INCT-NanoBiofar

National Institute of Science and Technology in Nanobiopharmaceutics

ANNUAL ACTIVITY REPORT 2009

INCT NANOBIOFAR

Welcome

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The National Institute in Science and Technology in Nanobiopharmaceutics (NanoBiofar) was created in 2008 as part of the government initiative to move forward and to a higher step its effort in promoting scientific and biotechnological development in Brazil.

NanoBiofar has as main focus the development of new pharmaceutical products based on incremental and radical innovation using especially nanotechnology.

The Institute mission is to facilitate a nanobiotechnology network of people and facilities to enhance existing academic research, pursue unique cross-disciplinary research and education initiatives, and to foster the entrepreneurship and the interaction of academy with the private-sector in the pharmaceutical area.

As a part of its initiatives Nanobiofar helped the Physiology and Pharmacology PhD program of the Federal University of Minas Gerais to launch the innovative Professional Science Master's program in Biopharmaceutical Innovation to meet the future workforce needs of a growing bioscience industry. The INCT-Nanobiofar investigators are participating actively in the program as advisors of projects aimed to generate novel and innovative processes and products. In addition they are responsible for many disciplines and for the field of Intellectual Property of the Professional Master program.

Our research facilities distributed in our network of laboratories and research centers are dedicated to supporting innovation in drug development and drug delivery based on a multidisciplinary research team. The main translational research platform of the Institute is the novel protective arm of the renin-angiotensin system, the ACE2/Ang-(1-7)/Mas axis. The Principal Investigators of Nanobiofar were notably involved in the development of the newer concept of the RAS, a system importantly involved in cardiovascular and renal function and pathophysiology. Nanoformulations of the heptapeptide Angiotensin-(1-7) have been developed by investigators of Nanobiofar and are now protected by patents recently issued in USA, China and India. These innovative products are currently being tested experimentally and in patients, for the treatment of cardiovascular and metabolic disorders. Two partnerships with Brazilian Pharmaceutical / Technological Industries (União Quimica and Scitech) were established for the development of innovative products based on nanocarriers for Angiotensin-(1-7) and other receptor Mas agonists.

Our international science collaborative program focuses on advanced genetic engineering and drug development and delivery. The Nanobiofar international network comprises the Kidney Research Center at Otawa Health Research Institute- University of Otawa-Canada, the Max-

Delbruck Center for Molecular Medicine in Berlin, the MIT in Boston-USA, the Erasmus University in Netherlands and the Center for Aging and Regeneration – CARE in Chile.

Our Institute can also deliver professionally managed contract research services to industry in the areas of Drug Formulation, Pre-clinical Pharmaceutical Analysis and Intellectual Property Protection. Part of these services is under the responsibility of LABFAR, a unit of our Institute devoted to contract research services. Pharmaceutical companies which use/used LABFAR services include Daiichi-Sankyo (Japan), COMPUGEN (Israel) and Biolab (Brazil).

Basic /Technological Research

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NanoBiofar has assumed the role of enabling multidisciplinary and multinational research collaborations aimed to develop novel therapeutic formulations of drugs, and devices. One of the goals is to overcome both the geographical fragmentation of researchers and the limited communication across previously discreet scientific disciplines such as chemistry, biology, physics and medicine.

Many intersection research studies are currently being performed. The publication list illustrates the broad range of interaction among NanoBiofar investigators.

APPLICATION DRIVEN

Clinical Trial (Phase II) of Ang-(1-7) in preeclampsia

The discovery of new components of the renin angiotensin system (RAS), opened the possibility toexplore new ways to influence its activity. Until recently only angiotensin converting enzyme inhibitors (ACEi), AT1 receptor blockers (BRA) were used as therapeutic tools. More recently direct renin inhibitors were launched in the market. The identification of Ang(1-7) receptor Mas and of the angiotensin converting enzyme 2 (ACE 2), opened new possibilities for the treatment of cardiovascular and kidney diseases. In this context, preeclampsia is a disease in which the RAS is involved on its pathogenesis. Recently based in the studies done at the Hypertension Laboratory of UFMG and on evidences from the literature, it was demonstrated that the mismatch between the vasodilatador Ang-(1-7)/Mas axis and the Ang II/ AT1 vasoconstrictor axis plays an important role in the development of this disease. We are currently exploring the possibility that administration of Ang-(1-7) to preeclamptic patients could ameliorate preeclampsia. The clinical protocol "The therapeutic use of Ang-(1-7) in preeclampsia treatment", was approved by the Research Ethics Committee from the Hospital das Clínicas of UFMG (C*OEP/UFMG 562/07) and by National Research Ethics Committee (CONEP/Brasília 0562.0.203.000-07).* We expect that the trial will be completed in about four months.

