expression in Abdominal Aortic Aneurysm and Angiotensin II Receptor Blockers Treatment Impact in Human Tissue**. Vasconcelos JL[1], Dugaich VF[1], Francisco DF[1], Mestriner F[1], Corsi C[1], Couto AES[1], Becari C[2], Ribeiro MS[1]. [1]FMRP-USP, Division of Vascular and Endovascular Surgery, Dept of Surgery and Anatomy, Ribeirão Preto, SP, Brazil. [2]FOB-USP, Dept of Biological Science, Bauru-SP, Brazil

06.020 **Diuretic activity of crude ethanol and saponin-rich extracts of** *Solanum sisymbriifolium* **Lam. in rats**. Arrúa WJ, Ibarrola DA, Hellión-Ibarrola MC, Duarte JG, Galeano Universidad Nacional de Asunción, Facultad de Ciencias Químicas, Dept of Pharmacology, Paraguay

06.026 **Endothelium-Dependent and -Independent Vasorelaxant Effect of Estriol in Rat Thoracic Aorta**. Batista RAO[1], Rocha IR[1], Sousa CM[1], Silva CM[1], da Silva Filho FA[1], Oliveira-Porfiro LM[2] and

Oliveira TS[1] [1]UFVJM, Dept of Pharmacy, Lab. of Experimental Pharmacology, Diamantina, MG, Brazil. [2]UEG-Itapuranga, Itapuranga, GO, Brasil.

07. Endocrine, Reproductive and Urinary Pharmacology

07.001 **Nebivolol Prevents Cyclophosphamide-Induced Oxidative Stress in The Bladder**. Jesus CPS, Pimenta GF, Tirapelli CR EERP-USP, Pharmacology Lab

07.002 **Impact of Intravascular Hemolysis on Functional and Molecular Changes in the Urinary Bladder: Implications for Overactive Bladder in Sickle Cell Anemia**. Silveira THR[1], Pereira DA[1], Pereira DA[1], Calmasini FB[2], Costa FF[3], Silva FH[1]. [1]USF Bragança Paulista, Lab. of Multidisciplinary Research, Brazil, [2]Unifesp, Brazil, [3]Unicamp, Hematology and Hemotherapy Center, Brazil

07.003 **The Effects of Hypothyroidism Progression Over the Melatoninergic System in the Reproductive Tract of Male and Female Rats**. Paiva RVN[1,2], Mondes PHL[1], Brandão BJ[1], SantAnna JN[1], Santos MEF[1], Santos LC[2], Markus RP[3], Fernandes PACM[3], Silva JF2[2], Tamura EK[1]. [1]UESC, Dpt. of Health Sciences, Chronobiology Research Group, Ilhéus, Brazil; [2]UESC, Dpt. of Biological Sciences, Center for Research in Reproduction and Endocrinology, Ilhéus, Brazil; [3]USP, Dpt. of Physiology, Lab. of Chronopharmacology, São Paulo, Brazil

07.004 **Impacts of Cesarean Section on The Gut Microbiome in the Long Term and Consequent Effects on the Individual's Vulnerability to DEHP**. Santiago MSA[1], Nogueira LS[1], Avellar MCW[2], Perobelli JE[1] [1]Unifesp-Baixada Santista, Depto de Ciências do Mar [2]Unifesp-EPM. Depto de Farmacologia

07.005 **Effect of Vitamin D on Metabolic Control Parameters and Lipid Peroxidation Markers in an Experimental Model of Type 2 Diabetes Mellitus**. Brito AKS, Macedo JL, Oliveira ASSS, Santos MVDR, Silva ILC, Campos AJR, Queiroz CRT, Bastos FGT, César ESL, Mendes AVS, Almeida JOCS, Santos AA, Arcanjo DDR, Martins MCC UFPI, Dpt of Biophysics and Physiology, Brazil

07.006 **Chronic Treatment with Guanosine, a Guanine-Based Nucleoside, Improved Prostate Hypercontractility and Corpus Cavernosum Relaxation in Obese Mice**. Passos GR; Gomes ET; Ghezzi AC; Antunes, E; Mónica FZ. FCM-Unicamp, Dept of Translation Medicine, Faculty of Medical Sciences

07.007 **A 2-Week Treatment with 5-Azacytidine Improved the Hypercontractility State in Prostate from Obese Mice: Role of the Nitric Oxide-Cyclic Guanosine Monophosphate Signaling Pathway**. Ghezzi AC[1], Passos GR[1], Oliveira MG[1], Oliveira AL[1], Mendonça GRA[2,3], Mello G[1], Antunes E[1], Monica FZ[1] [1]FCM-Unicamp, Dept of Translation Medicine, Campinas, Sao Paulo, Brazil. [2]FCM-Unicamp, Dept of Pathology, Campinas, Sao Paulo, Brazil. [3]ANM, Young Leadership Physician Program, Rio de Janeiro, RJ, Brazil

07.008 **Experimental Pharmacology of Liraglutide and Empagliflozin: Impacts on Metabolism and Brain Microcirculation in Type 2 Diabetes**. Estato V[1], Costa dAvila J[2], Santana Carlos A[2], dos Santos SIlva I[2], Mafra Moreno[2], Chateaubriand PHP[3], Figueiredo V[3], Caire de Castro Faria H[1], Azeredo Siqueira R[3] [1]IOC-Fiocruz, Lab. of Immunopharmacology,, [2]Unig, [3]Unesa- Idomed, Rio de Janeiro, Brazil

08. Respiratory and Gastrointestinal Pharmacology

08.001 **Antiulcerogenic Activity of Hesperetin and Carveol in Animal Models**. Pessoa MMB[1], Pessôa MLS[1], Alves VP, Silva ML, Araruna MEC, Alves Junior EB, Batista LM UFPB

08.002 **Immunorregulatory, antioxidant, anti-secretory and cytoprotective activity of farnesol involved in gastroprotection**. Pessôa MLS, Pessoa MMB, Alves VP, Silva ML, Batista LM UFPB

08.003 **Araucaria Brown Propolis Hydroalcoholic Extract, but not Junicedric Acid from this Extract, Promotes Gastroprotection in Rodents**. Cury BJ[1], Venzon L[1], Silva HFT[1], Makowieski LP[1], Jerônimo DT[1], Silva LM[1], Farias T[1], Kenupp JB[2], Santos MFC[3], Silva LM[1]. [1]Univali, PPG in Pharmaceutical Sciences, Itajaí, SC, Brazil; [2]Unifran, Research Center in Exact and Technological Sciences, Franca, SP, Brazil; [3]FCFRP-USP, Ribeirão Preto, Brazil

08.004 **Hydroalcoholic Extract of Araucaria sp Brazilian Brown Propolis alleviates Ulcerative Colitis induced by TNBS in Rats**. Cury BJ[1], Jerônimo DT[1], da Silva LM[1], Farias T[1], França TCS[1], Dos Santos AC[1], Andriolo, IRL[1], Santos MFC[2], Kenupp JB[3], da Silva LM[1]. [1]Univali, PPG in Pharmaceutical Sciences,

Itajaí, SC, Brazil; [2]Unifran, Research Center in Exact and Technological Sciences, Franca, SP, Brazil; [3]FCFRP-USP, Ribeirão Preto, Brazil

08.005 **Doxycycline Reduces Inflammation in Lung and Gut in a Murine Model of Acute Respiratory Distress Syndrome**. Santos AA, Oliveira TD, Dias KT, Tavares-de-Lima W, Rodrigues SFP. USP, Dpt of Pharmacology, Brazil

08.006 **Gold Nanoparticles Reduced Lung Inflammation in a Murine Model of Acute Respiratory Distress Syndrome**. Oliveira, TD, Santos, AA, Oliveira, MA, Tavares-de-Lima, W, Rodrigues, SF. USP, Dpt of Pharmacology, Sao Paulo, Brazil

08.007 **ASK1 Regulates Bleomycin-induced Pulmonary Fibrosis**. Valenca SS 1-2, Dong BE 2, Gordon EM 2, Sun RC 3, Waters CM 2. [1]ICB-UFRJ, Brazil; [2]University of Kentucky, Dept of Physiology, USA; [3]University of Kentucky, Dept of Neuroscience, USA

08.008 **Antioxidant and healing activities of** *Melipona compressipes fasciculata* **(Smith, 1854) stingless bee pot pollen in** *in vitro* **and** *in vivo* **models**. Neves JA[1], Sousa MC[1], Silva FV[1], Viana AFSC[2], Fernandes HB[1], Moreira FAS[1], Santos BLB[1], Oliveira RCM[1] [1]UFPI, [2]UFC

08.013 *Uncaria tomentosa* **a Medicinal Plant with Gastroprotective and Gastric Healing Properties in Rats: Histological, Biochemical Analysis and Use of Ultrasound**. Simomura VL[1], Buzzato MV[1], Miorando D1, Somensi LB[2], de Oliveira BMM[1], Steffler AM[1], Veloso JJ[1], Barrichello A[1], Kunst FM[1], Ansolin LD[1], Vidal-Gutiérrez M[3], da Silva LM4, Roman Junior WA[1]. [1]Unochapecó, [2]Uniarp, [3]University of Sonora, [4]Univali

08.015 *Spirulina* **(Arthrospira)** *platensis* **prevents Oxidative Stress, Inflammation and Damage to Contractile Reactivity in the Ileum of Rats fed a Hypercaloric Diet**. Diniz AFA[1], Ravilly RAA[1], Claudino BFO[2], Francelino DMC[2], Alves-Júnior EB[1], Barros BC[1], Lacerda-Júnior FF[1], Ferreira PB[1], Alves AF[1,3] , Batista LM[1,3], Silva BA[1,3] [1]PPgPNSB-CCS-UFPB [2]CCS-UFPB [3]DCF-CCS-UFPB

08.018 *Sonchus oleraceus* **promotes Gastroprotection in Rodents Via Antioxidant, Anti-Inflammatory, and Antisecretory Activities**. Vecchia CAD[1], Serpa PZ[1], Locateli G[1], Miorando D[1], Ferraz CV[1], Buzatto MV[1], Gutiérrez MV[2], Somensi LB[3], Silva LM[4], Roman Junior WA[1] 1Unochapecó, [2]Unesp, [3]Uniarp, [4]Univali

08.019 **Hydroalcoholic Extract of** *Arrabidaea chica* **and 3'-Hydroxy-Carajurone-Rich Subfraction Promote Gastroprotection and Gastric Healing Effect in Rodents**. Miorando D[1], Steffler AM[1], Veloso JJ[1], Buzatto MV[1], Simomura VL[1], Kunst FM[1], Ferraz CV[1], Vidal-Gutiérrez M[2], Somensi LB[3], Silva LM[3], Roman Junior WA[1]. [1]Unochapecó, Dpt of Pharmacognosy; [2]University of Sonora, Dpt of Chemistry; [3]Univali, Dpt of Pharmacology

08.020 **Low Doses of Cannabidiol Reduces Inflammation and Pain, Improves Mice Welfare, and Regulates Cortical Serotonin Levels on DSS-induced Colitis**. Naidek AF, Luz BB, Stern CAJ, Werner MFP UFPR, Pharmacology Dept

08.021 **Fluoxetine Accelerates Gastric Healing in Male Rats, But Not in Ovariectomized and Sexually Intact Female Rats**. Silva TFQ, Silva, Cazarin CA, Longo B, Nunes RKS, Cury BJ, Santos AC, França TCS, Venzon L, Silva LM Univali Postgraduate in Pharmaceutical Sciences, SC, Brazil

08.022 **Esophagoprotective Effect of Lemon Gum, a Biopolymer from Citrus x Latifolia, on Experimental Gastroesophageal Reflux Disease in Rats**. [1]Teixeira LFLS, [1]Silva KC, [1]Gomes IAB, [1]Oliveira AP, [1]Pacheco G, [1]Sousa GC, [1]Lopes ALF, [2]Franco AX, [1]Ribeiro FOS, [3]Freitas RA, [1]Silva DA, [1]Medeiros JVR, [1]Nicolau LAD [1]UFDPar, [2]UFC, [3]UFPR

09. Natural Products and Toxinology

09.001 **A Novel Method of Isolating Snake Venom Metalloproteinases P-I from the Venom of** *Bothrops jararaca*. Rodrigues MAF[1], Sousa EP[1], Galizio NC[1], Serino-Silva C[1], Grego KF[1], Tanaka-Azevedo AM[1], Morais-Zani K[1]. [1]IBu, Dpt of Herpetology, Brazil

09.002 **Enzymatic and Neuromuscular Activities of** *Crotalus durissus ruruima* **(Viperidae: Crotalinae) Venom and Neutralization by Therapeutic Antivenom** *in vitro*. Demico PJ[1], Oliveira IN[1], Torres-Bonilla KA[2], Hyslop S[2], Moura-da-Silva AM[3], Rocha AM[4], Maciel JB[4], Sartim MA[4], Pucca M[4], Monteiro WM[4],

Floriano RS[1]. [1]Unoeste, Lab of Toxinology and Cardiovascular Research, Presidente Prudente, Brazil; [2]FCM-Unicamp, Campinas, Dpt of Translational Medicine, Brazil; [3]IB, Lab of Immunology, São Paulo, Brazil; [4]UEA, Graduate Program in Tropical Medicine, Manaus, Brazil

09.003 **Preliminary Analysis *in vitro* of the Phytochemical, Anti-Inflammatory and Cytotoxic Profile of the Extract of a Plant of the Arecaceae Family Aiming the Future Development of a New Herbal Medicine**. Meschick CG[1], Fracasso JAR[2], Ximenes V[3]; Verri-Junior WA[4]; Dos Santos L[1,2] [1] UNESP-FCL-Assis, Dpt of Biotechnology, Brazil; [2]FOA-UNESP, PPG of Science, Brazil; [3] UNESP-FC-Bauru, Dpt of Chemistry, Brazil; 4UEL, Dpt of Pathological Sciences, Brazil

09.005 **Methyl Cinnamate Regulates TGF-β-Induced Fibroblast Activation through a SMAD3 Dependent Mechanism**. Barros ABB, Ferreira EGA, Fidelix MSP, Carmo JOS, Silva JP, Santana JR, Barreto E UFAL, Lab. of Cell Biology, Brazil

09.006 **Protective Effect of Polysaccharides from Fruit Byproduct on 5-Fluorouracil-Induced Intestinal Mucosal Damage**. Schiebel CS[1], Oliveira NMT[1], Braga LLVM[1], Silva KS[1], Abboud KY[2], Cordeiro LMC[2], Ferreira DM[1]. [1]FPP, PPG em Biotecnologia Aplicada à Saúde da Criança e do Adolescente, Curitiba, Brazil; [2]UFPR, Dept of Biochemistry and Molecular Biology, Curitiba, Brazil

09.007 **Apitoxin or Melittin Applied to the Zusanli Acupoint (E36) Induced Long Lasting Analgesia in Neuropathic Pain Model in Rats**. Boaventura de Oliveira AM[1], Silva DF[1], Sant'Anna MB[1], Silva, JRT[3], Marques-Porto R[2], Picolo G[1] [1]IBu, Lab. of Pain and Signaling, Brazil; [2]IBu, Lab. of Development and Innovation, Brazil; [3]Unifal, Lab. of Neuroscience, Neuromodulation and Study of Pain, Brazil

09.008 **Presynaptic Excitatory Action of a Fraction Isolated from *Bothrops bilineatus smaragdinus* (Viperidae: Crotalinae) Venom in Mouse Phrenic Nerve-Diaphragm Preparation**. Couceiro FYGM[1], Pacagnelli FL[1], Torres-Bonilla KA[2], Hyslop S[2], Lomonte B[3], Floriano RS[1]. [1]Unoeste Presidente Prudente, Lab of Toxinology and Cardiovascular Research, Brazil; [2]FCM-Unicamp, Dpt of Translational Medicine, Campinas, Brazil; [3]University of Costa Rica, Clodomiro Picado Institute, Costa Rica

09.009 **Proteomic and Functional Comparison of Different Venom Phenotypes of *Bothrops jararaca* Snakes Regarding the Abundance of Metalloproteases**. Sousa EP, Galizio NC, Serino-Silva C, Vidueiros JP, Grego KF, Tanaka-Azevedo AM, Morais-Zani K. IBu São Paulo, Dpt of Herptology, Brazil

09.010 **Effect of Mesalazine in an Animal Model of DSS-Induced Ulcerative Colitis**. Rosa Filho, SP, Amaral FKCW, Brito MSC, Silva, RR, Werner MFP UFPR, PPG Farmacologia, Brazil

09.011 **Divergent Roles for Adenosine Receptors in the Hypotension Caused by *Bothrops jararacussu* (Jararacussu) Snake Venom in Anesthetized Rats**. Varón JCG, Torres-Bonilla KA, Pereira BB, Dias L, Hyslop S Campinas, Dpt of Translational Medicine (Section of Pharmacology), Unicamp, Brazil

09.012 **Evaluation of Pyroligneous Extracts in Glioblastoma Cells**. Bastos-Cavalcante CM[1], Silva JKS[1], Varjão MTS[1], Ferreira SCA[1], Santos ESR[1], Ximenes-Silva A[2], Queiroz AC[1], Moura-Neto V[3], Solleti JI[4], Bispo MD[4], Moreira MSA[1] [1]UFAL, Pharmacology and Immunity Lab., [2]UFAL, Lab. of Electrophysiology and Brain Metabolism, [3]UFRJ Lab. of Biomedicine of the Brain, [4]UFAL, Lab. of Process Separation and Optimization Systems

09.013 **Enantiomers of Limonene – Influence of Stereoisomerism on Cell Migration and Viability**. Affonso DD, Buglio KE, Machado Júnior RJ, Carvalho JE, Foglio MA, Ruiz ALTG FCF-Unicamp, Campinas, SP, Brazil

09.014 **Acute Oral Toxicity of an *Amazonian ludwigia* (onagraceae) Species**. Reis, LDS[1]; Raiol-da-Silva, MC[1]; Lobo, SKO[1]; Conceição, BC[1]; Silva, MN[2]; Silva, CYY[2]; Monteiro, MC[3]; Maia, CSF[1]; Fontes-Júnior, EA[1] [1]UFPA, Lab. of Pharmacology of Inflammation and Behavior, Belém, PA, [2]UFPA, Lab. of Liquid Chromatography, Belém, PA, [3]UFPA, *in vitro* Assays, Immunology and Microbiology Lab., Belém, Pará

09.015 **Effects of *Alpinia zerumbet* Extract on Neurodegeneration and Locomotor Alterations Induced by 3, 3', 4, 4', 5-pentachlorbiphenyl (PCB 126)**. Silva PHF[1], da Silva ACF[1], Alves CS[1], Falque WF[1], Lopes CFO[1], Filgueiras CC[2], Daleprane JB[3], da Costa CA[1], Ognibene DT[1], Resende AC[1], de Bem GF[1]. [1]UERJ,

Dpt of Pharmacology and Psychobiology, Brazil; ²UERJ, Dpt of Physiological Sciences, Brazil; ³UERJ, Dpt of Basic and Experimental Nutrition, Brazil

09.016 **Polysaccharides from Guavira Waste: Biotechnological and Therapeutic Application in Inflammatory Bowel Disease**. Mulinari-Turin de Oliveira N¹, Bueno LR¹, Schneider VS², Souza ML5, Barbosa da Luz B², da Costa Filho HB³, Sousa PSA4, Werner MFP², Rocha JF4, Gois MB5, Nicolau LAD4, Cordeiro LMC², Maria-Ferreira D¹. ¹IPPPP, FPP, PPG Biotecnologia Aplicada a Saúde da Criança e do Adolescente, Curitiba, Brazil; ²UFPR, Dpt de Bioquímica e de Farmacologia, Curitiba, Brazil; [4]UFC, Fortaleza, Dpt de Fisiologia e Farmacologia, Brasil; [5]UFDPar Parnaíba, PPG em Biotecnologia, Brazil; [6]UFR, Rondonópolis, Brazil

09.017 **Preliminary Analysis of Coagulotoxic Profile from Individual Venoms of Three Bothrops Species: A New Approach in Coagulotoxicity Studies**. Galizio NC, Serino-Silva C, Silveira GPM, Sant'Anna S, Grego KF, Tanaka-Azevedo, AM, Morais-Zani K IBu, Lab. of Herpetology, São Paulo, SP, Brazil

09.018 **Gastroprotective Action of the Ethanolic Extract of the Fruit Peels of *Nephelium lappaceum* L. in Mice**. Oliveira AS[1], Biano LS[1], Palmeira DN[1], Oliveira e Silva AM[2], Albuquerque-Júnior RLC[3], Correa CB[4], Camargo EA[1]. [1]UFS, Dpt of Physiology, Brazil; [2]UFS, Dpt of Nutrition, Brazil; [3]Unit, Research and Technology Institute, Brazil; [4]UFS, Dpt of Morphology, Brazil

09.019 **The Beneficial Effects of *Euterpe oleracea* Mart. Seed Extract (ASE) and Exercise Training in Lipid Accumulation and Oxidative Stress in Liver and White Adipose Tissue in High-Fat-Fed Sprague-Dawley Rats**. Silva DLB, Oliveira BC, Gouveia JF, Soares RA, Menezes MP, Cavaleira MA, Nogueira ACA, Silva EM, Ognibene DT, Costa CA, de Bem GF, Resende AC UERJ, Dept of Pharmacology

09.020 ***Gymnema sylvestre* Extract Inhibits the Intestinal Fat Absorption in Swiss Mice**. Souza GH¹, Santos TFD², Silva BP¹, Bonetti CI³, Peralta RM¹, Bracht A¹, Sá-Nakanishi AB¹ ¹UEM, Dpt of Biochemestry, Maringá, Brazil; ²UEM, Dpt of Food Science; [3]UEM, Dpt of Pharmaceutical Science.

09.021 **The Antitumoral Effects of Melittin, a Peptide from *Apis mellifera* Venom, in Human Bladder Cancer Cells**. Almeida TC¹, Poiato GEH¹, Boaventura de Oliveira AM¹, Marques-Porto R², da Silva GN³, Picolo G¹. ¹IBu, Lab. of Pain and Signaling, Brazil; ²IBu, Lab. of Development and Innovation, Brazil; ³UFOP, Toxicogenetic, Epidemiological and Clinical Study and Research Group, Brazil

09.022 **Hepatoprotective and Nephroprotective Effects of the Methanolic Extract of *Sida rhombifolia* L. Aerial Parts in Mice**. Heinichen OY, Arrúa WJ, Galeano AKC Universidad Nacional de Asunción, Facultad de Ciencias Químicas, Depto de Farmacología, Paraguay

09.023 **Effects of Chlorogenic and 3,5-Dicaffeoylquinic acids on the Proliferation and Differentiation of C2C12 Myoblasts**. Quadros VA[1,2,3], da Silveira[1,4], Purgatto E[2,3], Moreira V¹. ¹Unifesp, Dept of Pharmacology, Brazil; ²FCF-USP Dept of Food and Experimental Nutrition; ³FoRC-USP, Food Research Center, São Paulo, Brazil; [4]Associated Lab. for Sustainability and Technology in Mountain Region, Portugal.