Principal Investigators: *Robson Augusto Souza dos Santos, MD, Antônio Carlos Vieira Ca bral, MD;, Henrique Vítor Leite,MD; Marco Túlio Vilaça Castagna,MD; Zilma Silveira Nogueira Reis ,MD; Elizabeth Portugal Pimenta Velloso,PhD, RenataLúcia Vieira Pimente, MsC.*

"Clinical Study (Phase I) of Pharmacokinetic and Tolerability of a New Oral Formulation of Angiotensin-(1-7) Included in HPβ-Cyclodextrin in Healthy Volunteers"

We are waiting for the approval of this clinical protocol by the Research Ethics committee of the "Hospital das Clínicas" of UFMG. The results of this clinical trial will be the basis for future clinical studies aimed to evaluate the effect of angiotensin-(1-7) in cardio-metabolic diseases.

Principal Investigators: Robson Augsto Souza dos Santos, MD; Sérgio Henrique Sousa Santos, PhD; Rodrigo Bastos Fóscolo, MD; Antônio Ribeiro de Oliveira Junior, MD.

BIOINOVA PROJECT: Development of Drug Eluting Stents Based on Angiotensin-(1-7) included in Biodegradable Polymers.

This project is a collaborative effort of NanoBiofar and the Biotechnology Company Scitech.

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PUBLICATION LIST

1. Genetic analyses of Trypanosoma cruzi isolates from naturally infected triatomines and humans in northeastern Brazil. Acta Trop. 2010 Mar 19. [Epub ahead of print]
Câmara AC, Varela-Freire AA, Valadares HM, Macedo AM, D'Ávila DA, Machado CR, Lages-Silva E, Chiari E, Galvão LM.
Universidade Federal de Minas Gerais, Instituto de Ciências Biológicas, Departamento de Parasitologia, Brazil; Universidade Federal do Rio Grande do Norte, Centro de Biociências, Departamento de Microbiologia e Parasitologia.

2. Mixed infection of Trypanosoma cruzi I and II in a Colombian cardiomyopathic patient. Hum Pathol. 2010 Apr;41(4):610-3. Epub 2010 Feb 12.
Mantilla JC, Zafra GA, Macedo AM, González CI.
Grupo de Inmunología y Epidemiología Molecular, GIEM, Facultad de Salud, Universidad Industrial de Santander, Colombia.

3. A new consensus for Trypanosoma cruzi intraspecific nomenclature: second revision meeting recommends TcI to TcVI. Mem Inst Oswaldo Cruz. 2009 Nov;104(7):1051-4.
Zingales B, Andrade SG, Briones MR, Campbell DA, Chiari E, Fernandes O, Guhl F, Lages-Silva E, Macedo AM, Machado CR, Miles MA, Romanha AJ, Sturm NR, Tibayrenc M, Schijman AG.
Departamento de Bioquímica, Instituto de Química, Universidade de São Paulo, São Paulo, SP, Brasil.

4. Molecular characterization of the Schistosoma mansoni zinc finger protein SmZF1 as a transcription factor. PLoS Negl Trop Dis. 2009 Nov 10;3(11):e547.
Drummond MG, Calzavara-Silva CE, D'Astolfo DS, Cardoso FC, Rajão MA, Mourão MM, Gava E, Oliveira SC, Macedo AM, Machado CR, Pena SD, Kitten GT, Franco GR.
Laboratório de Genética Bioquímica, Departamento de Bioquímica e Imunologia, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil.

5. Functional and work outcomes improve in patients with rheumatoid arthritis who receive targeted, comprehensive occupational therapy. Arthritis Rheum. 2009 Nov 15;61(11):1522-30.
Macedo AM, Oakley SP, Panayi GS, Kirkham BW.
Guy's & St. Thomas' National Health Service Foundation Trust, London, UK.

6. Trypanosoma cruzi: ancestral genomes and population structure. Mem Inst Oswaldo Cruz. 2009 Jul;104 Suppl 1:108-14.
Pena SD, Machado CR, Macedo AM.
Departamento de Bioquímica e Imunologia, Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brasil.