09.024 **Hemodynamic and Vascular Effects of Perillyl Alcohol in Rats.** Santos MRV¹; Rodrigues-Junior EO¹; Santana IR¹; Barreto AS²; Santos AM³; Santana-Júnior CC³; Oliveira AMS³; Serafini MR³; ¹UFS, Depto de Fisiologia; ²UFS, Depto de Educação em Saúde; ³UFS, Depto de Farmácia, Brazil

09.025 **Assessment of the Potential Neuroprotective Effect of Aqueous Extract of Eugenia dysenterica DC in a Model of Cisplatin-Induced Peripheral Neuropathy *in vitro***. Oliveira HR[1,2], Fehrenbacher JC², Guimarães PO³, Duarte, DB¹ ¹UnB, Dpt of Pharmacy, Lab. of Pharmacological Assays, Brazil; ²Indiana University School of Medicine, Dpt of Pharmacology and Toxicology, USA; ³UnB, Dpt of Pharmacy, Lab. of Natural Products, Brazil

09.033 **Phytochemical Analyzes and Potential Effect Larvicidal and Repellent of Hydroalcoholic Extract from *Jacaranda puberula* Against *Aedes aegypti* (Linneus, 1762)**. Maccagnan JC, Monteiro M, Serpa PZ, Rezende RS, Busato MA, Roman-Junior WA Unochapeco

09.039 **Antioxidant Activity Evaluation, Prevention of Lipid Peroxidation and Voltammetric Analyzes of *Solanum lycocarpum* St. Hil.** Gonçalves EER, Batista RAO, dos Santos CVE, Horta VQ, Braz HFG,

Lemos AF, de Oliveira EJ, Rodrigues AP, Malagutti AR and Oliveira TS UFVJM, Dept of Pharmacy, Lab. of Experimental Pharmacology, FCBS, Diamantina, MG, Brazil

10. Cancer Pharmacology

10.001 **Evaluation of the Effects of an M1 Macrophage Conditioned Medium and its Association with Cisplatin in Lung Cancer Cells**. da Silva MM[1], Silva BO[1], Rego MBM[1], Pitta MGR[1], Pereira MC[1,2] [1]NUPIT-SG-UFPE, [2]UFPE, Depto de Fisiologia e Farmacologia

10.002 **Thiophene Derivatives Inhibited Cell Viability of Lung Cancer Cells**. Nascimento ACM, Menezes EB, Carvalho VM, Silva BO, Pereira MC NUPIT-SG-UFPE

10.003 **Effects of Proteolytic Fraction on Alt Levels and Hematological Profile in Two Murine Colorectal Cancer Models**. Nascimento MCA[1,3]; Batista CL[2,3]; Cavalcante KDM[1,3]; Paixão MS[3]; Melo AAS[1,3]; Silva IS[2,3]; Lopes MTP[4], Dittz D[2,3] [1]UFPI Biology Dept., [2]UFPI, PPG Pharmacology; [3]UFPI, Cancerology Lab., [4]UFMG, Pharmacology Dept

10.004 **High PI3K-Alpha Expression is Associated with Rectal Cancer, Tumor Staging, and Treatment Modality**. Silva RL[1], Conceição JVV[1], Camelo TS[1], Amorim JO[1], Ferreira LMM[1], Alves SG[1], Alcântara LG[1], Quispe CC[1], Freitas GL[1], Gurgel DC[2], Cunha MPSS[3], Lima-Júnior RCP[1], Wong DVT[1]. [1]UFC, [2]IFCE [3]ICC

10.005 **Effects of a 1:1 (CBD:THC) Extract of Cannabis in a Rectal Cancer Patient Undergoing Chemotherapy: A Case Report**. Krefta E[2], Silva EG[1], Nascimento FP[1] [1]Unila, Lab. of Medical Cannabis and Psychedelic Science, Foz do Iguaçu, PR, Brazil; [2]Descomplica UniAmérica, Foz do Iguaçu, PR, Brazil

10.006 **Effect of Aqueous Extract of *Moringa oleifera* Lam Leaves and Benzyl Isothiocyanate on Dimethylbenz[a]Anthracene-Induced Breast Cancer in Rats**. Rojas-Armas JP[1], Arroyo-Acevedo JL[1], Palomino-Pacheco M[2], Ortiz-Sanchez JM[3] [1]UNMSM, Section of Pharmacology, Faculty of Medicine, [2]UNMSM, Section of Biochemistry, Faculty of Medicine, [3]UNMSM Section of Physiology, Faculty of Medicine,

10.007 **Characterization of the Antineoplastic Effects of Cephalochromin in Cellular Models of Acute Lymphoblastic Leucemia**. Serra CSM[1], Vicari HP[1], Lima GC[1], Lima K[2], Nascimento MC[2], Rego EM[2], Ferreira MJP[3], Costa-Lotufo LV[1], Machado-Neto JA[1]. [1] ICB-USP, Dpt of Pharmacology, Brazil; [2]USP, Lab. of Medical Investigation in Pathogenesis and Targeted Therapy in Onco-Immuno-Hematology (LIM-31), Dpt of Internal Medicine, Hematology Division, FM, Brazil; [3] IB-USP, Dpt of Botany, , Brazil

11. Clinical Pharmacology, Pharmacokinetics, Pharmacogenomics and Toxicology

11.001 **Evaluation of Exposure to Aluminum on Behavioral and Biochemical Parameters in Mice**. Ferreira PYO, Uchenna N, Mota R, Okoh VI, Campos HM, Costa EA, Ghedini PC. UFG, Dpt of Pharmacology, Brazil

11.002 **Therapeutic Drug Monitoring of Voriconazole in Oncohematological Patients from Southern Brazil**. Petreceli RR[1], Steffens NA[1], Linden R[2], Schwarzbold AV[3], Zimmermann ES[4], Brucker N[1,5]. [1]UFSM, PPG Pharmaceutical Sciences, Brazil; [2]Feevale, Lab. of Toxicology, Brazil; [3]UFSM, Dpt of Clinical Medicine, Brazil; [4]University of Florida, Center for Pharmacometrics & Systems Pharmacology, USA; [5]UFSM, Dpt of Physiology and Pharmacology

11.003 **Cytotoxicity and Oxidative Stress in Dermal Cel (HaCaT) Induced by Pesticides Glyphosate and Dicamba Isolated and Mixed**. Silva JF, Nominato-Oliveira L, Julião RC, Guiloski IC IPPPP-FPP, Brazil

11.004 **Development and Validation of Physiologically-Based Pharmacokinetic Model (PBPK) of Cannabidiol in Health Volunteers**. Herling A, Sakamoto GF, Caleffi-Marchesini ER, Lippa VNM, Piai JM, Macente J, Diniz A UEM, Pharmaceutical Sciences Post graduation Program; Dept of Pharmacy, Maringá, PR, Brazil

11.005 **Development and Verification of PBPK Model for Ketamine**. Piai JMB[1], Goes PRN[1], Lippa VNM[1], Martins F[1], Taffarel MO[2], Diniz A[1] [1]UEM, Dept of Pharmacy, Pharmaceutical Sciences Post graduation Program, Maringá, PR, Brazil, [2]UEM, Dept of Veterinary Medicine, , Umuarama-PR, Brazil

11.006 **Microdoses of Cannabinoids Reverse Memory Impairments in Alzheimer's Patients: A Clinical Trial, Double-Blind, Randomized, and Placebo-Controlled**. Cury RM[1], Silva T[1], Le-Quesne AHM[1], Florentino I[1], Krefta E[1,2], Silva EG[1], Pamplona FA[1], Bicca MA[3], Nascimento FP[1]. [1]Unila, Lab. of Medical Cannabis and Psychedelic Science, Foz do Iguaçu, PR, Brazil. [2]Uniamérica University Center, Foz do Iguaçu, PR, Brazil, [3]Johns Hopkins University, Faculty of Medicine

11.007 **Evaluation of AOPP Levels in the Diagnosis and Prognosis of Endometriosis: Systematic Review and Meta-Analysis**. Pereira LG[1], Campara KMR[1], Rech CT[1], Rodrigues P[1], Viero FT[1], Trevisan GS[1] [1]UFSM, Santa Maria, Dpt of Physiology and Pharmacology, Brazil

11.008 **Teratogenic Effects of the Dicamba Herbicide in Zebrafish** (*Danio rerio*) **Embryos**. Felisbino K, Kirsten N, Milhorini SS, Marçal IS, Schiessl R, Bernet K, Nominato-Oliveira L, Guiloski IC [1]IPPPP-FPP, Brazil

11.009 **Development of PBPK Model for Leishmanicidal Candidate in Rats: First Step Before Translation Interespecies**. Teixeira FEG, Bitencourt IC, Oliveira MT, Haas SE INCT-Inofar-Unipampa, Lab. de Farmacologia e Farmacometria, Uruguaiana, RS, Brazil

11.010 **Are Age and Sex Relevant Factors for the Pharmacokinetics of Benznidazole in Patients with Chronic Chagas Disease in the Indeterminate Form**? Silveira GPE[1,4], Portela LF[2], Pinto DP1, Maciel EA[2], Silva DMD[1], Silva JA[3], Saavedra LB[2], Costa AR[2], Carneiro FM[2], Silva GMS[2], Hasslocher-Moreno AM[2], Vannier-Santos MA[3], Saraiva RM[2], Estrela R[2,4,5] [1]FIOCRUZ Rio de Janeiro, Pharmacokinetics Lab., Brazil; [2]FIOCRUZ Rio de Janeiro, Evandro Chagas National Institute of Infectious Diseases, Brazil; [3]FIOCRUZ Rio de Janeiro, Innovations in Therapies, Education and Bioproducts Lab., Brazil; [4]ENSP-FIOCRUZ Rio de Janeiro, PPG in Public Health and Environment, Brazil; [5]UFRJ Rio de Janeiro, Faculty of Pharmacy, Brazil;

11.011 **Population pharmacokinetic modeling of vildagliptin in a preclinical model of type 2 diabetes**. Dias BB, Olivo LB, Andrade C, Menin RH, Araújo BV UFRGS, Pharmacokinetic and PK/PD Modeling Lab., Porto Alegre, RS, Brazil

11.012 **Pharmacodynamic Analysis of 2% Lidocaine with or without 1:100.000 Epinephrine Pilot Study**. Oliveira GM[1], Dionísio TJ[2], Faria FAC[2], Calvo AM[2], Santos CF[1,2] [1]HRAC-USP, Brazil; [2]Bauru School of Dentistry, University of São Paulo, Brazil

11.013 **Pharmacokinetics and Pulmonary Delivery of JME-209, A Novel Mexiletine Analogue with Limited Action in Na^+ channels and Activity against Bronchoconstriction and Airway Inflammation in Mice**. Santos, GCM[1], Gomes, HS[1], Coutinho, DS[1,2], Pinto, DP[2], Fonseca, LB[2], Nascimento, VA[1,2], Costa, JCS[3], Cotias, AC[1], Silva, PMR[1], Martins, MA[1] [1]Fiocruz, Lab. of Inflammation, [2]Fiocruz, Equivalence and Pharmacokinetics Service, [3]Fiocruz, Vice Presidency of Production and Innovation in Health

11.014 **Pharmacokinetic/Pharmacodynamic (PK/PD) Model on the Influence of CYP2C9 for Meloxicam and its Major Metabolite from Saliva Samples by LC MS/MS**. Calvo AM, Oliveira GM, Ferreira NR, Smera CSS, Dionísio TJ, Santos CF FOB-USP, Dpt of Biological Sciences, Brazil

12. Drug Discovery and Development

12.001 **Nose-to-brain Delivery of A Cationic Nanoemulsion Containing the Phytocannabinoid β-Caryophyllene for Anticonvulsant Therapy**. Lopes DS[1], Pacentchuk CN[1], Chade ES[1], Oliveira MS[2], Bernardi LS[1], Oliveira PR[1] [1]Unicentro, Dpt of Pharmacy, Guarapuava, Brazil; [2]UFSM, PPG Pharmacology, Santa Maria, Brazil

12.002 **New Thiophene Derivative with Anti-inflammatory Activity**. Costa ABA[1], França PRC[1], Paiva JPB[1], Freitas RHCN[2], Guidinele MCB[2], Rocha DR[2], Fernandes PD[1] [1]ICB-UFRJ, Institute of Biomedical Science, Drug Discovery Research Program, Lab. of Pharmacology of Pain and Inflammation, Rio de Janeiro, Brazil. [2] UFF, Lab. for the Synthesis of Molecules of Biological Interest, Institute of Chemistry, Rio de Janeiro, Brazil

12.003 **Anti-inflammatory Effects of New Molecules Based on Cannabidiol**. Campos RM[1], Paiva JPB[1], Lontra ACP[1], Invencio CGG[1], Silva IMF[2], Franco GRR[2], Gontijo VS[2], Viegas-Junior. C[2], Fernandes PD[1] [1]ICB-UFRJ, Program of Reserch and Drug Discovery, Lab. of Pharmacology of Pain and Inflammation,

Rio de Janeiro, RJ, Brazil, [2]PeQuiM-Unifal, Lab. of Research in Medicinal Chemistry, Alfenas, MG, Brazil

12.004 **Ketoconazole Cocrystal as an Alternative to Improve the Solubility and Antifungal Activity**. Chade ES[2], Goes AKS[1], Brancalione RC[2], Bernardi LS[2], Zela SJ[1], Murakami FS[3], Oliveira PR[1,2] [1]Unicentro, PPG Pharmaceutical Sciences, Guarapuava, Brazil; [2]Unicentro, Dpt of Pharmacy, Guarapuava, Brazil; [3]UFPR, PPG Pharmaceutical Sciences, Curitiba, Brazil

12.005 **Development of a Preclinical Model for the Screening of New Drugs for the Treatment of Osteoporosis in Diabetics**. Carttman L, Cotias AS, Chaves AS, Silva PMR, Martins MA, Carvalho VF IOC-Fiocruz, Lab. of Inflammation, Rio de Janeiro, Brazil

12.006 **Emerging Perspectives in the Applications of Artificial Intelligence in Drug Development: A Systematic Review**. Maciel ACM[1], Leandro IMC[1], Sato MDO[1], Sato RMS[1]. [1]FEMPAR, Dpt of Medicine

12.007 **Encapsulation of Seriniquinone into PLGA Nanoparticles Improves its Solubility and Prolongs its Release**. Miguel RA[1], Hirata AS[1], Martins TS[2], Lopes LB[1], Costa-Lotufo LV[1]. [1]ICB-USP, Dpt of Pharmacology, Brazil; [2]Unifesp-Diadema, Dpt of Chemistry, Brazil

12.008 **Potential New Compounds for the Treatment of Inflammatory Diseases: New Synthetic Structural Analogues of Cannabidiol**.Lontra ACP[1], Paiva JPB[1], Invencio CGG[1], Gontijo VS[2], Franco GRR[2], Viegas-Junior C[2], Fernandes PD[1] [1]ICB-UFRJ, Program of Research and Drug Discovery, Lab. of Pharmacology of Pain and Inflammation, Rio de Janeiro, RJ, Brazil, [2]PeQuiM-Unifal, Lab. of Research in Medicinal Chemistry, Alfenas, MG, Brazil

12.009 **New Cinamoyl-N-acylydrazone Analogues of Cannabidiol Produce Analgesic Effects in Acute and Chronic Nociception Models in Mice**. Oliveira EA[1], Silva IMF[2], Franco GRR[2], Gontijo VS[2], Viegas-Junior C[2], Fernandes PD[1], Giorno TBS[1] [1]ICB-UFRJ, Drug Discovery Research Program, Pain and Inflammation Pharmacology Lab., Brazil. [2]PeQuiM-UNIFAL, Research Lab. in Medicinal Chemistry, Brazil

12.010 **Development and Pharmacological Evaluation of a Novel H_2S-Triamcinolone Hybrid-Releasing Nanoemulsion in Wound Resolution**. Souza ALC[1], Gois GA[1], Cerqueira ARA[1], Teixeira SA[1,] Muscará MN[1], Caliendo G[2], Lopes LB[1], Costa SKP [1]Depto de Farmacologia, Instituto de Ciências Biomédicas, Universidade de São Paulo. [2]Università degli Studi di Napoli Federico II, Italy.

12.011 **The Promising Treatment of Acute Inflammation with New Hybrids Capsaicin-Curcumin**. Paiva JPB[1]; Lontra,ACP[1]; Invencio CGG[1]; Ribeiro LV[2]; Campos TG[2]; Viegas-Junior C[2], Fernandes PD[1] [1]ICB-UFRJ, Program of Research and Drug Discovery, Lab. of Pharmacology of Pain and Inflammation, Rio de Janeiro, RJ, Brazil, [2]PeQuiM-Unifal, Lab. of Research in Medicinal Chemistry, Alfenas, MG, Brazil

12.012 **Lipid Nanocarriers for Chemoprevention of Breast Cancer: Co-encapsulation of Fenretinide and Perillyl Alcohol, *in vitro* Cytotoxicity and *in vivo* Localization**. Malagó ID, Salata GC, Machado-Neto JA, Lopes LB. ICB-USP, Dpt of Pharmacology, Brazil

12.013 **Development and Characterization of a Nanostructured Lipid Carrier for Doxycycline Encapsulation**. Conceição M[1], Di Filippo LD[1], Duarte JL[1], Pedrazzi JFC[2], Nascimento GC[2,3], Del-Bel E[2,3], Chorilli M[1], Gremião MPD[1] [1]FCF-Unesp, Araraquara, SP, Brazil, [2]FMRP-USP, Neuroscience Graduate Program, Ribeirão Preto, SP, Brazil, [3]FORP-USP, Dept of Basic and Oral Biology, Ribeirão Preto, SP, Brazil

12.014 **Copaifera Oilresin in the Treatment of Pulmonary Inflammation Caused by Sars-Cov-2**. Almeida PG[1], Vanzan DF[2], Clarindo FA[3], Coelho-dos-Reis JGA[3], Cabral LM[2], Fernandes PD[1] [1]ICB-UFRJ, Drug Discovery Research Program, Lab. of Pharmacology of Pain and Inflammation [2]UFRJ, Pharmacy College, Dept of drugs and Medicines. Brazil. [3]ICB-UFMG, Dept of Microbiology, Lab. of Basic and Applied Virology, Minas Gerais, Brazil

12.015 **Evaluation of antinociceptive and anti-inflammatory activity of *Pseudotrimezia juncifolia* (Klatt) Lovo & Gil**. Minho AS[1], Almeida GP[1], Vieira RF[2], Rezende CM[3], Fernandes PD[1]. [1]ICB-UFRJ Rio de Janeiro, Brazil; [2]EMBRAPA, Genetic Resources and Biotechanology, Brasilia, Brazil; [3]UFRJ Rio de Janeiro, Chemistry Institute, Brazil

12.016 **R-954 Improve Inflammation and Infertility Parameters in Experimental Mouse Endometriotic Model**. França PRC[1], Paiva JPB[1], Sirois P[2], Fernandes, PD[1] [1]ICB-UFRJ, Drug Discovery Research Program, Lab. of Pharmacology of Pain and Inflammation, Rio de Janeiro, Brazil, [2]Laval University, CHUL Research Center. Quebec, Canada

12.017 **_Acrocomia aculeata_ (Bocaiuva) Pulp Oil in the Prevention and Treatment of Acute Liver Injury in Mice**. Gonçalves AR[1], Nunes AA[1], Tadokoro MM[1], da Silva TC[2], Santos RN[1], Cogliati B[2], Moreno SE[1]. [1] UCDB, Graduate Program in Biotechnology, [2] USP, Graduate Program in Pathology

13. Pharmacology Education and Technology

13.001 **The Educational Game DiscoveRx as a Tool for Scientific Divulgation on the Drug Discovery and Development Process**. Noël F[1], Xexéo G[2], Marques P[2], Mangeli E[2], Parreiras MV[2], Baptista JPH[2], Blanchard F[1,2], Böhme GA[1,2], Paiva BD[2], Maluf MBV[1,2], Ribeiro JASB[1,2], Duran J[2], Olaso MF[2], Mothé A[1,2], Costa IMS[2]. [1]UFRJ, Lab of Molecular and Biochemical Pharmacology, Rio de Janeiro, Brazil; [2]UFRJ, Lab of Ludology, Engineering and Simulation, COPPE, Rio de Janeiro, Brazil

13.002 **Prevention of Drug Abuse Through an Academic Experience and Scientific Methodology: An Experience Through a Short-Duration Summer Course**. Cunha JM, de Lima Silva AHB, De-Oliveira BR; Grieshaber LE; Waltrick APF, Visnheskl BRC; Liebl B, Manuitt P; Da-Silva ACF, Ribeiro LA; Lívero FAR, Andre E, Zanoveli JM UFPR Depto de Farmacologia, Setor de Ciências Biológicas

14. Pharmacology: Other

14.001 **Effects of Lithium Microdose Treatment on Strength and Muscle Mass Loss Associated with Sarcopenia in a Murine Model with Accelerated Aging**. Castellano M[1], Malerba HN[2], Maia J[1], Marques ICS[1], Barrence FAC[1], Viel TA[1,2] [1]EACH-USP, Lab. of Neurofarmacology of Aging, PPG Gerontology, Brazil [2] ICB-USP, PPG Pharmacology, Brazil

14.002 **Bystander effects of Mesenchymal Stem Cells on Aspects Relating to Cell Migration Control**. Almeida B, Amon RLR, Pedro AN, Makiyama EN, Fock RA. FCF-USP, PPG Pharmacy, São Paulo, Brazil

14.003 **Irradiated Mesenchymal Stem Cells: Influence of the Bystander Effect on Hematopoiesis Controls**. Amon RLR, Almeida B, Pedro AN, Makiyama EN, Fock RA FCF-USP, PPG Pharmacy, São Paulo, Brazil

14.004 **Use of Konjac Glucomannan-Enriched Gummy Candy on Biochemical, Oxidative Parameters, Appetite Reduction, and Anthropometric Measurements in Overweight Women**. Sandri G[1], Fernandes ACS[1], Muxfeld L[2], Motta NG[1], Skonieski C[3], Fagundes KR[1], Chaves DB[1], Suthovski G[1], Gallina AL4, Borstmann SMA[1], Martini MC[1], Wagner TCL[1], Benvegnú DM[1] [1]UFFS - Campus Realeza/PR - PPG em Saúde, Bem-Estar e Produção Animal Sustentável na Fronteira Sul [2]Unioeste, UEM. PPG em Ciência de Alimentos [3]UFSM, [4]Unioeste-Campus Guarapuava

14.005 **Development and Evaluation of Nanostructured Lipid Carriers for co-delivery of Simvastatin and Adenosine for the treatment of Difficult-to-Heal Cutaneous Ulcers** Daré RG[1], Lopes LB[1]. [1] USP São Paulo, Dpt of Pharmacology, Brazil

Poster Session 2 – 28/08/2023

01. Cellular and Molecular Pharmacology

01.010 **Thromboxane A2 Receptor (TP) Antagonism Improves Glucose Homeostasis and Lipid Profile in Obese Mice**. Araújo RB, Cruz AP, Gonçalves TT, Salerno G, Leiria LO FMRP-USP, Lab. of Research in Metabolic Diseases, Pharmacology Department

01.011 **Organotypic hippocampal culture as a model to study the interaction of glioblastoma with the brain microenvironment**. Nóbrega AHL[1], Prado APS[1], Pimentel RS[1], Santos ARC[2], Valério RR[2], Martins MA[1], Frozza RL[2], Bernardi A[1]. [1]IOC-Fiocruz, Lab. of Inflammation, Rio de Janeiro, Brazil; [2]IOC-Fiocruz, Lab. on Thymus Research, Rio de Janeiro, Brazil

01.012 **Examining PARP1 Expression in MPP+ Induced SH-SY5Y Model of Dopaminergic Neuron Death**. Silva LDS[1], Ferrari SSAR[1], Gomes, GMO[1], Duarte CDM[1], Schlemmer F[1], Xavier MAE[1], Titze-de-Almeida S[1], Titze-de-Almeida R[1]. [1] UnB Research Center for Major Themes, Division of Parkinson's Disease

01.013 **trans-Cinnamic Acid Regulates Inflammatory Response and TGF-β1-Induced Epithelial-Mesenchymal Transition in Airway Epithelium**. Fidelix MSP, Santana JR, Ferreira EGA, Barros ABB, Silva JP, Barreto EO UFAL, Lab. of Cell Biology, Brazil

01.014 ***In vitro* Aging Affects Epithelial Renal Cells Phenotype**. Barros GMO, Araújo LS, Almeida e Silva AC, Bagri KM, Mermelstein CS, Quintas LEM ICB-UFRJ Rio de Janeiro, Institute of Biomedical Sciences, Brazil

02. Neuropharmacology

02.011 **Effect of Celecoxib on Neurobehavioral and Oxidative Changes Induced by Systemic Exposure to Lipopolysaccharide in Male Mice,** Capibaribe, VCC, Silva, DMA, Oliveira, JVS, Rebouças, MO, Coelho, DMN, Valentim JT, Juvêncio, BA, Bandeira SMA, Magalhães, LRF, Sales, ISL, Mallmann ASV, Carvalho MAJ, Aquino PEA, Sousa FCF Federal University of Ceará

02.032 **Therapeutic Potential of β-Caryophyllene on the Olfactory and Anhedonic-Like Disorders Induced by a Rat Model of Parkinson's Disease**. Santos JR[1],Gonçalves R[2], Razera A[1], Kerppes II[3], Carraro E[2], Sampaio TB[2,4].[1]Unicentro, Dpt. de Farmácia, Guarapuava, Brasil, [2]Unicentro, Programa de Residência multiprofissional em Atenção Primária, Guarapuava, Brasil, [3]Unicentro, Dpt. de Fisioterapia, Guarapuava, Brasil, [4]UFSM, Dpt. de Farmacologia, Santa Maria, Brasil

02.033 **Evaluation of the Antipsychotic-Like Activity of Microparticles of Naringin Obtained in Supercritical Medium**. Daniel CF[1], Oliveira PV[2], Provinelli AC[1], Schio ACZ[1], Sanaiotto O[1], Kuhn KZ[1],Tavares VB[1], Dias JL[2], Aguiar GPS[3], Siebel AM[4], Oliveira JV[2], Müller LG[1] [1]Unochapecó [2]UFSC, UFSC [3]SEBRAE [4]FURG

02.034 **Central Inhibition of PKCβ Reduces Fever and Serum Cytokine Levels in Rats**. Barreto LSH, Cruz EKM, Gomes APLN, Gomes BRB, Sousa GLS, Veiga-Souza FH UnB

02.035 **Neuroprotective Effect of LQFM219 in LPS-Challenged Rats**. Fonseca MFR[1], Galvão GM[1], Neves EPFI[1], Silva SS[1], Farias ERA[1], Campos HM[1], Ghedini PC[1], Menegatti R[2], Leite JA[1]. [1]ICB-UFG, Dpt of Pharmacology, Goiânia, Brazil; [2]UFG, Lab. of Medicinal Pharmaceutical Chemistry, School of Pharmacy, Goiânia, Brazil

02.036 **Use of Cannabinoids for the Treatment of Epilepsy Associated with 1p36 Syndrome: A Case Report**. Campo RM, Portilla MC, Santos FC, Novoa DA, Silva EG, Donato MF, Nascimento FP. Unila, Lab. of Medical Cannabis and Psychedelic Science, Foz do Iguaçu, PR, Brazil

02.037 **Marinobufagenin Reduces Oxidative Stress in the Cortex and Hippocampus of LPS-Challenged Mice**. Farias ERA[1], Lopes da Silva RR[1], Invernizzi EPF[1], Fonseca MFR[1], Silva SS[1], Campos HM[1], Pereira RM[1], Ghedini PC[1], Scavone C[2], Quintas LEM[3], Leite JA[1] [1]ICB-UFG, Dept of Pharmacology, Goiânia, Brazil. [2]ICB-USP, Dept of Pharmacology, [3]UFRJ, Lab. of Biochemical and Molecular Pharmacology, Rio de Janeiro.

02.038 **Protein Kinase Cβ Inhibition Attenuates the Production of Oxygen Reactive Species in Brown Adipose Tissue of Rats**. Cajado VJ, Aguiar SCR, Gomes APLN, Sousa GLS, Souza PEN, Veiga-Souza FH. UnB

02.040 **Social Isolation Stress Impairs Fear Extinction Recall in Mice: Effect is Reverted By a Fatty Acid Amide Hydrolase Inhibitor**. Silva IP[1,2], Coelho AA[1,2], Lisboa SF[1 1] FCFRP-USP, Dpt of BioMolecular Sciences, [2]FMRP-USP, Dpt of Pharmacology

02.041 **Investigation of the Antidepressant-like Activity of an Alkaloid Fraction obtained from** *Psychotria nemorosa* **(Rubiaceae)**. Provinelli AC[1], OLiveira BS[1], Hermes ME[1], Gerhard GM[2], Gasparetto RL[2], Couto CER[2], Klein LJ[2], Muller LG[1]. [1]Unochapecó, PPG Environmental Sciences. [2]Univali

02.042 **Neuroinflammation Induced by** *Klebsiella pneumoniae* **and the Role of PPAR-γ**. Almeida MAP[123], Costa MF[12], Moraes-de-Souza I[12], Moraes BPT[123], Bozza PT[1], Castro-Faria-Neto HC[1], Gonçalves-de-Albuquerque CF[1], Trindade P[4], Silva AR[1,2,3]. [1]IOC-Fiocruz, Immunopharmacology Lab., Rio de Janeiro, Brazil; [2]Unirio, Immunopharmacology Lab., Dpt of Physiological Sciences, Rio de Janeiro, Brazil; [3]UFF, PPG Neurosciences, Niterói, Brazil; [4]UFRJ, Pharmacy Faculty, Dpt of Clinical and Toxicological Analyses

02.044 **Effects of the Enriched Environment in the Release of the Hormone Irisin and its Effects for Memory in a Mouse Model of Accelerated Aging**. Malerba HN[1,2], Castellano M[2], Maia J[2], Marques ICS[2], Barrence FAC[2], Viel TA[1,2] [1]ICB-USP, Graduation Course on Pharmacology, [2]EACH-USP. Lab. of Neuropharmacology of Aging

02.045 **Low-Dose of Full-spectrum** *Cannabis sativa* **Oil May Improve Cognitive Impairment in Alzheimer's Disease - Cases Reports**. Larentis-de-Souza B, Pauli KB, Donato MF, Nascimento FP Unila, Lab. of Medicinal Cannabis and Psychedelic Science, Clinical Trials, Foz do Iguaçu, PR, Brazil

02.046 **Support Social Modulates in a Sex-Dependent Way the Effects of Aversion Triggered by dPAG Chemical Stimulation on Fear and Anxiety Responses**. Lima Silva AHB, Zanoveli JM UFPR Dept of Pharmacology, Curitiba, PR, Brazil

02.047 **The Importance of GPER in Neuroprotection and Angiogenesis in an** *in vitro* **Model of Ischemia due to Oxygen and Glucose Deprivation (OGD)**. Jucá PM, Duque EA, Munhoz C ICB-USP, Dpt of Pharmacology São Paulo, Brazil

03. Psychopharmacology

03.020 **Validation of an Experimental Protocol to Generate a Traumatic-Like Memory in Male and Female Rats**. Nascimento LMM, Soares LA, Bertoglio LJ. UFSC Florianópolis, Dpt of Pharmacology, Brazil

03.021 *In Silico* **Characterization of Novel Biological Markers and Potential Therapeutic Candidates for Bipolar Disorder: A Computational Approach**. Schons T[1], Ziani PR[1,2], Rosa PH[1,2], Mezzomo G[1,2], Rampelotto PH[1,2], Rosa AR[1,2,3] [1]HCPA, Lab. of Molecular Psychiatry, Porto Alegre, Brazil, [2]ICBS-UFRGS, PPG in Biological Sciences: Pharmacology and Therapeutics, Porto Alegre, Brazil, [3]ICBS-UFRGS, Dept of Pharmacology, Institute of Basic Health Sciences, Federal University of Rio Grande do Sul, Porto Alegre, Brazil

03.022 **Changes in Hippocampal Activity and C-FOS Expression in Female Offspring Exposed to SSRI Prenatal Treatment**. Aquino ACQ, Freitas, AKMSO, Freitas-Junior, RAO UFRN, Centro de Ciências da Saúde, Natal, Brasil

03.023 **Antagonism of TRPV1 Receptors Associated with FAAH Inhibition is Necessary to Facilitate the Impaired Fear Extinction in iNOS Knockout Mice**. Ferreira BF[1], Sato Y[1], Marques APA[1], Fronza MG[1], Lisboa SFS[2]. [1]USP, Dpt of Pharmacology, Ribeirão Preto, Brazil, [2]USP, Dpt of Biomolecular Sciences, Ribeirão Preto, Brazil

03.024 **Effects of Ayahuasca to Treat Symptoms of Pathological Grief: A Case of Series**. Spicigo CC, Pereira VG, Hirata F, Silveira GO, Yanomine M, Donato MF, Fermino FA, Nascimento FP Unila, Foz do Iguaçu, PPG Bioscience, Brazil; PR; [2]USP São Paulo, Dpt of Pharmaceutical Sciences, Brazil

03.025 **Evaluation of the Effect of the Hydroalcoholic Extract of** *Heteropterys tomentosa* **on Memory in Mice**. Almeida Fllho OP[1], Pires JCB[2], Santana JVS[2], Freitas-Júnior RAF[3], Buccini DF[1], Munhoz CD[1], Moreno SE[1] [1]USP, Dpt Pharmacology, PPG pharmacology, Brasil; [2]UCDB, PPG Biotechnology, [3]UFMS PPG Biotechnology

03.026 **Association between Emotional State and Salivary Cortisol Concentration of Active and Non-Active Elderly Humans**. Maia J[1], Pereira AAR[1], Castellano M[1], Malerba HN[1,2] Marques ICS[1], Viel T[1,2] [1]EACH-USP, Lab. of Neurofarmacology of Aging, Brazil; 2ICB-USP

03.027 **Chlorpromazine Hydrochloride Liposomes is Safe in Alternative Models and Decreases the Catatonic Effect of the Free Drug in Mice**. Ferreira JGJ[1], Rez TG[1], Ayres TA[1], Barbosa E[1], Rodrigues GZP[1], Verza SG[1], de Mattos CB[1], Dallegrave E[2], Morisso FDP[1], Gehlen G[1], Charão MF[1], Betti AH[1]. [1]Feevale, Institute of Health Sciences, Brazil; [2] UFCSPA, Porto Alegre, Brazil

04. Inflammation and Immunopharmacology

04.036 **Plasmin Modulates the Inflammatory Response and Reduces Lung Damage in Experimental Pneumococcal Pneumonia**. Cardoso C[1], Carvalho AFS[2], Lara ES[2], Zaidan I[1], Grossi L[1] Montuori-Andrade ACM[1], Augusto IL[3], Caixeta RS[3], Carneiro FS[2], Queiroz-Junior CM[4], Felix FB[4], Teixeira MM[5], Braga FC[1], Tavares LP[5], Sousa LP[1,2,3]. [1]UFMG Belo Horizonte, PPG Pharmaceutical Sciences, Brazil; [2]UFMG Belo Horizonte, PPG Clinical and Toxicological Analysis, Brazil; [3]UFMG, Dpt of Clinical and Toxicological Analysis, Belo Horizonte, Brazil; [4]UFMG, Dpt of Morphology, Belo Horizonte, Brazil; [5]UFMG Belo Horizonte, Dpt. of Biochemistry and Immunology, Brazil; [6]Dpt. of Medicine, Harvard Medical School, Boston, USA

04.037 **The Investigational New Mexiletine Derivative JME-209 Inhibits Exacerbation on Lung Inflammation and Bronchoconstriction in Mice Subjected to Cigarette Smoke Inhalation and H1N1 Infection**. Gomes HS, Coutinho DS, Cotias AC, Ferreira TPT, Almeida MD, Lopes RR, Nobrega MECG, Santos HBS, Arantes ACS, Carvalho VF, Silva PMR, Martins MA IOC-Fiocruz Lab. of Inflammation, Rio de Janeiro, Brazil

04.038 **Effect of Ylang-ylang** (*Cananga odorata*) **Essential Oil on the Hyperalgesia, Edema Formation and Histopathological Alterations in Zymosan-Induced Artrhitis Model**. Lossavaro PKMB, Bonfá IS, Lencina JS, Felipe JL, Fernandes MML, Ferreira JV, Toffoli-Kadri MC, Silva-Filho SE UFMS, Pharmaceutical Sciences, Food and Nutrition College, PPG Pharmaceutical Sciences, Campo Grande, Brazil

04.040 **Plasmin decreases Neutrophil Migration and reduces Adhesion to Inflamed Endothelium**. Carneiro FS[1], Sugimoto MA[2], Zaidan I[1], Lara ES[1], Cardoso C[3], Carvalho AFS[1], Caixeta RS[5], Cooper D[2], Gonçaves WA[4], Pinho V[4], Perretti M[2], Sousa LP[1,3,5] [1]UFMG Belo Horizonte, PPG Clinical and Toxicological Analysis, Brazil [2]University of London, William Harvey Research Institute, London [3]UFMG, PPG Pharmaceutical Sciences, Belo Horizonte, Brazil, [4]UFMG, Dpt. of Morphology, Belo Horizonte, Brazil, [5]UFMG, Dpt. of Clinical and Toxicological Analysis, Belo Horizonte, Brazil

04.041 **Sepsis Modulates Expression of Endogenous Deoxyribonucleases Related to the NETs Clearance in Mice**. Costa VF, Galant LS, Ramos AS, Rodrigues FC, Oliveira-Leandro Maísa, Schneider AH, Almeida C J L R, Wanderley CW, Cunha FQ. FMRP-USP

04.042 **The Specialized Pro-Resolving Mediator, Resolvin D5, Protects the Skin from Oxidative Stress Induced by UVB Irradiation**. Semeão LO, Pierotti SM, Saito P, Pinto IC, Ferrante LF, Kumagai CM, Rodrigues CCA, Vale DL, Melo CPB, Trambaioli BM, Santos KMM, Alves MG, Radoski RE, Casagrande R, UEL, PPG Health Sciences, Londrina, Brazil

04.043 **Histological Analysis of the Effect of Nanoencapsulated Diclofenac Associated with Iontophoresis on Rat Joints with CFA-Induced Arthritis**. Santos WP[1], Cherem KNN[1], Dornelles FN[1], Souza-Silva E[1], Lemos-Senna EMT[2], Tonussi CR[1] [1]LANEN-CCB-UFSC, Nociception Neurobiology Lab., Florianópolis, SC, Brazil. [2]CCS-UFSC, Pharmacotechnical Lab., Health Sciences Center, Florianópolis, SC, Brazil

04.044 **Food Restriction during Pregnancy Increases Susceptibility to Infections in Adult Offspring by Compromising the Alveolar Macrophages Activity**. Azevedo GA[1], Negreiros NGS[2], Soares AW[1], Lippi BK[2], Candido CS[2], Landgraf MA[3], Landgraf RG[2]. [1]Unifesp-EPM, Dpt. of Medicine, São Paulo, Brazil. [2]Unifesp-Diadema, Dpt. of Pharmaceutical Sciences, Brazil. [3]Unip-Santos, Brazil

04.045 **Effects of Obesity and Ovaries Removal on Expression of Glucocorticoid Receptor in Lung of Mice Submitted to Mixed Asthma**. Suaiden-Schmidt A[1], Ribeiro MR[1], Oliveira MA[1], Moriya HT[3], Duque-

Almeida E[1], Dragunas G[1], Munhoz CD[1], Donato Júnior J[2], Santana Melhado IV[1], Riffo-Vasquez Y[4], Tavares-de Lima W[1] [1]ICB-USP, Dept. of Pharmacology, [2]ICB-USP, Dept. of Physiology and Biophysics, [3]EP-USP, Dept. of telecommunication and Control Engineering, [4]Institute of Pharmaceutical Science, King's College London, UK.

04.046 **Paroxetine Reduces Adrenergic Receptor Internalization**. Rodrigues FC[1,2], Galant LS[1,2], Kanashiro A[1,2], Borges FV[1,2], Duarte DA[3], Costa Neto CM[3], Pupo AS[4], Cunha FQ[1,2] [1]FMRP-USP, Dept. of Pharmacology, Brazil; [2]FMRP-USP, Center of Research in Inflammatory Diseases, Brazil; [3]FMRP-USP, Dept. of Biochemistry and Immunology, Brazil; 4IBB-Unesp-Botucatu, Dept of Biophysics and Pharmacology, Brazil

04.047 **Effect of Free and Nanostructured Omega 3 in Animals Challenged with Lipopolysaccharides (LPS) in the Lung**. Santos FS[1,2,3], Moraes BPT[1,2,4], Silva KP[5], Almeida MAP[1,2,4], Costa MF[1,2], Moraes-de-Souza I[1,2], Cunha CMCD[1,2,4], Bozza PT[2], Kaue FS[1,2,3], Brito MAMS[1], Castro-Faria-Neto HC[2], Ferrarini, SR[4], Silva, AR[1,2,4], Gonçalves-de-Albuquerque CF[1,2,3,4] [1]Unirio, Immunopharmacology Lab., Department of Physiological Sciences, Federal, Rio de Janeiro, Brazil, [2]IOC-Fiocruz, Immunopharmacology Lab., Rio de Janeiro, Brazil, [3]UFF, Postgraduate Program in Science and Biotechnology, Niterói, Brazil, [4]UFF, PPG in Neurosciences, [5]UFMT Post-Graduate Program in Health Sciences, Sinop, Brasil

04.048 **Fetal Programming by in utero Food Restriction: Implications in The Response to Inflammatory Bowel Disease**. Soares AW[1], Azevedo GA[1], Candido CS[2], Lippi BK[2], Negreiros NGS[2], Landgraf MA[3], Landgraf RG[2]. [1]Unifesp-EPM, Dpt. of Medicine, São Paulo, Brazil, [2]Unifesp-Diadema, Dpt. of Pharmaceutical Sciences, Brazil. [3]Unip-Santos, Brazil

04.049 **Evaluation of the anti-inflammatory effect of hydrogen sulfide (H2S) donor on experimental asthma in mice submitted to precocious ovulation**. Francelino Alves V[1], Melhado IV[2], Ribeiro MR[1], Prata de Oliveira J[1], Dallazen JL[1], Kiataki LGS[1], Teixeira SA[1], Oliveira MA[1], Frajblat M[4], Caliendo G[3], Severino B[3], Moriya H T[2], Muscara MN[1], Pereira Costa SK[1], Tavares-de-Lima W[1] [1]ICB-USP, Dept. of Pharmacology, São Paulo, Brazil, [2]EP-USP, Dept. of Telecommunication and Control Engineering, São Paulo, Brazil, [3]University of Naples, Dept of Pharmacy, School of Medicine, Napoli, Italy, [4]UFRJ, Brazil

04.050 **Assessment of Nicotine Lung Harmful Effects Triggered by Electronic-Cigarette Aerosol Exposure in Mice**. Nobrega MECG, Cotias AC, Gomes HS, Lopes RR, Arantes ACS, Coutinho DS, Carvalho VF, Silva PMR, Martins MA IOC-Fiocruz, Lab. of Inflammation, Rio de Janeiro, Brazil

04.051 **Identification of Interleukin-13 (IL-13) as a Biomarker in Workers Exposed to Silica Dust**. Ferreira TPT[1], RIBEIRO PC[2], Arantes ACS[1], Guimarães FV[1], Castro-Faria-Neto HC[3], Martins MA[1], Castro HA[2] Silva PMR[1] [1]IOC-Fiocruz, Lab. of Inflammation, [2]ENSP-FIOCRUZ, Center for Studies on Workers Health and Human Ecology, [3]IOC-Fiocruz, Lab. of Inflammation, Rio de Janeiro, Brazil Rio de Janeiro, Brazil

04.052 **The Role of the Renin-Angiotensin System on the Hyperactivity of the Hypothalamus-Pituitary-Adrenal Axis in a Mouse Model of Type 1 Diabetes**. Chaves AS, Magalhães NS, Silva PMR, Martins MA, Carvalho V IOC-Fiocruz, Lab. of Inflammation, Rio de Janeiro, Brazil Rio de Janeiro, Brazil

04.053 **IL10-Induced STAT3/NFκB Crosstalk Modulates Pineal and Extra-Pineal Melatonin Synthesis**. Córdoba-Moreno MO, Markus RP, Fernandes PACM USP, Dept of Physiology, São Paulo, SP, Brazil

04.054 **Anti-Inflammatory Potential of Uvaol in Human Epithelial Cell Line A549 Via *in-vitro* and *in-silico* Approaches**. Santana JR, Barros ABB, Ferreira EGA, Viana RS, Silva JP, Barreto E UFAL

04.055 **Evaluation of the Potential of Angiotensin 1-7 - MAS Receptor Agonist - as a Therapeutic Alternative in Coronavirus-Induced Infection**. Lima EBS[1], Zaidan I[1], Monteiro AHA[2], Cardoso C[2], Carvalho AFS[1], Lara ES[1], Souza JAM[1], Augusto IL[3], Caixeta RS[3], de Oliveira LC[3], Costa VV4, Teixeira MM4, Sousa LP[1,2,3]. [1]UFMG, PPG Clinical and Toxicological Analysis, Belo Horizonte, Brazil, [2]UFMG, PPG Pharmaceutical Sciences, Belo Horizonte, Brazil, [3]UFMG, Dpt. of Clinical and Toxicological Analysis, Belo Horizonte, Brazil, [4]UFMG Belo Horizonte, Dpt. of Biochemistry and Immunology, Brazil

04.056 **The Immunoregulatory Function of Mesenchymal Stem Cell on Macrophages is Affected by Zinc**. Makiyama EN, Freitas S, Fock RA FCF-USP, Dept of Clinical and Toxicology Analyses, School of Pharmaceutical Sciences, University of São Paulo, São Paulo, Brazil

05. Pain and Nociception Pharmacology

05.017 **The Antinociceptive Effect of Cannabinoid Receptor Agonists is Enhanced in Aspirin-Triggered Lipoxin A4 Treated-Diabetic Rats,** Ferreira MV[1], Jesus CHA[2], Bonfim JC[1], Oliveira G[1], Liebl B[1], Verri-Junior WA[3], Zanoveli JM[1], Cunha JM[1] [1]UFPR, Dept of Pharmacology, Curitiba, PR, Brazil; [2] Indiana University, Dept of Psychological and Brain Sciences, , Bloomington, IN, USA; [3]UEL, Dept of Pathology, Londrina, PR, Brazil

05.018 **TRPA1 Modulates Nociception in a Model of Migraine-Like Behavior Caused by Unpredictable Sound Stress in Mice**. Viero FT[1], Rodrigues P[1], Nassini R[2], Geppetti P[2], Trevisan G[1] [1]UFSM, Graduate Program in Pharmacology, Santa Maria, RS, Brazil. [2]University of Florence, Dept of Health Science, Clinical Pharmacology and Oncology, Florence, Italy.

05.019 **Impaired Mitochondrial Dynamics Contributes to Paclitaxel-Induced Peripheral Neuropathy**. Martins BB[1], Hösch N[1], Ferreira J[2], Zambelli VO[1] [1]IBu, Lab. of Pain and Signaling, São Paulo, Brazil; [2]ICB-USP, Dpt. of Anatomy, São Paulo, Brazil

05.020 **Study of New Natural Derivatives Inhibitors of the P2X7 Receptor in Inflammatory Pain and Arthritis in Mice**. Galvão RMS[1,2], Salles JP[2,3], Miranda ALP[2], Faria RX[1,4] [1]IB-UFF, Graduate Program in Science and Biotechnology, Brazil, [2]UFRJ, Lab. of Studies in Experimental Pharmacology, Brazil, [3]UFRJ, Graduate Program in Pharmacology and Medicinal Chemistry, Brazil, [4]IOC, Lab. for Environmental Health Assessment and Promotion, Brazil

05.022 **Anti-inflammatory and Antinociceptive Activity of the Hydroalcoholic Extract of *Heteropterys tomentosa* in Mice**. Freitas-Júnior RAF[2], Ferraz GB[2], Almeida-Filho OP[1], Santana JVS[2], Moreno SE[2], Buccini DF, Munhoz CD[1] [1]ICB-USP, Lab. of Neuronal Endocrine Pharmacology and Immune Modulation, Dept of Pharmacology, São Paulo, Brazil, 2UCDB, Lab. of Pharmacology, Biotechnology Program, Mato Grosso do Sul, Brazil

06. Cardiovascular and Renal Pharmacology

06.021 **The Influence of C3a on Matrix Metalloproteinase (MMP)-2 Activity and Oxidative Stress in Angiotensin-II-induced Hypertension**. Ramos LVR, Mello MM, Castro MM FMRP-USP, Dept of Pharmacology.