7. Trypanosoma cruzi maxicircle heterogeneity in Chagas disease patients from Brazil. Int J Parasitol. 2009 Feb 10. [Epub ahead of print]
Carranza JC, Valadares HM, D'Ávila DA, Baptista RP, Moreno M, Galvão LM, Chiari E, Sturm NR, Gontijo ED, Macedo AM, Zingales B.

Departamento de Bioquímica, Instituto de Química, Universidade de São Paulo, São Paulo, Brasil.

8. Virus-host coevolution: common patterns of nucleotide motif usage in Flaviviridae and their hosts. PLoS One. 2009 Jul 20;4(7):e6282.
Lobo FP, Mota BE, Pena SD, Azevedo V, Macedo AM, Tauch A, Machado CR, Franco GR.
Departamento de Bioquímica e Imunologia, Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil.

9. Probing population dynamics of Trypanosoma cruzi during progression of the chronic phase in chagasic patients. J Clin Microbiol. 2009 Jun;47(6):1718-25. Epub 2009 Apr 8.
D'Avila DA, Macedo AM, Valadares HM, Gontijo ED, de Castro AM, Machado CR, Chiari E, Galvão LM.
Departamento de Parasitologia, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil.

10. The MHC gene region of murine hosts influences the differential tissue tropism of infecting Trypanosoma cruzi strains. PLoS One. 2009;4(4):e5113. Epub 2009 Apr 1.
Freitas JM, Andrade LO, Pires SF, Lima R, Chiari E, Santos RR, Soares M, Machado CR, Franco GR, Pena SD, Macedo AM.
Departamento de Bioquímica e Imunologia, Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil.

11. Isolation and characterization of HC1: a novel human DNA repair gene. Genet Mol Res. 2009;8(1):247-60.
Lopes DO, Falconi FC, Goes AM, Canitrot Y, Hoffmann JS, Cazaux C, Franco GR, Macedo AM, Pena SD, Machado CR.
Departamento de Bioquímica e Imunologia, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brazil.

12. Cloning and characterization of DNA polymerase eta from Trypanosoma cruzi: roles for translesion bypass of oxidative damage. Environ Mol Mutagen. 2009 Jun;50(5):375-86.
de Moura MB, Schamber-Reis BL, Passos Silva DG, Rajão MA, Macedo AM, Franco GR, Pena SD, Teixeira SM, Machado CR.
Departamento de Bioquímica e Imunologia, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, MG, Brazil.

13. DNA polymerase kappa from Trypanosoma cruzi localizes to the mitochondria, bypasses 8-oxoguanine lesions and performs DNA synthesis in a recombination intermediate. Mol Microbiol. 2009 Jan;71(1):185-97. Epub 2008 Nov 6.
Rajão MA, Passos-Silva DG, DaRocha WD, Franco GR, Macedo AM, Pena SD, Teixeira SM, Machado CR.
Departamento de Bioquímica e Imunologia, ICB, Universidade Federal de Minas Gerais,Belo Horizonte, MG, Brazil.

14. Physical exercise-induced cardiovascular adjustments are modulated by muscarinic cholinoceptors within the ventromedial hypothalamic nucleus. Physiol Res. 2009 Jun 19. [Epub ahead of print]
Wanner SP, Guimar Es JB, Pires W, La Guardia RB, Haibara AS, Marubayashi U, Coimbra CC, Resende N, Lima V.

Exercise Physiology Laboratory, Department of Physical Education, School of Physical Education, Physiotherapy and Occupational Therapy, Federal University of Minas Gerais, Belo Horizonte, Minas Gerais, Brazil.

15. Angiotensin-(1-7) antagonist, A-779, microinjection into the caudal ventrolateral medulla of renovascular hypertensive rats restores baroreflex bradycardia. Peptides. 2009 Oct;30(10):1921-7. Epub 2009 Jul 3.
Cangussu LM, de Castro UG, do Pilar Machado R, Silva ME, Ferreira PM, dos Santos RA, Campagnole-Santos MJ, Alzamora AC.
Departamento de Ciências Biológicas, Instituto de Ciências Exatas e Biológicas, Universidade Federal de Ouro Preto, Ouro Preto, MG, Brazil.

16. Diet supplementation with acai (Euterpe oleracea Mart.) pulp improves biomarkers of oxidative stress and the serum lipid profile in rats. Nutrition. 2009 Dec 17. [Epub ahead of print]
Oliveira de Souza M, Silva M, Silva ME, de Paula Oliveira R, Pedrosa ML.
Núcleo de Pesquisas em Ciências Biológicas, Universidade Federal de Ouro Preto, Ouro Preto, Minas Gerais, Brazil.