06.022 **Effects of ʙeta-Caryophyllene in the Cecal Slurry Model of Sepsis**. Mariot LN[1], Queiroz LY[1], Delfrate G[1], Alves GF[2], Nardi GM, Sordi R[1] [1]UFSC, PPG in Pharmacology, [2]UniTO, PPG in Pharmaceutical and Biomolecular Sciences

06.023 **Evaluation of the Late Effects of Topiramate Treatment during Childhood on Baroreflex Control in Male and Female Rats**. Miguel MVO, Silva KGN, Bonancea AM, Oliveira GR, Pelosi GG [1]UEL, Dpt. of Physiological Sciences, PPG of Physiological Sciences, Brazil

06.024 **Methylene Blue Preserve the Microcirculation and Reduces Death in Rat Sepsis**. Dantas PB[1], Mestriner F[1], Dugaich VF[1], Barbosa JM[1], Fagundes A[1], Couto AES[1], Becari C[2], Evora P[1], Ribeiro MS[1] [1]FMRP-USP, Dept of Surgery and Anatomy, Ribeirão Preto, SP, Brazil, [2]FOB-USP, Dept of Biological Sciences, School of Dentistry of Bauru, University of São Paulo, Bauru-SP, Brazil

06.025 **FoxO1 O-GlcNAcylation on Vascular Endothelial Function**. Pedersoli CA[1], Silva-Neto JA[1], Duarte DA[1], Gonçalves DAP[2], Silva NLE[3], Silva JFG[1], Gasparini MV4, Machado MR[1], Gonçalves TT[1], Bressan AFM[1], Ketteluch IC[3], Navegantes LC5, Carneiro FS[1], Tostes RC[1]. [1]USP, Dpt. of Pharmacology, Ribeirão Preto, Brazil; [2]UFMG, Dpt. of Physical Education, Belo Horizonte, Brazil; [3]FMRP-USP, Dpt. of Dept of Biochemistry and Immunology; 4FMRP-USP, Dpt. of Cellular and Molecular Biology and Pathogenic Bioagents, Brazil; 5 FMRP-USP, Dpt. of Physiology, Brazil

06.027 **The Deletion of Elastase-2, an Angiotensin-II Forming Enzyme, Changes Typical Abdominal Aortic Aneurysm Phenotype in Mouse Model**. Mestriner F[1], Ribeiro MS[1], Couto AES [1], Dugaich VF[1], Kovacs HZ[1], Francisco DF[1], Corsi CAC[1], Vasconcelos JL[1], Bruch P[1], Melo MMB[2], Neto J[2], Nakagi VS[1], Costa RM[2], Castro MM[2], Tostes R[2], Becari Christiane[2,3] [1]FMRP-USP, Division of Vascular and

Endovascular Surgery, Dept of Surgery and Anatomy ²FMRP-USP, Dept of Pharmacology, Ribeirão Preto, SP, Brazil. ³FOB-USP, Dept of Biological Science, Bauru-SP, Brazil

06.028 **Administration of Chloroquine during Pregnancy Does Not Alter the Hemodynamic Response of Offspring in Adulthood**. Bonancea AM, Miguel MVO, Oliveira GR, Pelosi GG. ¹UEL, Dpt. of Physiological Sciences, Brazil

06.029 **Sepsis-Induced Differential Electrocardiographic Changes in Male and Female Rats** Hahmeyer MLS, Silva-Santos, JE ¹UFSC, Dpt. de Farmacologia, Brazil

06.030 **Reduction of Sirtuin 1 Expression in Perivascular Adipose Tissue of the Thoracic Aorta During Aging in SAMP-8 Mice**. Alves AS, Marques BVD, Akamine EH ICB-USP, PPG Pharmacology, Brazil

06.031 **Vascular Effects of Hydrogen Sulfide (H_2S)-Donors: Mitochondria as New Targets**. Marques LAC, Teixeira SA, Costa SKP, Muscará MN USP-ICB Farmacologia São Paulo SP Brazil

06.032 **Glycolytic Profile of CD4+ T Cells and Cardiac Hypertrophy and Increased Blood Pressure in a Mouse Model of Gender-Affirming Hormone Therapy (GAHT)**. Oliveira-Neto JT[1], Santos JD[1], Oliveira CV[2], Cebinelli GCM[2], Machado MR[1], Souza FM[4], Rodrigues D[1], Soares HAS[4], Silva MC4, Silva CAA[3], Santana da Silva J[4], Fazan-Júnior R[3], Cunha FQ[2], Farias-Filho JCA[2], Tostes, RC[1] [1]FMRP-USP, Dept. of Pharmacology, [2]FMRP-USP, Dept. of Immunology, [3]FMRP-USP, Dept. of Physiology, [4]Fiocruz, Bi-Institutional Research Platform in Translational Medicine

06.033 **Estrogen has a Protective Role Against Endothelial Glycocalyx Shedding caused by SARS-CoV-2 Infection**. Machado MR[1], Potje SR[2], Costa TJ[1], Benatti NR[3], Martins Júnior RB[4], Costa RM[5], Tostes RC[1] [1]FMRP-USP, Dept.of Pharmacology, Brazil, [2]UEMG, [3]HC-FMRP-USP, [4]FCFRP-USP, [5]UFJ

06.034 **Experimental Model of Acute Kidney Injury Induced by *Apis mellifera* Venom**. Nogueira-Souza PD[1], Romanelli, MA[2], Siqueira BH[1], De Almeida MM[1], Gomes-da-Costa PI[1], Lara LS[2], Melo PA[1] [1]ICB-CCS-UFRJ, Lab. de Farmacologia das Toxinas, Farmacologia e Química Medicinal, Rio de Janeiro, Brazil; [2]ICB-CCS-UFRJ, Lab. de Farmacologia Renal, Farmacologia e Química Medicinal, Rio de Janeiro, Brazil

06.035 **Wedelolactone Reverts Acute Kidney Injury Resulting from *Bothrops jararacussu* Envenomation**. Romanelli MA[1], Nogueira-Souza PD[1], Chaves JO[2], Brito ES[2], Pinto HMC[2], Albernaz LCS[2], Gonsalez SR[2], Melo PA[2], Lara LS[1]. [1]UFRJ, Dpt. of Pharmacology and Medicinal Chemistry, Rio de Janeiro, Brazil; [2]UFRJ-Macaé, Phamacology Lab, Brazil

06.036 **Characterization of Acute Kidney Injury (AKI) Induced by *Bothrops jararaca* Venom**. Guerrero TN[1], Romanelli MA[2], Gomes DS[2], Nascimento MLS[1], Brigido MC[1], Lara LS[1], Zingali RB[2]. [1]UFRJ, Medicinal Biochemistry Institute, Brazil; [2]UFRJ, Dpt. of Pharmacology and Medicinal Chemistry, Brazil

06.037 **Basal Release of 6-Cyanodopamine 6-Nitrodopamine and 6-Nitroadrenaline from Callithrix spp. Isolated Ventricles**. Santos Júnior GQ[1], Britto-Júnior J[1], Campos R[1], Nyamkondiwa KL[2], Klugh KL[2], Peterson LW[2], De Nucci G[1,3] [1]FCM-Unicamp, Dept of Pharmacology, Campinas, Sao Paulo, Brazil; [2]Rhodes College, Dept of Chemistry, Memphis, Tennessee, USA; [3]ICB-USP, Dept of Pharmacology, Institute of Biomedical Sciences, University of Sao Paulo, Sao Paulo, Brazil

07. Endocrine, Reproductive and Urinary Pharmacology

07.009 **Neonatal Overnutrition causes Opposite Effects on Biometric Parameters and Glucose Homeostasis in a Model of Intrauterine Growth Restriction**. Peixe CMS[1], Lorenzon F[1], Gregorio T[2], Santos LC[2], Santangelo E[1], Baptista G[3], Santos GJ[2], Lima FB[2] [1]UFSC, Dpt. of Physiological Sciences, Florianópolis, [2]UFSC Florianópolis, PPG multicenter in Physiology Sciences, Brazil, [3]UFSC, PPG Pharmacology, Florianópolis, Brazil

08. Respiratory and Gastrointestinal Pharmacology

08.009 **Mechanisms Involved in the Inflammatory Response of Bradykinin in Presence of LPS in the Bronchoalveolar Lavage Model in Mice**. Dutkevicz N, Silva ALM, Signori L, Schlemper SRM, Schlemper V., UFFS, Realeza Veterinary Medicine Course, Brazil

08.010 **Evaluation of the Antidiarrheal Activity and Motility Effects of Hesperetin in Animal Models**. Alves VP[1], Pessoa MMB[2], Pessôa MLS[1], Batista LM[1] [1]UFPB, Dpt. of pharmaceutical Sciences, Paraíba, Brazil

08.011 **Evaluation of Acute Toxicity, Antidiarrheal Activity and Gastrointestinal Motility of Gamma-Terpinene in Animal Models**. Silva ML, Pessoa MMB, Pessôa MLS, Alves VP, Araruna MEC, Alves Junior EB, Batista LM UFPB

08.012 **Hydroalcoholic Extract from *Aloysia citriodora* and Verbascoside Promote Gastroprotection Through Mucosal Protection and Modulation of Inflammatory and Oxidative Stress Markers**. Buzatto MV[1], Gomes DB[1], Miorando D[1], Somensi LB[2], Silva, LM[2], Roman-Junior, WA[1] [1]Unochapecó [2]UNIVALI

08.014 **Extracts of *Baccharis dracunculifolia* DC and Brazilian Green Propolis Ameliorates Ethanol- and LPS-induced Liver Injury in Mice**. Santos AC[1], França TCS[1], Pilati SFM[1], Kenupp JB[2], da Silva LM[1] [1]Univali, PPG in Pharmaceutical Sciences, SC, Brazil, [2]FCF-USP, Ribeirão Preto, Brazil

08.017 **Hydrogen Sulfide improves Intestinal Epithelial Cell Barrier under Inflammatory Stimulus**. Prata de Oliveira J[1,3], Wallace J[2], Muscara, MN[1], Costa, SKP[1], Denadai-Souza, A[3] [1]ICB-USP, Depto de Farmacologia, Brazil; [2]University of Calgary, Dept of Physiology and Pharmacology, Canada; [3]KU Leuven, Lab. of Mucosal Biology, Dept of Chronic Diseases, Metabolism and Ageing, Belgium

09. Natural Products and Toxinology

09.026 **Ontogenetic Variation in Venom and Tail Coloration Relationship in *B. moojeni* and *B. atrox***. Garcia LNV, Galizio NC, Silveira GPM, Motta-Soares MV, Grego KF, Serino-Silva C, Tanaka-Azevedo A; Morais-Zani K. IBu, Dpt. of Herpatology, São Paulo, Brazil

09.027 **Methyl Cinnamate Suppresses TGF-β1-Induced Epithelial-Mesenchymal Transition in Airway Epithelium Through Inhibition of NF-κB p65 Translocation**. Ferreira EGA, Barros ABB, Silva JP, Fidelix MSP, Carmo JOS, Santana JR, Barreto E UFAL, Lab. of Cell Biology, Brazil

09.028 **Effects of β-Micrustoxin, Phospholipase A2 Isolated from *Micrurus lemniscatus* Snake Venom, on the Cytoskeleton of Astrocytes and Glioblastomas**. Tida-Oliveira CH, Sandoval MRL, Afeche SC. Ibu, Lab. of Pharmacology, São Paulo, SP, Brazil

09.029 **Evaluation of the Antitumor Activity of Gedunin in A-172 Human Glioblastoma Cells**. Silva PRO[1,3], Correa AMC[1], Costa TEMM[1,2], Penido C[1,2] [1]Fiocruz-Farmanguinhos, Lab. of Applied Pharmacology, Rio de Janeiro, Brazil [2]Fiocruz, Center for Technological Development in Health, Rio de Janeiro, Brazil [3]Institutional Program for Initiation Scholarships in Technological Development and Innovation.

09.030 **Soft Nanoparticles Containing Herbal Drugs for Treating Skin Pathologies: Scope Review**. Almeida, IFR[1]; Reolon, JB[1]; Sari, MHM[1]; Marchiori, C[1]; Dallabrida, KG[1]; Santos, JAR[1]; Alves, FMS[2]; Bonini, JS[1]; Ferreira, LM[2]. [1]Unicentro, Dept of Pharmacy, Guarapuava-PR, Brazil. [2]UFPR, Dept of Pharmacy, Curitiba - PR, Brazil

09.032 **Beta Glucans obtained from *Pholiota nameko* does not Ameliorates DSS-Induced Ulcerative Colitis in Mice**. Silva RR[1], Zavadinack M2[2], Baptista NZ[1], Amaral FKCW[1], Rosa-Filho SP[1], Iacomini M[2], Werner MFP[1]. [1]UFPR, Pharmacology, [2]UFPR, Biochemistry and Molecular Biology

09.034 **Fibrinogenolytic Activity of Venoms from Medically Important Snake Species in Brazil**. Soares MVM, Serino-Silva C, Godoy TA, De Lima EOV, Sant'Anna SS, Galizio NC, Grego KF, Silveira GPM, Tanaka Azevedo AM, Morais-Zani K. IBu, Brazil

09.035 **Evaluation of the Therapeutic Effect of Plant-Derived Dietary Fibers Rich in Polysaccharides in a Mouse Model of Polymicrobial Sepsis**. Simão G[1,2], Braga LLVM[1,2], Rosa LB[1,3], Silva MLC[1,3], Ferreira DM[1,2], Cordeiro LMC[4], Fenandes ES[1,2] [1]IPPPP, Curitiba, PR, Brazil. [2]FPP, PPG em Biotecnologia Aplicada à Saúde da Criança e do Adolescente, Curitiba, PR, Brazil. [3]FPP, Graduação em Biomedicina, Curitiba, PR, Brazil. [4]UFPR, Dept of Biochemistry and Molecular Biology, Curitiba, Brazil

09.036 **Phytochemical Analysis and *in silico* Evaluation of the Essential Oil of *Senecio brasiliensis***. Vida RL[1], Gindri AL[2], Pacheco PS[2], Machado MM[3], Petreceli RR4, Brucker N[1,4] [1]UFSM, Graduate Program in Pharmacology, Santa Maria, Brazil; [2]URI, Dept of Health Sciences, Santiago, Brazil;

[3]Unipampa, Immunology and Applied Genetics Group, Uruguaiana, Brazil; [4]UFSM, Graduate Program in Pharmaceutical Sciences, Santa Maria, Brazil

09.037 **Topical Formulations added *Schinus terebinthifolius* Extract: Evaluation of Quality and Antioxidant Activity**. Ferrante LF, Nakano CT, Marinho JMR, Semeao LO, Pierotti SM, Casagrande R Georgetti SR UEL, Dept of Pharmaceutical Science, Health Sciences Center

09.040 **Topical Preclinical Therapeutic Efficacy of a New Full-spectrum Cannabis Oil for Skin Diseases**. Souza MHB[1], Ortega LYM[1], Maso JM[1], Kava J[2], Araújo FS[2], Stern CAJ[1], Otuki MF[1], Cabrini DA[1]. [1]UFPR, PPG Pharmacology, Curitiba, Brazil. [2]Lab. REAJA, Curitiba, Brazil

09.041 ***Arrabidea chica* (Humb. & Bonpl.) B. Verlot: Overview of the Ethnopharmacology, Phytochemistry and Biological Properties**. Raiol da Silva MC, ReisLDS [2], Silva SCS, Luz DA, Maia CSF, Fontes-Júnior EA ICS-UFPA-UFPA, Belém, Pará, Brazil, Faculty of Pharmacy, Lab. of Pharmacology of Inflammation and Behavior, Belém, Pará, Brazil

09.042 **Metabolic associated fatty liver disease: a challenge to the ethnopharmacological use of *Croton urucurana***. Silva GR[1], Albuquerque ER[1], Gasparotto-Junior A[2], Lívero F[3]. [1]Unipar Lab. of Pre-Clinical Research of Natural Products, Graduate Program in Animal Science with Emphasis on Bioactive Products, [2]UFGD, Lab. of Cardiovascular Pharmacology, [3]UFPR, Lab. of Cardiometabolic Pharmacology

09.043 **Acute Pain and Edema Attenuation in Mice Treated with Essential Oil obtained from *Bulnesia sarmientoi* Lorentz Ex Griseb**. Giesbrecht Toews, AC; Arrúa Báez, WJ; Hellión-Ibarrola, MC; Ibarrola Diaz, DA Universidad Nacional de Asunción, Depto de Farmacología. Facultad de Ciencias Químicas, San Lorenzo, Paraguay

09.044 **Comparative Venom Proteomes and Biochemical Profiles of Four South American Species of Rear-Fanged Snakes (Dipsadidae)**. Bonilla KAT[1], Bayona-Serrano JD[2], Hyslop S[1] [1]Unicamp Dept of Translational Medicine, Faculty of Medical Sciences, Campinas, SP, Brazil [2]Ibu, Lab. of Applied Toxinology, São Paulo, SP, Brazil

09.045 **Evaluation of the Hypoglycemic Effect of Curcumin and Micronized Curcumin in Diabetic Animals**. Schindler MSZ[1], Barufke M[1], Cort TD[1], Souza MA[1], Almeida MOP[1], Zanatta L[2], Magro, JD[1]. [1]Unochapecó, Brazil, [2]Udesc, Brazil

09.046 **Ability of Doxycycline to Antagonize Bothrops Snake Venom Activities**. Cesar MO[1,2], Nogueira-Souza PD[1], Rocha-Junior JRS[1], Gomes-da-Costa PI[1], Granja-Santoro GPA[1], Monteiro-Machado M[1], Strauch MA[1], Melo PA[1] [1]ICB-CCS-UFRJ, Lab. de Farmacologia das Toxinas, Programa de Farmacologia e Química Medicinal, Rio de Janeiro, RJ, Brazil, [2]IVB, Niterói, RJ-Brazil

09.047 **Anti-Inflammatory Properties of Alcoholic Fraction of *Agave sisalana* Residues**. Fracasso JAR[1], Costa LTS[1], Ferreira FY[2], Guarnier LP[3], Ribeiro-Paes JT[3], Bittencourt RAC4, Santos L. [1]FOA-Unesp-Araçatuba, PGG Biomaterials Sciences, Araçatuba, Brazil, [2] Unesp-Assis, Dept of Biotechnology, São Paulo State University, Assis, Brazil, [3]FMRP-USP, Dept of Genetics, Ribeirão Preto, Brazil 4 Unip-Assis, Dept of Biomedicine, Assis, SP, Brazil

10. Cancer Pharmacology

10.008 **Low Cytoplasmic Expression of High-Mobility Group B1 (HMGB1) is Associated with Ulceration, Breslow Index, and Adjuvant Treatment in the Primary Cutaneous Melanoma**. Maia IFVC[1], Fonseca MRS[2], Choquenaira-Quispe C[1], Cajado AG[1], Florêncio KGD[1], Lima-Júnior RCP[1], Wong DVT[1]. [1]UFC Fortaleza, Dpt. of Physiology and Pharmacology, Brazil; [2]UFC Fortaleza, Walter Cantídio University Hospital, Brazil

10.009 **Increased Resistin Serum Levels Associates with Neoadjuvant Chemotherapy Resistance in Breast Cancer Patients**. Freitas GL[1], Quispe CC[1], Florêncio KGD[1], Silva LGF[1], Rodrigues MAP[1], Santos ABM[1], Sousa LSP[1], Silva RL[1], Gadelha EC[1], Cavalcante DIM[1], Silva PGB[2], Rocha-Filho DR[3], Arruda LMA[2], Lima-Júnior RCP[1], Wong DVT[1]. [1]NPDM-UFC, Lab. of Inflammation and Cancer Pharmacology, Center for Drug Research and Development, Brazil; [2]Haroldo Juaçaba Hospital, Cancer Institute of Ceara, Brazil; [3]Walter Cantídio University Hospital, Brazil

10.010 **Friedelin Induces Cancer Cell Death and Attenuates Tumor Angiogenesis in Animals with Ehrlich Ascitic Carcinoma**. Silva ELES[1], Silva FA[1], Souza TPM[1], Almeida JH[1], Lucena LCP[1], Silva EC[1], Barreto E[1], Ferro JNS[1]. [1]ICBS-UFAL, Maceió, AL, Brazil.

10.011 **Activity of the Cysteine Protease cms2ms3 and the Vla-4 Integrin Role in Stages of b16f10 Melanoma Metastasis**. Leal BS[1], Ferreira LPF[1], Menezes DP[1], Lopes MTP[2], Sousa JMC[3], Ferreira PMP[1], Dittz D[1] [1]UFPI PPG Pharmacology, Brazil; [2]UFMG Pharmacology, Brazil; [3]UFPI PPF Pharmaceutical Sciences

10.012 **Antioxidant and Cytotoxic Effect of Extracts of *Libidibia ferea* on Breast Carcinoma Cells**. Menezes DP[1,2]; Ferreira LPF[1,3]; Leal BS[1,3]; Filho ESM[4]; Júnior GMV[4]; Dittz D[1,2,3] [1]UFPI, Lab. of Experimental Cancerology, Brazil; [2]UFPI, PPG Pharmaceutical Sciences; [3]UFPI, PPG Pharmacology, Brazil; 4UFPI PPG Chemical.

10.013 **Antioxidant Effect of Ascorbic Acid and its Cytotoxic Activity on Murine Breast Adenocarcinoma Cells**. Ferreira LPF[1,2], Silva ACA[2,3], Santos BLB[3,4], LEAL BS[1,2], Cavalcante KDM[1], Nascimento MCA[1], Menezes DP[1,3], Silva MTBS[2,3,4], Dittz D[1,2] [1]UFPI Lab. of Experimental Cancerology, Brazil; [2]UFPI PPG Pharmacology, Brazil; [3]UFPI PPG Pharmaceutical Sciences, Brazil; [4]UFPI Lab. of Physiology, Brazil

10.014 **Implication of Neuroinflammation Triggered by the Tumor Microenvironment in the Progression of Glioblastoma**. Pimentel RS[1], Nóbrega AHL[1], De Sá Coutinho D[1], Santos, ARC2, Martins MA[1], Frozza RL[2], Bernardi A[1] [1]IOC-FIOCRUZ, Lab. of Inflammation, Rio de Janeiro, Brazil; [2]IOC-FIOCRUZ Lab. on Thymus Research, Oswaldo Cruz Institute, FIOCRUZ, Rio de Janeiro, Brazil

11. Clinical Pharmacology, Pharmacokinetics, Pharmacogenomics and Toxicology

11.015 **5-Fluorouracil Therapeutic Drug Monitoring in Patients with Gastrointestinal Cancer in Treatment at the University Hospital of Santa Maria**. Somavilla B[1], Baco LS[1], Petreceli RR[1], Linden R[2], Silva LC[2], Antunes LCM[3], Brucker N[1] [1]UFSM, Dpt. of Physiology and Pharmacology, PPG Pharmaceutical Sciences, Brazil; [2]FEEVALE, Lab. of Toxicology, Brazil; [3]UFSM, Dpt. Hematology and Oncology, Brazil

11.016 **Antidepressants and Ejaculation Time: A Peripheral Mechanism**. Campitelli RS[1], Afonso PPL[1], De Nucci G[1,2,3] [1]UNICAMP, Dpt. of Pharmacology, Campinas, Brazil; [2]USP, Dpt. of Pharmacology, São Paulo, Brazil, [3]Universidade Brazil, Fernandópolis, Brazil

11.017 **Therapeutic Drug Monitoring and Population Pharmacokinetic Analysis of Meropenem in Hospitalized Patients: A Preliminary Study**. Corrêa GL[1], Petreceli RR[2], Somavilla B[1], Steffens NA[2], Zimmermann ES[3], Brucker N[1,2] [1]UFSM, Dpt. of Physiology and Pharmacology; [2]UFSM, PPG Pharmaceutical Sciences, Brazil; [3]University of Florida, Center for Pharmacometrics & Systems Pharmacology, USA

11.018 **A Phase-4 Cohort Study in Healthcare Workers Following COVID-19 Vaccination at the University of Brasília Hospital: Population Profile and Longitudinal Humoral Response**. Silva VEG[1], Oliveira HR[1], Silva DLM[23], Duarte, DB[14]. [1]UnB Brasília, Lab. of Pharmacological Assays, Dpt. of Pharmacy, Brazil; [2]HUB-UnB, Brazil; [3]UnB Brasília, PPG in Public Health, Brazil [4]UnB, PPG in Tropical Medicine, Brasília, Brazil

11.019 **Pharmacokinetics of Intravenous and Intramuscular Nalbuphine in Domestic Chickens** (*Gallus gallus domesticus*) **Anesthetized with Isoflurane**. Menin RH[1], Olivo LB[1], Santos EAR[2], Dias BB[1], Queiroga LB[2], Cardozo HC[2], Picoli R[2], Oliveira TF[2], Monteiro ER[2], Araújo BV[1] [1]UFRGS, Pharmaceutical Sciences Graduate Program, Porto Alegre, Brazil [2]UFRGS, Veterinary Sciences Graduate Program, Porto Alegre, Brazil

11.020 **Randomized Controlled Clinical Trial in Patients with Alzheimer's Disease: Analysis of The Effects of THC and CBD on Biochemical Markers and Inflammatory Cytokines**. Florentino INA, Le Quesne AM, Krefta E, Cury RM, Silva T, Cezar-dos-Santos F, Silva EG, Nascimento FP Unila Laboratory of Medicinal Cannabis and Psychedelic Science (LCP), Foz do Iguaçu, PR, Brazil

11.021 **Beta-Caryophyllene Mitigates Short-Term Memory Impairment in Aflatoxin-B1-Intoxicated Rats**. Dallabrida KG[1], Silveira AR[2], Rosa EVF[2], Sampaio TB[1,2], Santos JT[2], Oliveira MS[2], Furian AF[2],

Sari MHM[1,2] [1]Unicentro, Dpt. o de Farmácia, Guarapuava, PR; [2]UFSM, PPG em Farmacologia, Santa Maria, RS.

11.022 **A Longitudinal Immunogenicity Analysis in Healthcare Workers Following COVID-19 Vaccination: A Cohort Study**. Aroucha DF[1], Duarte DB[1,2], Silva DLM[2,3,4] [1]UnB Brasília, PPG in Tropical Medicine, Brazil. [2]UnB Brasília, Dpt. of Pharmacy, Brazil. [3]HUB Brasília, University of Brasília Hospital, Brazil. [4]UnB Brasília, PPG in Public Health, Brazil

11.023 **PBPK Modeling Application as Guidance for Oral Ketamine Prescription for Analgesia in Different Populations**. Lippa VNM[1] , Goes PRN[1], Martins F[1], Taffarel MO[2], Piai JMB[1], Diniz A[1] [1]UEM, PPG Pharmaceutical Sciences; Dept of Pharmacy, Maringá, PR, Brazil [2]UEM, Dept of Veterinary Medicine, Umuarama-PR, Brazil

11.024 **Model-Informed Precision Dosing for Tacrolimus to Improve Graft-Host-Disease Prevention in Brazilian Patients**. Olivo LB[1], Pinhatti AV[2], Wermann S[1], Porto GO[1], Dias BB[1], Zuckermann J[2], Daudt LE[3], Araújo BV[1] [1]UFRGS, Pharmaceutical Sciences Graduate Program; Porto Alegre; Brazil [2]HCPA-UFRGS, Pharmacy Service, Porto Alegre, Brazil [3]HCPA-UFRGS, Hematology Service, Porto Alegre, Brazil

11.025 **Pharmacokinetics and Biotransformation of JMXiBn, a Bupivacaine Analogue with Limited Action in Sodium Channels and Improved Activity Against Asthma Changes**. Nascimento VA[13], Cotias AC[1], Coutinho DS[13], Santos GCM[1], Costa JCS[2], Silveira GPE[3], Pinto DP[3], Fonseca LB[3], Silva PMR[1], Martins MA[1] - [1]IOC-Fiocruz, Lab. of Inflammation, [2]Fiocruz, Vice Presidency of Production and Innovation in Health, [3]Fiocruz, Equivalence and Pharmacokinetics Service, Brazil

12. Drug Discovery and Development

12.018 **Imatinib Analogues Containing Indole Derivatives as Potential Antineoplastic Agents**. Silva TAN[1], Almeida PG[1], Oliveira AP[2,3], Bastos MM[2,3], Boechat N[2,3], Fernandes PD[1,3] [1]ICB-UFRJ, Program of Research in Drug Discovery, Lab. of Pharmacology of Pain and Inflammation, Rio de Janeiro, Brazil. [2]Fiocruz-Farmanguinhos, Lab. of Drug Synthesis, Rio de Janeiro, Brazil. [3]ICB-UFRJ, Graduate Program in Pharmacology and Medicinal Chemistry, Rio de Janeiro, Brazil

12.019 **Possible New Therapies in the Field of Inflammation: Evaluation of the Antinociceptive and Anti-Inflammatory Profile of New Structural Analogues of Cannabidiol**. Invencio CGG[1], Paiva JPB[1], Lontra ACP[1], Franco GRR[2], Fernandes IM[2], Gontijo VS[2], Viegas-Junior C[2], Fernandes PD[1] [1]ICB-UFRJ, Drug Discovery Research Program, Pain and Inflammation Pharmacology Lab., Rio de Janeiro, Brazil. [2]Unifal-PeQuiM, Medicinal Chemistry Research Lab., Alfenas-MG, Brazil

12.020 **Oblongifolin A and Gutiferone E Isolated from Brazilian Red Propolis Show Antimicrobial Activity Against Methicillin-Resistant** *Staphylococcus aureus* (**MRSA**). Almeida JFS, Ripari N, Sforcin JM. IBB-Unesp-Botucatu, Dept of Chemical and Biological Sciences, Brasil.

12.021 **Anti-inflammatory and Antinociceptive Activity of the New Cannabidiol Analogues**. Gonçalves MICM[1], Almeida PG[1], Gontijo VS[2], Franco GRR[2], Viegas CJ[2], Fernandes PD[1]. [1]ICB-UFRJ, Program of Research in Drug Discovery, Lab. of Pharmacology of Pain and Inflammation, Rio de Janeiro. Brazil. [2]Unifal-PeQuiM, Lab. of Research in Medicinal Chemistry, Alfenas, MG, Brazil

12.022 **Investigation on the Anti-Inflammatory Effect of** *Aloysia gratissima* **Essential Oil**. Kuhn KZ[1], Souza MA[2], Sanaiotto O[1], Provinelli AC[1] , Barufke M[1], Schindler MSZ[2], Mazon SC[2], Brusco I[2], Scapinello J[3], Dal Magro J[2], Müller LG[2] [1]Unochapecó, School Sciences, Chapecó; [2]Unochapecó, PPG in Environmental Sciences, Chapecó; [c]UDESC Graduate Program in Food Science and Technology, Pinhalzinho, Brazil

12.023 **New Serotonin Amide Analogs with Promising Anti-Inflammatory and Anti-Nociceptive Potential**. [1]Menezes JAF; [1]Almeida PG; [1]Giorno TBS; [2]Rezende CM; [2]Lima FA; [1]Dias PF [1]ICB-UFRJ, Program of Research and Drug Discovery, Lab. of Pharmacology of Pain and Inflammation, Rio de Janeiro. Brazil [2]IQ-UFRJ, Lab. Aroma Analysis, Rio de Janeiro. Brazil

14. Pharmacology: Other

14.006 **Norfloxacin Cocrystal as an Alternative to Improve Biopharmaceutical and Antimicrobial Properties**. Brancalione RC[1], Gomes SN[1], Biscaia IFB[1], Murakami FS[2], Lopes DS[1], Bernardi LS[1], Oliveira

PR[1]. [1]Unicentro, Dpt. of Pharmacy, PPG of Pharmaceutical Sciences, Guarapuava, Brazil; [2]UFPR, Dpt. of Pharmacy, PPG of Pharmaceutical Sciences, Curitiba, Brazil

14.007 **Prophylactic Effect of *Ilex paraguariensis* Hydroalcoholic Extract and Ibuprofen on LPS-induced Acute Liver Injury**. Marchiori C[1], Santos JAR[1], Bezerra RLA[1], Schwab EDP[1], Medeiros IS[1], Somensi LB[3] Bahr AC[3] Bonini JS[1], Gregório E[2,3], Silva WCFN[1]. [1]Unicentro, Depto de Farmácia, Guarapuava, Brasil, [2]UFRGS, Depto de Fisiologia, Porto Alegre, Brasil, [3]Uniarp, Depto de Medicina, Caçador, Brasil

14.008 **Influence of *Ilex paraguariensis* Hydroalcoholic Extract and Ibuprofen on Biochemical Parameters of Rats submitted to Intraperitoneal LPS Injection**. Santos, JAR1, Marchiori, C1, Bezerra, RLA1, Schwab, EDP1, Medeiros, IS1, Somensi LB3, Bahr AC3, Bonini JS1, Gregório E2,3, Silva WCFN[1]. 1Unicentro, Depto de Farmácia, Guarapuava, Brasil. 2UFRGS, Depto de Fisiologia, Porto Alegre, Brasil. 3Uniarp, Depto de Medicina, Caçador, Brasil.

14.009 **Ayahuasca and Grief: Investigating the Determinants of Therapeutic Potential**. Souza AA, Gonçalves JRP, Pontieri GC, Rodrigues GC, Hirata F, Donato MF, Nascimento, FP, Fermino FA Unila, Lab. of Medical Cannabis and Psychedelic Science, Foz do Iguaçu, PR, Brazil

14.010 **Ayahuasca and Grief: Exploring Evidences of a New Therapeutic Perspective in Reframing Losses**. Pontieri GC, Gonçalves JRP, Rodrigues GC, Souza AA, Hirata F, Donato MF, Nascimento, FP Fermino FA Unila, Lab. of Medical Cannabis and Psychedelic Science, Foz do Iguaçu, PR, Brazil

14.011 ***Ilex Paraguariensis* Hydroalcoholic Extract and Ibuprofen Alter Organ Morphometry in Wistar Rats**. Medeiros IS[1], Bezerra R[1], Schwab E[1], Somensi LB[3], Bahr AC[3], Bonini JS[1], Gregório E[2,3], Silva WCFN[1] [1]Unicentro, Depto de Farmácia, Guarapuava, Brasil. [2]UFRGS, Depto de Fisiologia, Porto Alegre, Brasil. [3]Uniarp, Depto de Medicina, Caçador, Brasil

14.012 **Aging and Protein Malnutrition Impair Hematopoiesis and Favors Malignant Cells Through Bone Marrow Mesenchymal Stem Cells**. Gonçalves CES[1], da Silva RO[1], Hastreiter AA[1], Vivian GK[1], Makiyama EN[1], de Freitas S[1], Borelli P[1], Fock RA[1]. [1]FCF-USP, Dpt. of Clinical and Toxicological Analyses, PPG Pharmacy: Physiopathology and Toxicology, Brazil

14.013 **The Pioglitazone Treatment Combined with Cold Exposure Increase the Thermogenic Capacity of Brown and White Adipose Tissue in Mice without Affecting the Energy Expenditure**. Valdivia LFG[1], Sousa E[2], Jardim GFR[2], Festuccia WTL[3], Reckziegel P[1,2] [1]InFar-Unifesp, PPG em Farmacologia, Depto de Farmacologia, Centro de Farmacologia e Biologia Molecular, São Paulo, Brazil; [2]FCF-USP, Depto de Análises Clínicas e Toxicológicas, São Paulo, Brazil; [3]ICB-USP, Depto de Fisiologia e Biofísica, São Paulo, Brazil;

14.014 **Modulation of *in vivo* Adiposity and *in vitro* Adipogenesis Via Nrf2/Keap1 Pharmacological Signaling**. Valença HM, Moraes JA, Valença SS ICB-UFRJ, Rio de Janeiro, Brazil

14.015 **Study of Tissue Impregnation by Ibuprofen as an Emerging Pollutant found in the Waters of the Bengala River (NF-RJ)**. Fujimaki CMO[1], Soares, MA[2], Miranda ALP[1]. [1]UFRJ, PPG Pharmaceutical Sciences, Brazil; [2]UFRJ, PPG Endocrinology, Faculty of Medicine, Brazil

Lectures Abstracts

Courses

Pre-Congress Course

Learning the Discovery and Development Process of New Drugs and Medicines with the Screener Educational Game (Aprendendo o Processo de Descoberta e Desenvolvimento de novos Fármacos e Medicamentos com o Jogo Educacional Screener) Chair: François G. Noel (UFRJ)

The purpose of this course is to show how we can approach the complex process of drug discovery and development in an enjoyable and interactive way, using the educational game SCREENER (https://www.screener.com.br/). This game, created by a multidisciplinary team from UFRJ, was endorsed and distributed by SBFTE and has been used since 2022 by postgraduate courses (target audience) and even undergraduate courses that have shown interest in using it. SCREENER is a collaborative game, a hybrid of board and cards with online resources. The game mimics the process of drug discovery and development, from validating a target to registering the new drug with the regulatory agency and can be played individually (self-learning) or with the help of a monitor who assists up to six players/teams. The goal of the game is to collect cards that represent tasks that must be performed throughout the 7 stages of the process. The 29 task cards are categorized into four major areas (efficacy, safety, pharmacokinetics, and pharmaceutical development) and must be purchased sequentially. The game ends when the last card, which represents FDA approval, is collected. The player who has collected the most task cards wins. Classic game features, such as decision making and challenge, have been incorporated. More detailed information about the tasks and technical terms is available through QR codes on the cards. The vagaries of this long and costly process are mimicked by bonus/setback cards that must be read when the six-sided die indicates the number 6. In this course limited to 12 participants (6 teams of 2), selected among students and teachers who submit a letter of intent, we will present the rules of Screener and play the entire game over 7 hours of activity. The activity will be conducted in the Portuguese language.

Cr1 – **Animal Models and their New Technologies for Neuroscience Studies** (Modelos Animais e suas Novas Tecnologias para Estudos em Neurociência)

Animal models of Parkinson's Disease with an Emphasis on Replicability of the Progressive Nature of the Disease (Modelos animais da Doença de Parkinson com ênfase na replicabilidade da natureza progressiva da doença). José Ronaldo dos Santos, Ph.D., Department of Bioscience, Federal University of Sergipe

Parkinson's Disease (PD) is a chronic and progressive neurodegenerative disorder characterized mainly by the death of dopaminergic neurons in the substantia nigra pars compacta (SNpc). The symptoms of PD involve motor (tremors, muscle rigidity, bradykinesia) and non-motor (attention deficit, impairments in learning, recognition memory, and executive tasks, balance disturbances, anxiety, depression, sleep disorders, and sensory impairments) changes. Studies have shown that non-motor changes may precede motor changes in PD and that animal models are suitable tools to better understand these mechanisms. However, few models are capable of mimicking the progressive nature of the disease, in which it is possible to evaluate the non-motor, motor, and physiological aspects in the same animal, throughout the progression of the pathology. Among the developed animal models is the reserpine model, in which animals are chronically treated with low doses of this drug that blocks the activity of the vesicular monoamine transporter protein (VMAT). Through this model, it is possible to understand changes in various neurotransmission pathways (dopaminergic, serotonergic, noradrenergic), motor progression, non-motor changes, the temporal course of the inflammatory process in areas involved with PD symptomatology, in addition to the retrograde degeneration process in dopaminergic and serotonergic pathways. The application of the chronic reserpine-induced PD model is also highlighted in the study of new compounds with

antioxidant, anti-inflammatory, neuroprotective, and antiparkinsonian action. Studies with the progressive model of PD induced by reserpine have grown in recent years, gaining prominence in the international literature and contributing to the expansion of knowledge about the progressive nature of the disease. Financial Support: CNPq; CAPES

Experimental models of pain and nociception: new approaches in the study of pain in rodents and humans (Modelos experimentais de dor e nocicepção: novas abordagens nos estudos da dor em roedores e em humanos). Cristiane Flora Villarreal. Faculdade de Farmácia, Universidade Federal da Bahia

Clinical pain management is a therapeutic challenge due to the high and growing worldwide prevalence of chronic pain, associated with low efficacy and adverse effects of available analgesics. Although animal models are necessary tools for the development of new drugs, the enormous advances in scientific knowledge obtained with these models have not led to the development of truly new, effective and safe analgesics for clinical practice. This low translational power in the field of pain may reflect the complexity of the pain phenomenon, but also the need for a change in the experimental paradigm, with the incorporation of tests that are more similar to clinical pain states and measures beyond withdrawal reflexes. Despite differences in the clinical manifestations of pain syndromes, most current experimental models only cover simple measures of reflexes, and the absence, rather than the presence, of behaviors as evidence of analgesic efficacy. The unsatisfactory translational success of these models has pointed to the need for new approaches that focus on functional restoration and integrated behaviors in the central nervous system during painful conditions. Another increasingly debated topic is the need to develop more studies on human pain. This demand must overcome obstacles such as ethical aspects, in addition to the subjectivity and variability of the painful experience. In order to obtain more objective measures, tools and protocols for quantitative measurement of sensitivity and pain have been developed and used in clinical studies. Given this scenario, this course is aimed at discussing advances in experimental models in the field of pain and nociception. New measurement tools and approaches to pain studies will be presented, both in rodent models and in human pain.

Cr2 – **Adrenal Gland Steroids in Health and Disease** (Esteroides da Glândula Adrenal na Saúde e na Doença). Maria Christina W. Avellar (Unifesp-EPM)

The course aims to present updated data on steroidogenesis in the adrenal gland, emphasizing the intermediate/precursor hormones formed in the adrenal itself or, at a distance, in peripheral and central tissues, in humans and other species of relevance in research and clinical, medical and clinical practice. veterinary. The relationships of these events in health and disease will be addressed based on the combination of data and the most recent examples of basic and clinical research in the area and therapeutic applications.

Cr3 – **Playfulness in the Classroom: a Case of Gamification for Teaching Pharmacology** (O Império do Lúdico na Sala de Aula: um Case de Gamificação para o Ensino da Farmacologia). Francislaine Aparecida dos Reis Lívero. Departamento de Farmacologia – Universidade Federal do Paraná

In the modern educational landscape, the role of traditional teachers as information transmitters has transformed into that of organizers and partners in student learning. Both teachers and students play an equally active role in the learning process, and active learning strategies encompass a variety of collaborative activities in the classroom. However, motivation can pose a challenge for students, particularly when they fail to find the purpose in an activity. In this regard, gamification can render the teaching and learning process more active and participatory. Over the past years, there has been a growing interest in the application of gamification in education, which, though still in emergent stages, can be defined as the application of game design elements to learning activities. Its aim is to motivate students by creating an engaging learning experience that keeps them focused on the task of learning and its application. Nevertheless, gamification presents a significant challenge for education,

especially in higher education institutions entrenched in a traditional context. This challenge can be partly attributed to the lack of training among educators in utilizing this methodology. Thus, the objective of this course is to introduce and discuss gamified strategies for pharmacology teaching in order to promote meaningful learning among scholars. Fifteen gamification strategies will be presented, including the optimal timing within a lesson for each activity, how to execute them, as well as the advantages and challenges associated with each game. The aim is to provide participants with teaching strategies that facilitate meaningful learning for students, enhance their engagement, and make classes more enjoyable. (CNPq. processo nº. 150258/2023-2)

Lectures

L2 – **Interpretable Machine Learning Approaches for Drug Repurposing and Side Effect Prediction**. Alberto Paccanaro (FGV)

A cell can be viewed as a set of complex networks of interacting biomolecules. In this talk, I will present novel machine learning algorithms for solving problems that can be phrased in terms of inference in such large-scale networks. I will begin by presenting a new approach that combines ideas from matrix factorization and network medicine to predict host centric antivirals. Our predictions have higher accuracy than state-of-the-art methods; our approach does not rely on known drug-virus associations and could be applied to new diseases and drugs. I will then present a machine learning approach for the prediction of drug side effects. This algorithm, which is based on matrix factorization, is the first that can predict the frequency of drug side effects in the population. The main idea behind all these algorithms is to find embeddings for the different entities involved (drugs, side effects, viruses, and proteins) in a low dimensional space – we discover representations for them that make explicit some of their features that are relevant for the problem. I will show that these representations can be interpreted, thus leading to explanations for the predictions that may shed some light on the biological phenomena underlying these problems.

L3 – **Neuroimmune Interactions and Arthritis Pain in Neurodegenerative Conditions**. Marzia Malcangio Wolfson CARD, King's College London, London UK

A significant proportion of patients with neurodegenerative diseases are affected by alteration of pain sensation. Alzheimer's disease (AD) patients have a compromised ability to report pain and untreated pain contributes to psychiatric symptoms of dementia. Neuronal degeneration provokes an intense reaction by microglia which, depending on their phenotypes of activation, may give rise to pain. I will discuss how inflammatory arthritis affects spinal cord microglial activity and how neuron-microglia communication is altered in the TASTPM transgenic mouse model of AD. Our evidence shows that 6 months old TASTPM display cognitive impairment, brain amyloid pathology and reduced thermal sensitivity compared to WT controls, which is in accordance with the observation that AD patients exhibit reduced pain intensity compared to cognitive-intact individuals. Under conditions of persistent inflammatory pain, spinal microglial activity plays a mechanistic role in central sensitisation, as attenuation of microglial activation correlates with reduced pain-like behaviours. I will show that in persistent inflammatory arthritis, the release of galectin-3 from primary afferent terminals in the dorsal horn mediates inflammatory allodynia via interaction with Toll like receptor 4 (TLR4) in microglia. However, this neuron-to-microglia communication pathway is defective in TASTPM mice that display reduced inflammatory allodynia and reduced spinal cord microgliosis. Indeed, a cluster of TASTPM microglia lacks expression of TLR4 and cannot respond to Gal-3 which is expressed and released by primary afferent fibres in the dorsal horn. Thus, we identified a mechanism through which nociceptors respond to joint inflammation and establish nociception through the activation of microglia. Sensory neuron-derived Gal-3 activates microglial TLR4, and promotes nociceptive signalling via the release of cytokines in the dorsal horn. Intriguingly, in the spinal cords of the TASTPM mouse model of AD, the emergence of a subset of microglia devoid of TLR4 is associated with milder inflammatory nociception. Supported by EU Horizon 2020

research and innovation programme “TOBeATPAIN” under the Marie Skłodowska-Curie grant agreement No 764860

L4 – **Novel Roles for GRK2 in the Failing Heart**. Walter J. Koch, PhD Duke University Medical Center Department of Surgery

Over the last 3 decades, my laboratory has been investigating the role of cardiovascular G protein-coupled receptor (GPCR) kinases (GRKs) in several in vivo model systems. Original studies were done in transgenic mice where GRK-based transgenes were targeted specifically to the heart. We have found that one GRK, GRK2, plays a significant role in the development of pathological cardiovascular conditions including heart failure (HF). GRK2 has been found to be elevated in the heart when it has compromised contractile function and these changes appear to be maladaptive and pathological and targeted inhibition of GRK2 is therapeutic in certain cardiovascular disorders. Indeed, cardiac expression of a GRK2 inhibitor, known as the bARKct, has rescued several animal models of HF including large animal pre-clinical models. More recently, we have found GRK2 to have non-GPCR actions in the myocyte due including effects on insulin signaling and other metabolic effects including those in mitochondria. It also can localize in mitochondria agfter oxidative stress where it can induce cell death. We have recently identified the mitochondrial F1 ATP synthase as a novel binding partner and substrate for GRK2 in the myocyte and heart and exploring its physiological and pathological significance. Thus, we have identified GRK2 as critical regulator of cardiovascular signaling, metabolism, myocyte survival and function, which have wide implications for future research in order to elucidate novel roles for this GRK in cardiac physiology and disease. In addition to using the bARKct, we are developing small molecule inhibitors of GRK2 and the latest data with these pharmacological agents will be presented. Overall, we have found GRK2 up-regulation in the stressed and injured heart to be pathological and its inhibition for the treatment of HF is nearing translation. These studies were supported by multiple grants from the National Institutes of Health (NIH) since 1998 and funding from the American Heart Association (AHA). Dr. Koch holds a MERIT Award from the AHA. Key Reference: 1. Pfleger J, Gresham K, Koch WJ: G protein-coupled receptor kinases as therapeutic targets in the heart. Nat Rev Cardiol 16:612-622, 2019.