17. Rosiglitazone-induced heart remodelling is associated with enhanced turnover of myofibrillar protein and mTOR activation. J Mol Cell Cardiol. 2009 Jul;47(1):85-95. Epub 2009 May 3.
Festuccia WT, Laplante M, Brûlé S, Houde VP, Achouba A, Lachance D, Pedrosa ML, Silva ME, Guerra-Sá R, Couet J, Arsenault M, Marette A, Deshaies Y.
Department of Anatomy and Physiology, Faculty of Medicine and Laval Hospital Research Center, Laval University, Quebec, Canada.

18. Protein-energy malnutrition decreases immune response to Leishmania chagasi vaccine in BALB/c mice. Parasite Immunol. 2009 Jan;31(1):41-9.
Malafaia G, Serafim TD, Silva ME, Pedrosa ML, Rezende SA.
Laboratório de Imunoparasitologia, Núcleo de Pesquisa em Ciências Biológicas (NUPEB), Universidade Federal de Ouro Preto (UFOP), Ouro Preto, Brazil.

19. Influência das proteínas do soro sobre enzimas hepáticas, perfil lipídico e formação óssea de ratos hipercolesterolêmicos. Revista de Nutrição da PUCCAMP, v. 22, p. 517-525, 2009.
Haraguchi, F. K.; Pedrosa, M. L.; Paula, H; Santos, R. C. ; Silva, M. E. .
Laboratório de Imunoparasitologia, Núcleo de Pesquisa em Ciências Biológicas (NUPEB), Universidade Federal de Ouro Preto (UFOP), Ouro Preto, Brazil.

20. Effect of an aqueous extract of annatto (Bixa orellana) seeds on lipid profile and biochemical markers of renal and hepatic function in hipercholesterolemic rats. Brazilian Archives of Biology and Technology, v. 52, p. 1373-1378, 2009.
Paula, H.; Pedrosa, M. L.; Rossoni, J.R., Joamir, R V ; Haraguchi, F. K. ; Santos, R. C.; Silva, M. E.

21. Congenital cardiopathies screening associated with diabetes mellitus using maternal fructosamine plasma concentration. Rev Bras Ginecol Obstet. 2010 Feb;32(2):66-71.
Reis ZS, Miranda AP, de Alencar Lima Rezende C, Detofol RB, Costa CR, Cabral AC.
Departamento de Ginecologia e Obstetrícia, Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brasil

22. Ophthalmic artery-resistive index and evidence of overperfusion-related encephalopathy in severe preeclampsia. Hypertension. 2010 Jan;55(1):189-93. Epub 2009 Nov 30.
Barbosa AS, Pereira AK, Reis ZS, Lage EM, Leite HV, Cabral AC.
Departments of Gynecology and Obstetrics, Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil.

23. Correlation between the inspired fraction of oxygen, maternal partial oxygen pressure, and fetal partial oxygen pressure during cesarean section of normal pregnancies. Rev Bras Anestesiol. 2009 Jul-Aug;59(4):452-60.
Castro CH, Cruvinel MG, Carneiro FS, Silva YP, Cabral AC, Bessa RC.
Hospital Lifecenter.

24. Isolation, differentiation and biochemical aspects of amniotic fluid stem cell. Rev Assoc Med Bras. 2008 Nov-Dec;54(6):489-93.
Cabral AC, Angelo PC, Leite HV, Pereira AK, Lopes AP, Oliveira MB, Borges KB, Pardini VC, Ferreira AC.
Departamento de Genética Humana e pela Criovida do Instituto H. Pardini, Hospital das Clínicas, Faculdade de Farmácia da Universidade Federal de Minais Gerais, Belo Horizonte, MG.

25. Comparative evaluation of phenol and thimerosal as preservatives for a candidate vaccine against American cutaneous leishmaniasis. Mem Inst Oswaldo Cruz. 2010 Feb;105(1):86-91.
Mayrink W, Tavares CA, de Deus RB, Pinheiro MB, Guimarães TM, de Andrade HM, da Costa CA, de Toledo Vde P.
Departamento de Bioquímica e Imunologia, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brasil.