L5 – **How Inflammatory are Inflammatory Chemokines in Patients**? Laboratory of Molecular Immunology, Rega Institute, KU Leuven, Herestraat 49, box 1042, 3000 Leuven, Belgium

Chemokines are crucial proteins for the control of leukocyte migration through interaction with G protein-coupled chemokine receptors (GPCR) and glycosaminoglycans (GAG) during homeostatic and inflammatory processes and affect cancer growth and metastasis. The about 50 chemokine ligands that activate over 25 GPCR are divided in inflammatory and homeostatic chemokines. During recent years, posttranslational modification (PTM) of mainly inflammatory chemokines, has been associated with altered activity ranging from enhanced potency to loss of function, antagonistic effects or even altered GPCR specificity. PTMs on chemokines involve proteolytic truncation, nitration, citrullination and glycosylation and the receptors may be modified and regulated by tyrosine sulfation and glycosylation. In view of the interaction of the N-terminus of chemokines with GPCR, mainly N-terminal PTM were intensively studied. However, we recently showed that also C-terminal PTM of CXCL10 significantly affects its receptor and GAG interactions and biological activities in vitro and in vivo. Since classical immunoassays that use chemokine-specific antibodies fail to discriminate between chemokine proteoforms and glycoforms, detection of chemokines in patient samples gives limited information on the activity of the detected proteins. Thus, alternative methods are needed to discriminate between active, inactive and antagonistic chemokines. By immunoaffinity pre-purification followed by optimization of top-down ion trap mass spectrometry, we develop novel methods to quantify individual proteoforms of inflammatory chemokines in plasma, synovial fluids and bronchoalveolar washes. Clear differences in proteoform presence of CXCL8, CXCL10 and CXCL12 were discovered in arthritis, lung transplant and pneumonia patients. Funding was

provided through research fellowships and grants from the Rega Foundation, KU Leuven, FWO Vlaanderen and the European Union.

L7 – **Resolution Pharmacology to Control the Morbidity of Chronic Diseases**. Mauro Perretti, Jianmin Chen, Andreas Margraf, Lucy V Norling and Dianne Cooper The William Harvey Research Institute, Queen Mary University of London, United Kingdom

The resolution of inflammation identifies an area of biology which has been elucidated over the last twenty years or so, whereby mediators and mechanisms are activated in our body to ensure time- and spatial-control of the inflammatory reaction, which then will terminate, or resolve. Appreciation that acute inflammation resolves spontaneously brings two immediate implications: i) pathology characterised by persistent inflammation could be consequent of an inadequate engagement of pro-resolution pathways and ii) current pharmacological therapies targeting inflammation have not exploited the biology of the resolution phase to inform innovative drug discovery programs. Thus, resolution pharmacology brings together approaches that could be deployed to promote pro-resolving mechanisms to correct, temper or mitigate on-going inflammation. To this end, a viable approach is to use agonists which activate pro-resolving receptors, setting in motion reparative processes within the patient. Equally pivotal is to define the best application for pro-resolving based therapies. One use could be to substitute current therapies, offering an alternative therapeutic approach. Another way is to complement current therapies when, for instance, there could be risk of immunosuppression associated with prolonged use. Pro-resolving based therapies are predicted to modulate the immune system, if not to fortify it, without causing immunosuppression. A third way is to harness resolution pharmacology to prevent or treat secondary organ injury typical of chronic conditions like arthritis, diabetes or obesity. Patients affected from rheumatoid arthritis have double the risk for cardiovascular diseases, including heart failure [*Lancet 2022; 400: 733–43*], and reduced lung function. In a transgenic model of K/BxN F1 mice, we could detect onset of heart failure with preserved ejection fraction, accompanied by diastolic dysfunction, after full blown arthritis, that is from week 4 or 5 of age, with maximal heart defect between week 12 and 15 [*PNAS 2021; 118(38):e2020385118*]. Our focus was the annexin A1 (AnxA1)/formyl-peptide receptor type 2 (FPR2) pathway. The cardiac diastolic dysfunction, monitored by echocardiography, was associated with immune cell infiltration as well as fibroblast proliferation. As the hearts of K/BxN F1 mice displayed augmented expression of Fpr2 mRNA, we treated mice prophylactically (from week 4 to week 8) or therapeutically (week 8 to week 15) with human recombinant AnxA1 (1 µg s.c. daily): the cardiomyopathy was halted or reversed, respectively. Cardiac protection was associated with reduced fibroblast numbers, reduced fibroblast activation and macrophage skewing towards an M2-like polarization. To address both heart and lung dysfunction in inflammatory arthritis, a novel model was developed (unpublished). In this case, pharmacological treatment was performed with small molecules: BMS235 (selective for Fpr2) and C43 (dual Fpr1/Fpr2 agonist). This experimental design allowed us to address one important question in the field, whether selective Fpr2 agonism would bring added value in resolution pharmacology as compared to the most commonly available dual Fpr1/Fpr2 agonist. Published work indicates that experimental myocardial infarction there is no gain for a selective compound [*J Am Coll Cardiol Basic Trans Science. 2021;6(8):676– 689*]. These new data will be discussed in the context of therapeutic innovation that resolution pharmacology can afford. In summary, time is ready to harness the knowledge generated in the biology of the resolution of inflammation to guide the development of novel medicines to treat the inflammatory component of chronic diseases.

L8 – **The Allergic Effector Unit and the Mast Cells as Masterminds from Inflammation to its Resolution. Have we found New Druggable Targets**? Prof. Francesca Levi-Schaffer, Pharmacology and Experimental Therapeutics Unit, Institute for Drug Research, School of Pharmacy, Faculty of Medicine, The Hebrew University of Jerusalem

The pivotal effector cells of allergic inflammation (AI) are the mast cells and the eosinophils. Mast cells, as activated by IgE-dependent mechanisms via allergens, are the recognized starters

while eosinophils infiltration and persistence in the inflamed tissue with the mast cells are the accepted features of the late stage and of the chronic outcome of allergy. Asthma and other allergic diseases' management recently has benefited from the biological revolution, with an array of novel immunomodulatory therapeutic and investigational tools targeting different players of AI at precise pathophysiological steps. Prominent examples include therapeutic monoclonal antibodies against cytokines, alarmins, and their receptors and small-molecule modifiers of signal transduction mainly mediated by Janus kinases and Bruton's tyrosine kinases. However, and despite the new therapeutic options, meaningful improvements for allergic patients are not always achieved. For instance, approximately 30% of patients with severe asthma do not respond satisfactorily to classic medications nor to tailored biologics. In the past we defined a pro-inflammatory cross-talk between mast cells and eosinophils that we named the Allergic Effector Unit (AEU). We found that mast cell/eosinophil interactions result in increased eosinophils chemotaxis, survival, degranulation, cytokine production and in increased mast cell survival, IgE-dependent and independent degranulation and cytokine production. These effects are mediated by both released mediators (soluble interactions) and by receptor/ligands binding (physical interactions). Prominent players of the activating "physical" AEU are the two activating receptors (ARs)/ligands CD48 and 2B4. Yet, at the same time we also described the presence and functional activity of two inhibitory receptors (IRs), i.e., CD300a and Siglec-7, on mast cells and on eosinophils that can indicate a possible anti-inflammatory or even pro-resolution activity of the cross-talking cells, within the AEU and in the allergic inflamed environment. Moreover, we recently found that IgE-activated mast cells produce the pro-resolving lipid mediator resolving D1 and should have resolution activities in allergy. The goal of our research is to define potential new and better targets for immunopharmacological intervention in allergic diseases by blocking ARs, i.e., CD48, by activating IRs, i.e., CD300a and Siglec-7, and by inducing a pro-resolution phenotype in mast cells. In the frame of the first strategy, we found that the GPI receptor CD48 is significantly upregulated on human and murine asthma on mast cells and eosinophils and in the presence of *S. aureus*, the prominent bacteria infecting atopic tissues. We have therefore studied CD48 modulation *in vitro* and *in vivo* and the outcome of its blockade and found that CD48 can be a key target to be blocked in allergic diseases. On the other hand, as an example of the second strategy, we have found that CD300a expression is modulated during allergic responses, and that its activation on mast cells by bispecifc antibodies directed to CD300a and IgE can downregulate their severity. Therefore, agonistic and mast cell targeted anti-CD300a antibodies are an important tool for treatment of allergic diseases. Lastly, we found that mast cell can produce the pro-resolving lipid mediator Resolvin D1 and hence have the potential of not only initiating allergy but also resolving it. Thus, our strategy is to treat allergic diseases by inhibiting activation and/or by activating inhibition mostly of mast cells and the AEU, and by bolstering the pro-resolution properties of the mast cells. Translationally this strategy will have to take into account the complexity of allergic patient endotypes. This research has been funded by grants from the United States-Israel Binational Science Foundation (2015045), Israel Science Foundation (343/22), Rosetrees Trust (UK), Aimwell Charitable Trust Foundation (UK), Emalie Gutterman Memorial Endowment Fund (USA).

Women in Pharmacology in Brazil Award

An Academic Career guided by Shock and Lipids.

Regina de Sordi, UFSC

I have dedicated my research mainly studying lipid mediators in systemic inflammation associated with septic shock (SS) and hemorrhagic shock (HS). SS may occur after an infection and the HS is due to severe hemorrhage. Both types of shocks are associated with organ injury and dysfunction, poor prognostic, and high mortality rate. No specific treatment to prevent organ injury is available; therefore, a better understanding of the physiopathology and new treatment strategies are needed. In this context, we evaluated pro-resolving lipid mediators in shock. Lipoxins and resolvins are released during systemic inflammation and play

counterregulatory roles to promote inflammation resolution. Lipoxins are formed from arachidonic acid (AA) exerting bioactivities via their receptors FPR2/ALX. In sepsis, we showed an initial increase of lipoxin A4 (LXA4) and FPR2/ALX, which was associated with bacteria spreading and poor outcome. On the other hand, LXA4 administered in late sepsis was beneficial to the host as it controls the excessive inflammatory response and protected septic mice from death. Therefore, LXA4 exhibited a dual role in a sepsis model. In trauma/HS, we found a reduction of resolvin D1 (RvD1) levels in the plasma of patients. Using a reverse-translational approach, we have investigated the effects of RvD1 on the organ injury and dysfunction associated with HS in rats. We found that synthetic RvD1 on resuscitation attenuated the multiple organ failure associated with HS by a mechanism that involves inhibition of NF-κB. More recently, we have turned our attention to the lipid mediators from the endocannabinoid system. AA is also a precursor of the endocannabinoids, which are ligands of CB1 and CB2 receptors. CB2 receptors are mainly expressed in immune cells, and we detected a reduction of CB2 in lungs and macrophages of septic animals in late sepsis, suggesting a dysregulation of this system during systemic inflammation. A CB2 agonist reduced local and systemic inflammation, increased survival rate and the levels of IL-10 in septic animals, suggesting that receptors may also have a pro-resolution role. In summary, lipid mediators have an important role in systemic inflammation and are promising targets to reduce organ damage associated with septic and hemorrhagic shocks. Support: CAPES, CNPq

Symposia

S1 – Novel Endothelial-Derived Catecholamines

Synthesis, pKa Determination and Redox Properties of Catecholamine Derivatives. Larryn W. Peterson[1], Valerie E. Williams[1], Emma G. Gruss[1], Gisela Xhafkollari[1], Gabriella A. Krisanic[1], Mary Kathleen Luetkemeier[1], Trevor R. Squires[1], Kameron L. Klugh[1], Kudzai L. Nyamkondiwa[1], Keri L. Colabroy[2] [1]Department of Chemistry, Rhodes College, Memphis, TN 38112, USA; [2]Department of Chemistry, Muhlenberg College, Allentown, PA 18104, USA

Dopamine and related catechols are ubiquitous molecules in both the human body and in other organisms, found as neurotransmitters, precursors to antibiotics, marine adhesives and plant woody tissue. Dopamine levels in the body are delicately balanced by a number of enzymes, receptors and transporters and imbalances often result in diseases and other disorders. We previously reported the synthesis of dopamine derivatives substituted at the 6-position with various electron-donating or withdrawing substituents and the effect of the substituents on some of their physical properties. Recently, we have recently expanded the series to include 3,4-dihydroxyhydrocinnamic acid and L-DOPA derivatives. The synthesis of this important toolkit of compounds and trends in their physical properties will be discussed.

Synthesis and chiral resolution of 4-nitro and 7-nitropropranolol and preparation of other nitrated or halogenated dopamine congeners. Francesco Frecentese[1], Rosa Sparaco[1], Angela Corvino[1], Ferdinando Fiorino[1], Elisa Magli[1], Elisa Perissutti[1], Beatrice Severino[1], Vincenzo Santagada[1], Gilberto De Nucci[2], Giuseppe Caliendo[1] [1]Department of Pharmacy, School of Medicine, University of Naples Federico II, Via D. Montesano 49, 80131, Naples, Italy; [2]Department of Pharmacology, Faculty of Medical Sciences, State University of Campinas (UNICAMP), Campinas 13083-970, SP, Brazil

Nitrate derivatives of catecholamines are attracting the attention of numerous research groups to define their physio-pathological functions. In particular, 6-nitrodopamine and other nitro-catecholamines (i.e. 6-nitrodopa, 6-nitroadrenaline) have been identified indicating that endogenous nitration of the classical catecholamines occurs. To investigate whether drugs could undergo to the same nitration process, we synthesized 4-nitro- and 7-nitropropranolol as probes to evaluate the possible nitration of the propranolol. Chemical synthesis, chiral resolution and enantiomers absolute configuration, with the aim of evaluating the possible enantioselectivity of the receptor interactions involved, have been studied and will be discussed. The separation of the enantiomers in very high yields and excellent enantiopurity was achieved

by chiral HPLC. Finally, we used Riguera's method to determine the absolute configuration of the enantiomers, through double derivatization with MPA and NMR studies based on the sign distribution of $\Delta\delta_H$. Recently we have expanded our studies to the preparation of nitrated or halogenated catecholic and non-catecholic compounds, such as veratrol derivatives.

Production/release of 6-nitrodopamine by human umbilical cord artery in vitro: NO oxidative clues? Marcelo N. Muscará Dept. of Pharmacology – Institute of Biomedical Sciences / University of São Paulo. São Paulo, SP, Brazil.

The spontaneous release of dopamine and some 6-substituted dopamine derivatives (including 6-nitro dopamine – 6-ND) has been observed from vascular tissues such as human umbilical artery (HUA) and aorta from reptiles (tortoise and snakes) or non-human primates, as well as non-vascular tissues, such as rat atria and ventricles and human ductus deferens. Under nitric oxide (NO) synthase (NOS) inhibition, 6-ND synthesis/release is significantly reduced, although not abolished, thus indicating the existence of a NOS-independent biosynthetic pathway for this nitration reaction. One possible NOS-independent pathway for dopamine nitration could involve the chemical reduction of the endogenous anions nitrite (NO_2^-) and/or nitrate (NO_3^-), since these NO oxidation products may act as reservoir. In fact, enzymes such as hemoglobin, myoglobin, xanthine oxidoreductase and cytochrome P450 reductase, can catalyze NO_2^- or NO_3^- reduction to render NO. Furthermore, peroxidases can catalyze one- and two-electron oxidation reactions of small anionic molecules, such as halides, thiocyanate and nitrite utilizing hydrogen peroxide. Depending on the conditions (e.g., O_2 contents, pH), NO_2^- can undergo both oxidation and reduction, thus generating different nitrogen oxides (such as NO, $NO_2^{\cdot}$, N_2O_3, etc.) which can also mediate catecholamine nitration. It is thus clear that the precise knowledge of the involved species and mechanisms beyond 6-ND synthesis/release is of central importance in order to allow the pharmacological modulation of this dopamine derivative effects. Financial support: FAPESP, CNPq, CAPES.

S2 – Energy Transfer-Based Technologies (BRET, HTRF) to Characterize Receptor Function

Energy Transfer-based technologies (BRET, TR-FRET) to identify new therapeutic targets. Erika Cecon. Institut Cochin-Université Paris-Cité, CNRS, INSERM; Paris, France

Ligand-receptor and protein-protein interactions are involved in many (if not all) cellular processes that are essential for a functional system. Identifying and assessing the dynamics of these interactions are essential steps to understand the molecular basis of physiological versus pathological conditions, as well as to disclose potential drug targets. We have recently developed and applied several cutting-edge innovative assays based on energy transfer technologies, such as Bioluminescence Resonance Energy Transfer (BRET) and TR-FRET (Time-Resolved Fluorescence Resonance Energy Transfer), or on enzyme complementation techniques, mainly of the Nanoluciferase (Nluc) enzyme, to disclose new molecular mechanisms or therapeutic targets in human diseases. In the context of COVID-19, we developed a HTRF-based assay to characterize the binding of the SARS-CoV-2 virus spike protein to the ACE2 host receptor in living cells, as well as to identify inhibitors of this interaction. In the field of Alzheimer's diseases (AD), we are currently applying new BRET, HTRF and Nluc complementation assays to unveil new molecular (and therapeutic) targets of AD-related pathological proteins: amyloid beta (Aß) peptide and tau protein. This approach allowed us to reveal a negative allosteric modulator behavior of Aß on the leptin receptor, which is a main player on the regulation of metabolism and energy homeostasis. Finally, additional applications of these assays are currently being explored to better characterize the prodromal phase of AD. Financial support: France-Alzheimer Association; Philippe Chatrier Fondation; IDEX Université Paris Cité; CNRS; INSERM.

Pharmacological profiling of GPCR variants in metabolic diseases. Ralf Jockers, Institut Cochin-Université Paris-Cité, CNRS, INSERM; Paris, France

G protein-coupled receptors (GPCRs) are major drug targets. Whole genome sequencing studies have revealed significant interindividual variability in the sequence of genes encoding GPCRs.

Depending on the frequency, these variants can be common or rare. Some of the variants show no apparent impact on receptor function, others modify the level of receptor expression or the functional properties of GPCRs leading to changes in the response of variant carriers to the natural ligand (hormone, neurotransmitter, etc.) or to drugs. Metabolic diseases such as type 2 diabetes and obesity are two major public health concerns with an environmental and a genetic component. Genome-wide association studies (GWAS) and exon sequencing revealed common and rare GPCR gene variants contributing to the risk of metabolic diseases. The presentation will show the path from the identification of GPCR gene variants to the multi-dimensional functional characterization of the GPCR variants to genetic association studies with metabolic traits. Examples presented include melatonin receptors and glucagon-like peptide 1 (GLP1) receptors. Based on the results new life-style and pharmacological treatment options can be proposed to variant carriers. Financial support: This work was supported by the Fondation de la Recherche Médicale (Equipe FRM DEQ20130326503), Agence Nationale de la Recherche (ANR-2011-BSV1-012-01 "MLT2D", ANR-2011-META "MELA-BETES, ANR-21-CE18-0023 "alloGLP1R"), Institut National de la Santé et de la Recherche Médicale (INSERM), Centre National de la Recherche Scientifique (CNRS).

Investigating the Physiology of Putative Malarial 7-Transmembrane Proteins in HEK293 Cells. Maneesh K. Singh[1], Barbara Diaz[1], Maneesh K. Singh[1] Erika Cecon[2], Ralf Jockers[2] Célia R. S. Garcia[1] [1]Department of Clinical and Toxicological Analyses - School of Pharmaceutical Sciences. University of São Paulo, São Paulo, SP, 05508-090, Brazil. [2]Université Paris Cité, Institut Cochin, INSERM, CNRS, F-75014, PARIS, France

Introduction: Malaria parasites cause more than 400 thousand deaths and approximately 500 million new infections yearly. Structural divergence of malarial proteins is critical to developing new antimalarials without affecting the host physiology. Despite pharmacological evidence, several canonical proteins of classical signaling pathways, including melatonin/IP3/Ca^{2+} are still not characterized because many *Plasmodium* proteins have no homology to known proteins. We have shown that melatonin and Ca^{2+} are vital for parasite asexual development[1]. More importantly, melatonin binds to the 7-transmembrane (7TM) protein family comprising G protein-coupled receptors (GPCR) in vertebrates[2], but no such homologs have been identified in *Plasmodium* parasites. In a genome-wide search, we identified four 7-TM proteins: PfSR1, PfSR10, PfSR12 and PfSR25 in the *Plasmodium falciparum*[3]. However, heterotrimeric G-proteins or arrestins are still not identified in the Plasmodium species. We then explored the function of PfSR1 and PfSR10 in the heterologous expression systems to investigate GPCR-like physiology. We constructed several Bioluminescent Resonance Energy Transfers (BRET) based biosensors tagged to the N-terminus or C-terminus of both PfSR1 and PfSR10. Methods: Human Embryonic Kidney 293T (HEK293T) cells were cultivated in flasks with Dulbecco's Modified Eagle Media (DMEM) supplemented with 10% Fetal Bovine Serum (FBS) and 100 units/mL penicillin and 100 µg/mL streptomycin. The flasks were kept at 37°C/5% CO_2 incubator. Codon-optimized PfSR1 and PfSR10 fused to either N-ter HiBiT and SNAP or to C-ter SmBiT, HiBiT, Nluc, and YFP containing plasmids was transfected using branched polyethylenimine (PEI, Millipore-Sigma) in a proportion of 3 µg per 1 µg of DNA directly in culture media. Cells were incubated for 48 hours at 37ºC before luminescence or BRET experiments were performed. Results: Direct immunofluorescent assays with the SNAP-tagged constructs indicate that both SR1 and SR10 express on the surface of parasites. Nanoluciferase complementation experiments with N-termini HiBiT tagged PfSR1 and PfSR10 show that both genes express differentially in HEK293T cells and more than 5% of total expression translocated to the cell membrane with the N-termini facing the extracellular milieu. Surprisingly, we found that SR10 facilitates the surface expression of SR1. Experiments with both N- and C-termini BRET sensors strongly indicate that PfSR10 forms a homomer. Our preliminary data show promising results in modifying secondary messengers in HEK293 cells and screening more ligands, including melatonin, are underway. Conclusion: We successfully developed several BRET-based biosensors and expressed both genes in the mammalian system. Our investigation is a step toward

unraveling the signaling mechanism mediated by SR1 and SR10. References: 1. Hotta C, Nat Cell Biol, Vol 2, 2000, 2. Cecon E, Brit J Pharmacol, 175 3263–3280, 2018, 3. Madeira L, PLoS One, Volume 3 | Issue 3 | e1889, 2008 Acknowledgments: FAPESP, CAPES, INSERM, CNRS

S3 – Novel Technologies Fostering Innovative Drug Discovery

Putting the dynamics into compound profiling: using kinetic assays to shape early stage drug Discovery. Dr Nick Holliday[1,2] [1]Associate Professor, School of Life Sciences University of Nottingham, The Medical School QMC, Nottingham NG7 2UH [2]Chief Scientific Officer, Excellerate Bioscience, Biocity, Nottingham, NG1 1GF

Drug action often occurs within a highly dynamic context *in vivo*. The concentration of the drug in the vicinity of the target continually changes based on its pharmacokinetic properties, it may be in competition for the target protein with rapidly fluctuating levels of receptor messengers or enzyme substrates, and for receptor agonists the therapeutic effect itself may depend on a particular pattern of downstream cellular signalling over time. Under such circumstances, measurement of binding rate constants defining the kinetics of drug-target interaction can be valuable in selecting desired functional properties. The benefits of optimising on and off rates during early-stage compound profiling will be briefly reviewed, including duration of action and generation of kinetic selectivity, together with emergence of non-surmountable properties for slowly reversible inhibitor and antagonist effects even in the presence of high concentrations of substrate or stimulating messenger. In practical terms, application of resonance energy transfer technologies, such as TR-FRET, in combination with fluorescent ligands is a powerful approach to generate real time assay formats to assess the kinetics of binding both for isolated recombinant proteins, and receptors in a native membrane or cellular context. Successful screening assay development for such approaches will be discussed with reference to case studies for G protein coupled receptor orthosteric and allosteric ligand binding sites, and recombinant purified enzyme targets. Finally, the extension of TR-FRET kinetic binding methodology to probe ligand behaviour at defined receptor signalling complexes will be explored. Academic funding at the University of Nottingham is acknowledged from the Medical Research Council, and studentships from the UK BBSRC, and British Pharmacological Society.

Targeting Relevant Cancer Proteins with Marine Natural Products. Leticia V. Costa-Lotufo and collaborators Departamento de Farmacologia, Instituto de Ciências Biomédicas, Universidade de São Paulo.

Target-oriented screening strategies have been gaining reputation especially in the search of new anticancer drugs, where more selective medications and new therapeutic strategies are required to improve efficacy and reduce tumor resistance. Our research group has been focused on the screening of marine natural products with anticancer potential from the Brazilian biodiversity applying a reverse affinity procedure as a tool to guide the isolation of target-specific anticancer substances. Following the identification of the hit, we use an extensive experimental approach to validate the biology of the new hit. Up to now we obtained interesting results using different targets: inhibitory apoptosis proteins (survivin and XIAP), the transcription factor TBX2, the proteasome and dermcidin. In this presentation, we will discuss examples of marine natural products that modulate these targets contributing to overcome chemoresistance in melanoma models. Financial support: FAPESP (2015/17177-6 and 2014/50926-0), CNPQ (443281/2019-0; 404518/2021-4; 440472/2022-9) and CAPES (Financial code 01).

Natural product drug discovery at LNBIO-CNPEM. Daniela B B Trivella. Brazilian Center for Research in Energy and Materials (CNPEM), Campinas-SP, Brazil

Natural products (NP) provide new chemical scaffolds for drug discovery and can probe novel enzyme binding sites and inhibition mechanisms. However, the identification of bioactive natural products and their enzyme binding mechanisms is challenging, sample and time-consuming. We have developed an integrated approach to overcome these gaps, based on high throughput screening, high throughput X-ray protein crystallography, massive mass spectrometry analyses

and customized software. This approach is named the NP^3 platform. The NP^3 platform starts with the HT screening of pre-fractionated NP libraries, finding bioactive NP samples, which represent mixtures of unknown natural substances. These active samples are then subjected to HT protein crystallography, aiming to capture the bioactive NPs using the crystal itself as the bait. This is done by directly soaking the bioactive NP sample into the protein crystals, following X-ray diffraction data collection, processing and extraction of the residual electron density. The latter, in turn represents the captured NP ligand revealing the active natural product binding site, its mechanism of interaction with the protein, and providing initial clues on its chemical structure. LC-MS/MS-based metabolomics is then employed for filtering candidate *m/z* (compounds) in the unknown mixture. Two software were developed for assisting in these tasks, further accelerating new discoveries from natural products: the *NP^3 MS Workflow*, a software for mass spectrometry data treatment, bioactive NP ranking and chemical structure annotation; and the *NP^3 Blob Label*, a deep learning application for unknown ligand segmentation to ligand building in X-ray protein crystallography. The NP^3 approach proved successful even when using low resolution protein crystals and active natural products present in trace amounts in complex chemical samples. The process can be performed in miniaturized scales, in which each step is compatible with high throughput techniques. The NP^3 platform is empowering natural product drug discovery, as it will be exemplified by target-based drug discovery projects currently running in our pipeline. *Serrrapilheira Institute (Serra-1709-19681/Instituto Serrapilheira*)

Pre-clinical development of MB 905, an RNA polymerase inhibitor for the treatment of SARS-CoV-2. João B Calixto Center for Innovation and Preclinical Tests – Florianópolis, SC

In 2020, during the SARS-CoV-2 epidemic, the Center for Innovation and Pre-clinical Studies (CIEnP) in partnership with the Microbiológica Química Farmacêutica company and the Oswaldo Cruz Foundation - through the Center for the Development of Transmissible Diseases in Health, started the development of the research project with the objective of planning, synthesizing and developing non-clinical efficacy and safety studies of a new generation of nucleoside/tide analogues in the fight against COVID-19. Nucleoside and nucleotide analogues represent the most numerous classes of small molecules with direct-acting activity against either DNA or RNA viruses. They have high antiviral potency, selectivity, low toxicity, favourable pharmacokinetic parameters, a very high record of success in the final clinical stages and, mainly, the great potential as preventive and therapeutic agents to face acute viral infections, make this class of compounds a relevant choice for the development of a novel agents against the virus responsible for Covid-19. This project has been developed with great success and in a very short time. About 250 molecules were synthesized, most of which have already been tested in vitro against the SARS-CoV-2 virus and about 15 compounds inhibited the replication of the SARS-CoV2 virus with submicromolar concentration. Furthermore, pharmacokinetic studies showed that at least 12 of these molecules showed good oral bioavailability. One of the most promising compounds that was effective in inhibiting the replication of the Covid 19 virus in vivo – MB 905 - had its pre-clinical development carried out, demonstrating to be safe in acute in sub chronic toxicology studies and safety pharmacology studies, it has good stability in plasma and, most importantly, is capable of reaching high concentrations in the lung. It is an RNA polymerase inhibitor capable of inhibiting both in vitro and in vivo the SARS-CoV-2 virus. The National Health Surveillance Agency (ANVISA) recently approved the pre-clinical dossier for MB 905. The phase I clinical study is expected to be started soon. The Microbiological company synthesized about 12 kg of the Active Pharmaceutical Ingredient (API) with >99% purity degree and in accordance with the good manufacturing practices required by ANVISA and FDA. Research supported by MCTI/CNPq and Embrapii Part of these results were recently published in the *Nature Communications* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9837764/pdf/41467_2023_Article_35928.pdf) and two patents were filed in the form of PCT.

S4 – **Vascular Networks: The Vasculature as a Pathogenic Highway**

Loss of the ROR2 Tyrosine Kinase Receptor is Associated with Dysfunctional Angiogenesis in Pulmonary Arterial Hypertension via Inappropriate Focal Adhesion Activation and Disruption of the Endothelial Barrier. Ankita Mitra, Brian Zhong, Ramesh Nair, Lyong Heo, Stuti Agarwal, Alexander Dunn, and Vinicio de Jesus Perez [1]Division of Pulmonary, Allergy, and Critical Care, [2]Bioengineering, Stanford University

Rationale: Dysfunctional angiogenesis is a pathological hallmark of pulmonary arterial hypertension (PAH), but the mechanisms responsible are incompletely understood. We recently showed a vital role for the Wnt7a ligand in orchestrating angiogenesis through vascular sprouting. Wnt7a exerts its effects by interacting with ROR2, a tyrosine kinase receptor associated with Wnt pathways. We investigated how ROR2 orchestrates angiogenic responses in pulmonary microvascular endothelial cells (PMVECs) and its contribution to PAH. Methods: Healthy and PAH PMVECs and lung tissues were obtained from transplants and commercial sources. PMVECs were transfected with ROR2 siRNA/constructs, followed by functional and molecular studies. Focal adhesion (FA) activation and force generation was measured using FRET-based total internal reflection microscopy (TIRF). Mice with endothelial-specific conditional ROR2 KO (ROR2 ECKO) exposed to normoxia and hypoxia followed by phenotypic analysis. Results: ROR2 was found predominantly in the endothelium of healthy lung vessels but significantly reduced within PAH lesions. ROR2 knockdown (siROR2) reduced vascular sprouting and VEGF response comparable to PAH PMVECs. Interestingly siROR2 and ROR2-deficient PAH PMVECs also displayed increased adhesion to fibronectin and barrier permeability, which led us to check the status of focal adhesions (FA) and cell-cell junctions. Confocal and TIRF microscopy of siROR2 and ROR2-deficient PAH PMVECs revealed an increase in the FA number and force generated by individual FAs that inversely correlated with reduced VE-cadherin at cell-cell junctions. However, transfection of a ROR2 construct in PAH PMVECs resulted in the normalization of FAs activity and junctional integrity accompanied by recovery of adhesion and permeability. In animal studies, we found that, compared to controls, ROR2 ECKO developed more severe pulmonary hypertension, right ventricular remodeling, microvascular reduction, and muscularization in hypoxia, which correlated with higher levels of integrin b1 activation and reduced VE-cadherin expression. Conclusions: ROR2 promotes vessel sprouting and barrier formation, and its loss is associated with dysfunctional angiogenesis in PAH. Restoring ROR2 expression and/or activity could be a novel therapeutic strategy in PAH. Funding: NIH NHLBI

Cardiopulmonary pathogenic networks: Schisto-PAH and the lung microbiome. Suellen D. Oliveira (University of Illinois Chicago, USA)

Pulmonary arterial hypertension (PAH) is an incurable disease characterized by the hyperproliferation of vascular cells, including lung endothelial cells (ECs), which eventually form irreversible vascular lesions that collectively drive the pulmonary pressure to life-threatening levels. Although the primary cause of non-infectious PAH is not fully understood, several studies indicate it results from chronic inflammation. Curiously, infection by the intravascular parasite *Schistosoma mansoni* recapitulates key aspects of widespread inflammation that leads to PAH, providing a unique model where molecular alterations can be unraveled to develop clinical solutions for PAH. After infection, S. mansoni migrates through the cardiovascular system, reaching the mesenteric circulation, where the parasite lays its eggs. Within the mesentery, the eggs cross the intestinal wall, disturbing the gut microbiome or migrating to other organs, including the lungs, where they can lead to PAH. Our work is uncovering how disruption of the gutlung microbiome such as caused by *Schistosoma mansoni* infection contributes to the development of chronic inflammatory vascular diseases, including PAH.

Vascular Networks: The Vasculature as a Pathogenic Highway – the endothelial glycocalyx. Rita C. Tostes (USP-RP)

Female sex hormones exert a wide variety of effects outside the reproductive system, including the cardiovascular system and the vascular endothelium. Female sex hormones upregulate nitric oxide synthase expression and activity, decrease oxidative stress, increase vasodilation,

and protect from vascular injury. The glycocalyx is a layer composed of carbohydrate side chains bound to core proteins that lines the vascular endothelium. The integrity of the glycocalyx is essential for endothelial cells' performance and vascular homeostasis. The neuroendocrine and immune systems influence the composition, maintenance, activity and degradation of the endothelial glycocalyx. We will discuss how female hormones modulate the endothelial glycocalyx, initially showing the impact of COVID-19 on the glycocalyx and then looking at the effects of sex hormones on this endothelial structure. Diseases prevalent in women that alter the glycocalyx, and therapeutic forms to prevent glycocalyx degradation and potential treatments that can reconstitute its structure and function will also be mentioned.

S5 – Metabolic Host-Microbiome Interactions in the Context of Drug, Pharmacokinetics, and Toxicology Metabolism

Identifying microbiome contributions to drug metabolism and toxicity. Michael Zimmerman (European Molecular Biology Laboratory, Heidelberg, Germany)

Individuals vary widely in their drug responses, which can be dangerous and expensive due to significant treatment delays and adverse effects. Growing evidence implicates the gut microbiome in this variability; however the molecular mechanisms remain mostly unknown. Using antiviral nucleoside analogues and clonazepam as examples, we recently reported experimental and computational approaches to separate host and gut microbiota contributions to drug metabolism. The resulting pharmacokinetic models identified measurable physiological, microbial and chemical parameters that dictate host and microbiome contributions to the metabolism of xenobiotics. To systematically map the drug metabolizing capacity of the gut microbiota and assess its potential contribution to drug metabolism, we further measured the ability of >130 diverse human gut bacteria and gut microbial communities to metabolize each of 271 oral drugs. We found that two thirds of these drugs are chemically modified by at least one of the tested microbes. Through combination of high-throughput bacterial genetics with mass spectrometry, we systematically identified drug-metabolizing microbial enzymes. These proteins better explain the drug-metabolizing capacity of bacterial strains than their phylogenetic classification. We further demonstrate that the abundance of homologs of these proteins predict the capacity of complete human gut communities to metabolize the targeted drugs. These causal links between microbiota gene content and metabolic activities connect inter-individual microbiome variability to interpersonal differences in drug metabolism, which has translatable potential on medical therapy and drug development across multiple disease indications.

Deconvoluting host-gut microbiota interactions at the single cell level. Vinícius Dias Nirello[1], Nathália Vitoria Pereira Araújo[1], Mariane Font Fernandes[2], Marco Aurélio Ramirez Vinolo[2,3,4] and Patrick Varga-Weisz[1,5,6] [4]International Laboratory for Microbiome Host Epigenetics, Department of Genetics, Evolution, Microbiology, and Immunology, Institute of Biology, University of Campinas, Campinas, SP Brazil [2]Laboratory of Immunoinflammation, Department of Genetics and Evolution, Microbiology and Immunology, Institute of Biology, University of Campinas, Campinas, SP Brazil [3]Obesity and Comorbidities Research Center (OCRC), University of Campinas, Campinas, SP Brazil. [4]Experimental Medicine Research Cluster, Campinas, SP, Brazil. [5]São Paulo Excellence Chair, Department of Genetics, Evolution, Microbiology, and Immunology, Institute of Biology, University of Campinas, Campinas, SP, Brazil [6]School of Biological Sciences, University of Essex, Colchester, UK

The gut microbiome constitutes a dynamic quasi-organ that affects physiology in health and disease profoundly. It does so by generating bioactive molecules that are taken up by the host and affect the body systemically. Previously we have described how a fiber-rich diet affects the structure and function of the colon epithelium via the microbiota and specific immune cells, especially γδ T cells (Corrêa et al. Microbiome 2023). Here we employed single cell transcriptome and chromatin analysis in conjunction with microbiome-depletion to reveal the dynamic and cell-type specific responses on microbiota-depletion that affect both of the

colon epithelium. Our work illustrates how the microbiota shape gross- and microanatomy of the colon epithelium. Funding and support Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP, 2017/16280-3, 2018/15313-8 and 2020/14071-0), Funcamp, National Council for Scientific and Technological Development (CNPq), and Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brasil (CAPES) Finance Code 001, Fellowships from FAPESP (#2021/00393-9, #2020/13689-0, respectively), FAPESP São Paulo Excellence Chair special scheme (#2019/16113-5), University of Essex, NC3Rs.

Intestinal Dysbiosis is Crucial for the Exacerbation of Adrenal Glucocorticoid Steroidogenesis in Diabetic Mice. Vinicius de Frias Carvalho Research at Laboratory of Inflammation of Oswaldo Cruz Institute/ Fiocruz

Introduction: Prior investigation shows hyperactivity of the hypothalamus-pituitary-adrenal axis, in diabetic patients, which was related to some comorbidities noted in those patients, including wound-healing deficiency, neuropathy, and high risk of depression and Alzheimer's disease development. It is well known that diabetic patients showed gur dysbiosis and translocation of pathogenic bacteria to the bloodstream. This study investigates the role of gut dysbiosis on the exacerbation of adrenal glucocorticoid steroidogenesis in diabetic mice. Methods: Diabetes was induced by intravenous injection of alloxan into fasted male Swiss-webster, C3H.He, and C3H.HeJ (TLR4 mutant) mice. Antibiotic therapy (ampicillin, metronidazole, and neomycin) or TLR4 antagonist (TAK-242) were administered daily for 14 consecutive days, starting 7 days post diabetes induction. All the analyses were performed 21 days after diabetes induction. Results: We showed that diabetes-induced an increase in the expression of ACTH receptor MC2R and steroidogenic enzymes StAR and 11βHSD1, besides a rise in the content of TLR4 and TRIF in the adrenal gland, in parallel to hypercortisolism in both Swiss-webster and C3H.He mice. In addition, diabetic mice modified the relative abundances of opportunistic pathogenic bacteria in association with an increase in the inflammatory score and pro-inflammatory cytokines, including IL-17, IL-22, and TNF-α, in the colon of Swiss-webster mice. Diabetes also increased the permeability of the epithelial-intestinal barrier, attested by a high translocation of FITC dextran from the gastrointestinal tract to the bloodstream, in parallel to overexpression of LPS in the adrenal glands of Swiss-webster mice. The antibiotic therapy decreased the expression of steroid machinery, TLR4, and TRIF overexpression in the adrenal glands of diabetic mice in parallel to a reduction in hypercortisolism. Finally, treatment with TAK-242 reduced the hypercortisolism of diabetic mice, as well as C3H.HeJ after diabetes induction. Conclusion: Our results showed that activation of the LPS-TLR4-TRIF pathway, because of gut dysbiosis, is involved in the hypercortisolism observed in diabetic mice. Financial Support: Oswaldo Cruz Institute/ Fiocruz; Ministry of Health; CNPq; Faperj.

S6 – Nanotechnology and its Application in Pharmacotherapy

Nanotechnology applied in the treatment of inflammatory bowel disease. Sandra H.P. Farsky Faculty of Pharmaceutical Sciences University of São Paulo

Inflammatory bowel diseases (IBDs) disrupt the intestinal epithelium, leading to severe chronic morbidity. Current therapies cause adverse effects, are expensive and patients can be unresponsive. Hence, the research to find out novel targets and drugs are imminent in IBDs. Our and others research groups have shown the pivotal role of the protein Annexin A1 (AnxA1) on control of IBDs. Hence, we have developed nanotechnologies to deliver AnxA1 or its related peptide Ac2-26 aiming to treat IBD by oral route. In collaboration with Drs. Adriana Polhmann and Silvia Guterres, Federal University of Rio Grande do Sul, we functionalized recombinant AnxA1 on multi-wall lipid core nanocapsules (MLNC; covered with chitosan and functionalized with Zn^{2+}), which was more efficient than AnxA1 to treat dextran sulfate sodium (DSS)-induced colitis in C57BL/6 mice by i.p. route. More recently, in collaboration with research groups coordinated by Dr. Marcia Fantini, Physics Institute, University of Sao Paulo, and Dr. Marco A. Stephano, Faculty of Pharmaceutical Sciences, University of São Paulo, we developed a nanostructured mesoporous microparticle (SBA-15) system loading Ac2-26. SBA-15 is high

thermic, hydrothermal and mechanic resistant material, conferring its ability to resist pH and enzymatic actions. SBA-15-Ac2-26 was covered with EudagritÒ, a pH-responsive anionic copolymer to protect the formulation from the unwanted harms of the gastrointestinal medium. This formulation was efficient to treat DSS-induced colitis in mice by oral route, unveilling a simple and cheap microparticle to deliver the Ac2-26 into inflamed gut by oral route. Financial Support. Fapesp Grants 2017/17844-8, 2019/07007-7, 2022/11602-0; Marcia Fantini, Adriana Polhman, Sandra Farsky are CNPq Research Fellows.

Gold nanoparticles-based therapy for chronic lung inflammatory diseases. Patrícia Machado Rodrigues e Silva – Laboratory of Inflammation – Oswaldo Cruz Institute/FIOCRUZ, Rio de Janeiro - RJ, Brazil.

Chronic lung disorders are an important aspect of clinical medicine, affecting millions of people globally, being one leading cause of death and disability worldwide. Despite the recognized advances in the currently available therapy, there are still diseases refractory to standard treatments, such as pneumoconiosis. Evidence exists that gold nanoparticles (AuNPs) have a marked anti-inflammatory activity, turning them into a potential therapeutic option. Testing the effect of aerosolized AuNPs on the late phase of experimental silicosis in mice, we showed the inhibition of lung function decrease and airways hyper-reactivity. Alterations in the lung tissue morphology were noted under the condition of AuNP therapy, including changes in the granuloma pattern (disruption and disorganization) and adjacent mononuclear cells and granulocytes being detected. An enlargement of the alveolar spaces and the presence of cellular plugs inside the bronchioles were also detected, supporting the idea that AuNPs improve functionality and the clearance of inflammatory cells in the silicotic lungs. Inhibition by AuNPs of lung inflammation and fibrosis lasted at least 15 days after the last aerosolization. By transmission electron microscopy, osmiophilic black particles were noted in the lungs. No changes in body weight as well as in cellular and biochemical blood parameters were detected after AuNPs, including the absence of liver and ~~of~~ kidney toxicity. Negligible amounts of AuNPs were detected in the other tissues. Collectively, our findings show that therapeutic treatment with AuNPs can reverse important pathological features triggered by inhalation of silica particles, including restoration of lung function, thus suggesting that AuNPs might be a promising strategy as an innovative anti-fibrotic approach for the treatment of silicosis. Financial support: FIOCRUZ, FAPERJ, CNPQ and CAPES.

S7 – Advances in Cancer Research and Therapeutics: Exploiting the Tumor Microenvironment and Chemistry-based Drug Delivery

Mature Tertiary Lymphoid Structures are Key Niches of Tumor-Specific Immune Responses in Pancreatic Ductal Adenocarcinomas. Gabriela Sarti Kinker[1], Glauco Freire Vitiello[1], Ariane Barros Diniz[2], Mariela Cabral-Piccin[1], Pedro Henrique Pereira[1], Maria Letícia Rodrigues Carvalho[1], Wallax Silva Ferreira[1], Alexandre Silva Chaves[1], Amanda Rondinelli[1], Arianne Fagotti Gusmão[1], Alexandre Defelicibus[1], Gabriel Oliveira dos Santos[1], Warley Abreu Nunes[1], Laura López Claro[1],[3], Talita Bernardo[3], Ricardo Nishio[3], Adhemar Pacheco[3], Ana Carolina Laus[3], Lidia Rebolho Arantes[3], Julia Fleck5, Victor Hugo de Jesus[1], André de Moricz[3], Ricardo Weinlich[2], Felipe Fernandez Coimbra[1], Vladmir Cordeiro de Lima[1], Tiago da Silva Medina[1]. [1]A. C. Camargo Cancer Center, Brazil. [2]Hospital Israelita Albert Einstein, Brazil. [3]Santa Casa de Misericórdia do Estado de São Paulo, Brazil. [3]Barretos Cancer Hospital, Brazil. [5]Mines Saint-Etienne, Univ Clermont Auvergne, France.

Pancreatic ductal adenocarcinoma (PDAC) is a lethal disease that remains refractory to most currently available treatment modalities, including immunotherapy. As a deeper understanding of the PDAC immune microenvironment is needed to identify novel therapeutic targets and predictive biomarkers, here we explored the relevance of lymphocyte compartmentalization into tertiary lymphoid structures (TLSs) for the generation of local antitumor immunity. We found that a subset of PDAC patients harbors fully developed TLSs where B cells proliferate, undergo antibody affinity maturation, and differentiate. Importantly, these mature TLSs also support T

cell activity and are enriched with tumor-reactive T cells that may act as TLS organizers by producing the B cell chemoattractant CXCL13. We also showed that chronically activated, tumor-reactive T cells exposed to fibroblast-derived TGF-β may act as TLS organizers by producing the B cell chemoattractant CXCL13. Finally, we showed that the expression of a gene signature reflecting mature TLSs was enriched in pre-treatment tumors from metastatic PDAC patients with longer overall survival after receiving different chemoimmunotherapy regimens. Altogether, we provided a framework for understanding the biological role of PDAC-associated TLSs and revealed their potential to guide the selection of patients for future PDAC chemoimmunotherapy trials. Financial support: FAPESP (#2018/14034-8)

Uncovering Novel Macrophage Subsets in Cancer Using Single-Cell RNA Sequencing and Spatial Localization. Rodrigo Nalio Ramos (HC-FM-USP-SP and InCOR-SP)

Macrophage infiltration is a hallmark of solid cancers, and overall macrophage infiltration correlates with lower patient survival and resistance to therapy for distinct tumor types. Tumor-associated macrophages (TAMs), however, are phenotypically and functionally heterogeneous and might be endowed with distinct roles on cancer progression and antitumor immunity. Using single-cell RNA-sequencing and multispectral immunofluorescence we characterized two distinct macrophage subpopulations in healthy mammary gland and breast cancer primary tumors. We revealed a discrete population of FOLR2+ tissue-resident macrophages (TRM) that localize in perivascular areas in the tumor stroma from distinct tumor types, where they interact with CD8+ T cells. In addition, we found an abundant TREM2+ TAMs accumulated at the invasive margin and tumor nest. FOLR2+ macrophages efficiently stimulate effector CD8+ T cells *ex vivo*, while TREM2+ TAMs have inferior capacity to stimulate polyfunctional T lymphocytes. Importantly, FOLR2+ TRM positively correlates with better patient survival and with important anti-tumoral immune players such as NK cells, cytotoxic CD8+ T cells and tertiary lymphoid structures. Our study highlights specific roles for tumor-associated macrophage subsets and paves the way for subset-targeted therapeutic interventions in macrophages-based cancer therapies.

Bioorthogonal Chemistry-Based Drug Delivery for Precision Cancer Treatment. *Prof. Dr. Josiel Barbosa Domingos Laboratory of Biomimetic Catalysis (LaCBio), Department of Chemistry, Universidade Federal de Santa Catarina, Florianópolis, Brazil*

Bioorthogonal chemistry is a rapidly evolving field that offers exciting possibilities for developing targeted drug delivery methods for cancer treatment. Transition metal-catalyzed reactions, such as palladium-mediated decaging reactions, have emerged as a powerful tool for the activation of exogenous substrates within living systems, enabling precise and efficient drug delivery to cancer cells. In this lecture, the latest research from the LaCBio research group will be presented, highlighting our efforts in developing innovative strategies for bioorthogonal drug delivery using palladium-promoted decaging reactions under biological conditions. By harnessing the unique catalytic properties of transition metals, this approach has the potential to overcome many of the limitations associated with traditional drug delivery methods, providing a promising avenue for precision cancer treatment.

Financial support: CNPq and CAPES.

S8 – Digestive Diseases and Glycoscience: Innovation Opportunities Beyond Mere Topical Protective Materials

Biopolymers as promising molecules for the treatment of upper GI diseases: mechanistic insights and therapeutic status. Lucas Antonio Duarte Nicolau (UFDPar)

Gastroesophageal reflux disease (GERD) is one of the most common gastrointestinal disorders, in which the stomach contents called refluxate, move up into the oesophagus. Refluxate is composed by acid, pepsin, bile acids and other noxious material achieve the oesophageal mucosa and interact with the luminal components of the pre-epithelial line. The earliest protective shield to these potentially injurious elements is a distinct mucus layer that coats the mucosa, which is composed of highly glycosylated proteins called mucins that provide

lubrication for the alimentary passage, participating in cell signaling routes and protecting the host epithelium from harmful contents as refluxate in GERD patients. The oesophagus displays secreted and transmembrane mucins in healthy people, whilst oesophageal levels of mucins are considerably augmented in response to refluxate contents. Typical symptoms include mainly heartburn and acid regurgitation. Current guidelines indicate that patients should first try a standard therapy based on acid suppression with proton pump inhibitor (PPI), but it partially fails in all phenotypes of GERD. Topical protectant solutions associated to PPIs are linked with better outcomes in GERD patients due to their ability of preserving pre-epithelial barrier including mucin patters. Our research group studied commercial alginates, natural gums (from *Anacardium occidentale* and *Anadenanthera colubrina*), and algae biopolymer (from *Gracilaria caudata*), which demonstrated important muco-adhesiveness with clinical relevance since the mechanism of action up to now consist of improve transepithelial electrical resistance and decrease mucosal permeability in human biopsies of oesophageal mucosa and on experimental GERD in rodent models due to the interaction with mucosal barrier as demonstrated with fluorescent microscopy. Therefore, anti-inflammatory profile of topical materials with muco-adhesive action may be attributed not to a mere physical barrier, but by avoiding cell signaling downstream of inflammation pathways. Glycobiology of biopolymers-oesophageal mucus layer opens avenues to explore promising candidates for clinical GERD management. Financial support: CAPES, CNPq, FUNCAP and FAPEPI.

Biological functions, the possible mechanism of action, and application of naturally occurring polysaccharides to medical science. Daniele Maria-Ferreira Faculdades Pequeno Príncipe, Curitiba, Brazil.
Instituto de Pesquisa Pelé Pequeno Príncipe, Curitiba, Brazil.
Inflammatory bowel disease, oral and intestinal mucositis are life-threatening problems in which conventional treatment is associated with significant side effects. In addition, treatment alternatives are not curative, and many patients do not respond to available options. Given these considerations, recent advances in glycoscience and glycotechnology have created unique opportunities to advance scientific knowledge in pharmacology. The discoveries enable the identification of a broad range of biological processes and their importance to human health. For example, natural polysaccharides can protect gastrointestinal mucosa, regulate inflammatory processes, alter the diversity of the microbiota, and influence the production of intestinal metabolites, and have been investigated as molecules of interest for the development of novel therapeutics to treat numerous diseases and conditions, including those of the gastrointestinal tract. In light of the above considerations, this presentation will discuss the biological effects and possible mechanisms of action of polysaccharides from natural sources in diseases and conditions of the gastrointestinal tract, particularly ulcerative colitis, oral and intestinal mucositis induced by cancer therapy. Recent advances in polysaccharide therapy will also be discussed. Integrating knowledge of the importance of polysaccharides with biotechnology and innovation may provide the basis for future investigations and offer new perspectives for translational pharmacology. This work was supported by the Instituto de Pesquisa Pelé Pequeno Príncipe (Brazil) and Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq, Bolsista Produtividade do CNPq – Brasil).

S9 – Cannabinoid Therapy: from Bench to Bedside

How to Protect the Brain Against Neurotoxic Events with Cannabinoid Therapy? Donato, MF Laboratory of Medical Cannabis and Psychedelic Science, Federal University of Latin American Integration (UNILA). Foz do Iguaçu, PR. Brazilian Society for the Study of Cannabis sativa – SBEC. Brazil.
The Endocannabinoid System (ECS) is a regulating system that maintains the body's internal balance, the central nervous system functions, and other physiological systems such as the immune, reproductive, cardiovascular, and respiratory systems. The main components of the ECS are the cannabinoid receptors CB1 and CB2, the endocannabinoids (eCB) anandamide

(AEA) and 2-arachidonoylglycerol (2-AG), the endocannabinoid anabolic and catabolic enzymes and the AEA transporter. This system works like an authentic orchestra in regulating neurotransmission, inhibiting or stimulating the release of neurotransmitters, especially L-glutamate (L-glu) and gammaaminobutyric acid. ECS is involved in physiological events such as neuroplasticity, sleep, memory, appetite, body temperature, and immune response, among others, so the imbalance in the production of eCBs or the expression of the receptors is related to pathological conditions ranging from pain and chronic inflammation, memory loss, psychiatric and metabolic disorders, epileptic conditions that in most cases result from neurotoxicity or inflammation processes. In this sense, the failure in glutamatergic neurotransmission is the primary pathological mechanism of different neurological disorders due to excitotoxicity processes. Therefore, a rescue in the functioning of the ECS or replacement of cannabinoids can treat or prevent several pathologies. In this perspective, the phytocannabinoids isolated from *Cannabis sativa* L., delta9tetrahydrocannabinol (THC) with neuroprotective, analgesic, muscle relaxing, antiemetic properties, and cannabidiol (CBD) with anti-inflammatory, neuroprotective, anxiolytic, antioxidant, antipsychotic, anticonvulsant properties can act with great therapeutic prospect in pathologies refractory to conventional treatment. The interaction of THC and CBD added to the effects of other metabolites of the *Cannabis* is responsible for the entourage effect, enhancing the benefits of cannabinoid therapy. However, the golden key is to find the correct dose to adjust these cannabinoids in controlling neurotoxic events. Financial support: CNPq

Endocannabinoid system and cannabis-derivative products: Perspectives for cannabis treatment in autism. Luzia da Silva Sampaio Laboratório de Neuroquímica, Instituto de Biofísica Carlos Chagas Filho - Universidade Federal do Rio de Janeiro

The endocannabinoid system (ECS) is composed of endogenous cannabinoids (eCB), cannabinoid receptors (CBR) and enzymes responsible for the biosynthesis of these agonists. The ECS is found in all cells and tissues, where it plays the role of homeostatic control, modulating physiological functions. In the Central Nervous System, these compounds are distributed in neural cell, such as neurons and glia, impacting neurotransmission in the neuronneuron, glia-glia and neuroglial communication, synthesis and release of neurotransmitters and glial factors, and cellular metabolism. The Autism Spectrum Disorder (ASD) is a multifactorial neurological disorder that comprehends social and behavioural impairment with no effective treatment available, even though it severely affects children, possibly to the poorly described neurobiological basis of ASD. Animal models of ASD have shown a correlation between the symptoms reported and unbalanced homeostasis in systems modulated by ECS, such as alterations in excitatory and inhibitory neurotransmission system, unpaired neuroglial interaction, reactive gliosis and metabolic damage in glial cells. Clinical studies reported that ASD patients have lower plasma levels of anandamide (AEA), suggesting hypoactivity of ECS. Recently, increasing use of CBD-rich full-spectrum Cannabis extracts have been observed and positive effects reported, constituting a promising alternative to ASD treatment, despite few studies describing the pharmacological properties of these products. This presentation aims to discute the correlation between ECS alterations to ASD physiopathology and the perspectives in Cannabis treatment in ASD and describe the pharmacological basis of CBD-rich full-spectrum Cannabis extracts. Finalcial support: FAPERJ, CAPES

S10 – Potential Targets and Innovative Therapies for Parkinson's Disease

The Clinical Importance of Levodopa-Induced Dyskinesias (DIL) and its Mechanisms. Vitor Tumas Universidade de São Paulo, Faculdade de Medicina de Ribeirão Preto.

We will present here a brief historical review of the observation and clinical relevance of DIL, and its context in the current treatment of patients with Parkinson's disease (PD). We will discuss the main pathophysiological mechanisms involved with the phenomenon, and we will describe the studies we carried out in experimental and clinical models that pointed to the participation of nitric oxide and neuroinflammation among the mechanisms involved with DIL.

Targeting microRNAs to inhibit underlying mechanisms of Parkinson's disease. Ricardo Titze de Almeida (Research Center for Major Themes – University of Brasília)

In this summary, we present the involvement of microRNAs (miRNAs) in Parkinson's disease (PD), and their potential as therapeutic targets. MiRNAs are small, double-stranded RNA molecules that play a crucial role in regulating cellular transcriptomes by specifically interacting with mRNA molecules through RNAi mechanisms. Dysregulated miRNAs have been implicated in multiple disorders, including PD, which is the second most prevalent neurodegenerative disease globally. Recent advances in nanotechnology and oligonucleotide chemistry have paved the way for developing RNAi therapeutics using miRNA mimics and AntimiRs. These innovative strategies aim to enhance the stability of RNA molecules and boost transfection efficiency by using synthetic particles. Nevertheless, addressing targeted delivery, minimizing toxicity, and optimizing costs remain as challenges before these therapeutics can reach their full potential. One major obstacle in treating brain diseases with small RNA molecules involves overcoming the blood-brain barrier. Stereotaxic surgery, despite being an invasive procedure requiring hospitalization, presents a viable solution. This technique facilitates tissue-specific delivery, reducing treatment costs and mitigating off-target effects in other tissues. Furthermore, since miRNAs modulate multiple mRNA targets, their application could potentially target various underlying mechanisms of PD. In conclusion, miRNAs represent promising drug targets for altering the progressive nature of PD.

S11 – Cardio Steroids and α-Na,K-ATPase Isoforms in Neurological Disorders: New Insights

Role of endogenous ouabain and Na,K-ATPase α-isoforms in the etiology of bipolar disorder. Rif S. El-Mallakh Mood Disorders Research Program, Depression Center, Department of Psychiatry and Behavioral Sciences, University of Louisville School of Medicine, 401 East Chestnut Street, Suite 610, Louisville, KY 40202 USA

Background: Bipolar disorder is a severe psychiatric illness with poor prognosis and problematic and suboptimal treatments. Understanding the pathoetiologic mechanisms may improve treatment and outcomes. Discussion: Dysregulation of cationic homeostasis is the most reproducible aspect of bipolar pathophysiology. Correction of ionic balance is the universal mechanism of action of all mood stabilizing medications. Recent discoveries of the role of endogenous sodium pump modulators (which include 'endogenous ouabain') in regulation of sodium and potassium distribution, inflammation, and activation of key cellular second messenger systems that are important in cell survival, and the demonstration that these stress-responsive chemicals may be dysregulated in bipolar patients, suggest that these compounds may be candidates for the coupling of environmental stressors and illness onset. Specifically, individuals with bipolar disorder appear to be unable to upregulate endogenous ouabain under conditions that require it, and therefore may experience a relative deficiency of this important regulatory hormone. In the absence of elevated endogenous ouabain, neurons are unable to maintain their normal resting potential, become relatively depolarized, and are then susceptible to inappropriate activation. Furthermore, sodium pump activity appears to be necessary to prevent inflammatory signals within the central nervous system. Nearly all available data currently support this model, but additional studies are required to solidify the role of this system. Conclusion: Endogenous ouabain dysregulation appears to be a reasonable candidate for understanding the pathophysiology of bipolar disorder.

Testing Endogenous Ouabain Inhibitors in the Myshkin Mouse Model of Alternating Hemiplegia of Childhood (AHC). Steven J. Clapcote, School of Biomedical Sciences, University of Leeds, Leeds, LS6 3BX, UK

Heterozygous missense mutations in *ATP1A3*, encoding NKA α3, are the primary cause of alternating hemiplegia of childhood (AHC), a rare neurodevelopmental disorder that manifests as episodic hemiplegia starting in the first 18 months of life. The current primary treatment for AHC, the Ca^{2+} channel blocker flunarizine, can reduce the severity, duration or frequency of hemiplegic episodes, but is ineffective in some patients. The *Myshkin* mouse model

(*Atp1a3*^{Myk}) harbours mutation I810N in *Atp1a3* exon 18. The I810N mutation has been observed in three AHC patients, including one with comorbid autism spectrum disorder, all of whom presented with typical AHC symptoms and epilepsy. Adult heterozygous *Myshkin* (*Myk*/+) mice have a 42% reduction in NKA activity in the brain and a 16-18% reduction in body weight compared with WT mice. *Myk*/+ mice exhibit an elevated metabolic rate, visible whole-body tremors, a broad-based gait, and episodes of hemiplegia. Endogenous inhibitors of the NKA, identified as normal constituents of mammalian tissue, are collectively termed endogenous cardiotonic steroids (ECS). The best studied ECS is endogenous ouabain (EO), which is synthesised in and released from the adrenal gland and hypothalamus of mammals. Unlike in humans, where all four α isoforms are ouabain-sensitive, the α1 isoform of mice and rats has substitutions (Q118R and N129D) that confer resistance to ouabain. Reduced activity of NKA α3, due to heterozygous loss-of-function mutations in *ATP1A3*, is widely considered the underlying mechanism of AHC. Therefore, interventions that will increase NKA α3 enzymatic activity may improve the clinical symptoms. Since the activity of NKA α3 is determined, among other factors, by ECS, we hypothesise that antagonising the effects of these endogenous NKA inhibitors may be beneficial. To establish proof-of-concept for this approach using the *Myshkin* mouse model, we are quantifying the effects of different antagonists of endogenous NKA inhibitors – three small molecules (BD-15, rostafuroxin and compound 16) and one antibody (DigiFab) – on the behaviour and brain NKA activity of *Myk*/+ mice. Grant support: Hope for Annabel

Dental Pulp-Derived Mesenchymal Stem Cells for Modeling Neurogenetic Disorders Associated with Na^+,K^+-ATPase. Leite JA[1,2] [1]Department of Pharmacology, ICB-UFG, Goiânia, Brazil. [2]Laboratory of Education and Research In Vitro Toxicology, Tox In, FF-UFG, Goiânia, Brazil.
Introduction: Alternating hemiplegia of childhood (AHC) is a rare disease characterized by episodes of hemiplegia on any side of the body and paroxysmal events. The etiology of the disease due to ATP1A3 gene mutations, which encodes the α3-Na^+,K^+-ATPase (NKA) isoform. Dental pulp stem cells (DPSC) are an important source of stem cells capable of self-renewal and multi-lineage differentiation and are an interesting tool for developing microtissues for applied research in the context of the emerging field of microphysiological systems (MPS). This study aimed to evaluate the potential of human DPCS to be used to model neurogenetic disorders associated with the α3-NKA. Methods: DPSC were isolated from deciduous teeth from volunteers' control or AHC patient, cultured and characterized by expression of CD90, CD105, Stro-1, Nanog, OCT-3/4, CD34 and CD45 by flow cytometry, and α1 and α3-NKA by immunofluorescence. Additionally, to differentiation DPSC into neural progenitor cells (NPC), $1x10^6$ cells were cultured with DMEM/F12 added with B27, EGF, bFGF and penicillin/streptomycin. NPCs were characterized by expression of Nestin, GFAP, CD90, Ki67, α1 and α3-NKA by immunofluorescence. Then, NPCs were placed into MPS and viability was assessed. Ethical protocol: #44067021.0.0000.5083. Results: DPCS were positive for CD90, CD105, Stro-1, Nanog, Oct ¾, Nestin and α1-NKA, low for CD34 and CD45, and negative for α3-NKA, no differences between the studied groups. Moreover, DPSC from control and AHC differentiated into NPC and revealed positive expression of Nestin, GFAP, Ki67, α1 and α3-NKA, and negative CD90. No differences between the control and AHC groups. Additionally, NPC from control and AHC patients remained viable into MPS for up to 6 hours. Conclusion: Our data support the potential use of DPSC for the development of neural human microtissues to be used for modeling neurogenetic disorders associated with α3-NKA and development of drugs for the treatment of AHC, ensuring better quality of life for patients affected by this rare disease, which still lacks pharmacological treatment. Financial Support: CNPq.

New Pharmacological Therapy for Childhood Alternating Hemiplegia (AHC): Evaluation of BD-15 and Development of New Drugs. Leandro A Barbosa. Universidade Federal de São João del-Rei, Campus Centro-Oeste Dona Lindú, Divinópolis, MG

Digoxin and other cardiotonic steroids (CTS) exert their effect by inhibiting Na,K-ATPase (NKA) activity. CTS bind to the various NKA isoforms expressed in different cell types, giving CTS its narrow therapeutic index. We have synthesized a series of digoxin derivatives (γ-Benzylidene digoxin derivatives) with substitutions in the lactone ring (including non-oxygen and ether groups), to obtain CTS with better NKA isoform specificity. Some of these derivatives show some NKA isoform selective effects. One of particular interest is BD-15, which demonstrated in SF9 cells expressed the α1-3 isoforms, BD-15 was able to increase specific α3 activity of NKA. A molecular docking approach favored NKA isoform-specific interactions for the compounds that supported their observed activity. Moreover, BD-15 was tested in Wistar rats for 3 days in IP treatment in 20, 100, and 200 μg/Kg concentrations and BD-15 did not alter the behavior of rats treated with different doses. An increase in the specific α2,3-Na,K-ATPase activity was again observed for all doses of BD-15 tested in the hippocampus and prefrontal cortex. Subsequently, when the effect of BD-15 on cardiac tissue was analyzed, we did not find any signal of cardiotoxicity and cell death. The cell cytotoxicity was tested on cancer cell lines and BD-15 exhibited low cytotoxicity in tumor and non-tumor cells, presenting IC50 values of 8 μM, while digoxin showed cytotoxicity at nanomolar concentrations. Another important effect of BD-15 is the neuroprotection effect found in the chemical ischemia model in N2a cells and in a global ischemia model in Wistar rats, where BD-15 significantly prevented cell death caused by ischemia. BD-15 can be a promising drug for AHC treatment since it increases the activity of the α3-Na,K-ATPase in the hippocampus and prefrontal cortex has a neuroprotection effect, and decreases oxidative stress in these brain regions. Funding: FAPEMIG

Roundtable

MR1 – **Beyond the Academy**

Career Opportunities in Forensic Sciences in Brazil. Heitor S. D. Correa. *Forensic DNA Laboratory, Politec/MT, Cuiabá, Brazil

Forensic science can be defined as the use of scientific methods or expertise to investigate crimes or examine evidence that might be presented in a court of law. It is a field that is usually associated with criminal investigation, but that, in reality, goes far beyond law enforcement. The field of forensics has experienced an increasing amount of interest from the general public, with the help of tv shows, movies, social media and podcasts. Therefore, it is overdue that people comprehend the diverse subfields within forensic science, and disseminate that knowledge. In Brazil, forensics is very restricted to the governmental sector, with little private sector input, compared to other countries. Nevertheless, there is a wide array of career opportunities in forensics that encompass even the third sector, in non-profit, humanitarian and supranational organizations. Currently, it is necessary that entrepreneurs see the potential of this field and invest in it, so that it can further develop. Also, forensics has job opportunities for a wide range of self-employed professionals. But it is necessary that they advertise and educate prospective clients on the importance of their role in order to strive.

I Finished My PhD... What's Next? How My Academic Experience is Essential for Nonclinical Research in the Pharmaceutical Industry *(Terminei o doutorado... e agora? Como a minha experiência acadêmica é essencial para a pesquisa não-clínica na indústria farmacêutica)* Juliana Montenegro Parente, Aché Laboratórios Farmacêuticos

The COVID-19 pandemic changed our lives. For researchers who, like me, were finishing their PhDs by this time, these changes were even harder. Many of us thought: "what should I do next?". The answer to this question wasn't easy to find. When the world most needed scientists, Brazilian scientists like myself were actually concerned about their futures. I felt such concern deeply. I learned from it, and I hope I can now share my experience to inspire others into pursuing new opportunities. I finished my PhD in Pharmacology (FMRP/USP) in 2021 and I currently work as research and development analyst at a national pharmaceutical industry. My job is to assist the company finding new therapeutical targets and developing new drugs for such targets. My team manages research projects from their discovery phase until the early

development stage, which comes before clinical trials. We analyze the nonclinical efficacy and safety of the new drugs prototypes and prepare them to be produced in industrial scale. Nonclinical research is a field in the pharmaceutical industries where PhD and/or MSc degree holders are needed. Our experience with research, project management and scientific knowledge is very appreciated and necessary. My presentation will show not only that there are opportunities to work with scientific research beyond academia, but also how you can reach such opportunities as a researcher.

Authors Index

B

C

D

E

F

G

H

I

J

K

L

M

N

O

P

Q

R

S

T