26. Specific serodiagnosis of canine visceral leishmaniasis using Leishmania species ribosomal protein extracts. Clin Vaccine Immunol. 2009 Dec;16(12):1774-80. Epub 2009 Oct 7.
Coelho EA, Ramírez L, Costa MA, Coelho VT, Martins VT, Chávez-Fumagalli MA, Oliveira DM, Tavares CA, Bonay P, Nieto CG, Abánades DR, Alonso C, Soto M.
Departamento de Bioquímica e Imunologia, ICB, Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil.

27. Immunodiagnosis of human neurocysticercosis using a synthetic peptide selected by phage-display. Clin Immunol. 2009 Apr;131(1):129-38. Epub 2009 Jan 30.
Hell RC, Amim P, de Andrade HM, de Avila RA, Felicori L, Oliveira AG, Oliveira CA, Nascimento E, Tavares CA, Granier C, Chávez-Olórtegui C.
Departamento de Bioquímica-Imunologia, Universidade Federal de Minas Gerais, Belo Horizonte-MG, Brazil.

28. New insights into the mode of action of ultradeformable vesicles using calcein as hydrophilic fluorescent marker. Eur J Pharm Sci. 2010 Jan 31;39(1-3):90-6. Epub 2009 Nov 10.
Bahia AP, Azevedo EG, Ferreira LA, Frézard F.
Departamento de Fisiologia e Biofísica, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil.

29. Prolonged absorption of antimony(V) by the oral route from non-inclusion meglumine antimoniate-beta-cyclodextrin conjugates. Biopharm Drug Dispos. 2010 Mar;31(2-3):109-19.
Ribeiro RR, Ferreira WA, Martins PS, Neto RL, Rocha OG, Le Moyec L, Demicheli C, Frézard F.
Departamento de Fisiologia e Biofísica, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brazil.

30. Pentavalent antimonials: new perspectives for old drugs. Molecules. 2009 Jun 30;14(7):2317-36.
Frézard F, Demicheli C, Ribeiro RR.
Departamento de Fisiologia e Biofísica, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brazil.

31. Membrane binding requirements for the cytolytic activity of Leishmania amazonensis leishporin. FEBS Lett. 2009 Oct 6;583(19):3209-14. Epub 2009 Sep 6.
Castro-Gomes T, Almeida-Campos FR, Calzavara-Silva CE, da Silva RA, Frézard F, Horta MF.
Departamento de Bioquímica e Imunologia, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brazil.

32. LyeTx I, a potent antimicrobial peptide from the venom of the spider Lycosa erythrognatha. Amino Acids. 2009 Nov 28. [Epub ahead of print]
Santos DM, Verly RM, Piló-Veloso D, de Maria M, de Carvalho MA, Cisalpino PS, Soares BM, Diniz CG, Farias LM, Moreira DF, Frézard F, Bemquerer MP, Pimenta AM, de Lima ME.
Lab. Venenos e Toxinas Animais, Departamento de Bioquímica e Imunologia, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais

33. Expression of beta 2 integrin (CD18) in embryonic mouse and chicken heart. Braz J Med Biol Res. 2010 Jan;43(1):25-35.
Oliveira LA, Baker RK, Klewer SE, Kitten GT.
Departamento de Morfologia, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brasil.

34. Hypertrophic versus non hypertrophic scars compared by immunohistochemistry and laser confocal microscopy: type I and III collagens. Int Wound J. 2009 Dec;6(6):445-52.
Oliveira GV, Hawkins HK, Chinkes D, Burke A, Tavares AL, Ramos-e-Silva M, Albrecht TB, Kitten GT, Herndon DN.
Shriners Burns Hospital, Galveston, TX, USA.

35. Structural and functional properties of Bp-LAAO, a new L-amino acid oxidase isolated from Bothrops pauloensis snake venom. Biochimie 91 (2009) 490-501
Renata S. Rodrigues, Juliana F.da Silva, Johara Boldrini França, Fernando P.P. Fonseca, Antônio R. Otaviano, Flávio Henrique Silva, Amélia Hamaguchi, Angelo J. Magro, Antônio Sérgio K. Braz, Juliana I. dos Santos, Maria Inês Homsi-Brandeburgo, Marcos R.M. Fontes, André L. Fuly, Adreimar M. Soares, Veridiana M. Rodrigues.
Instituto de Genética e Bioquímica, Universidade Federal de Uberlândia, UFU, Uberlândia, MG, Brazil.

36. Biochemical and functional properties of a thrombin-like enzyme isolated from Bothrops pauloensis snake venom. Toxicon 54 (2009) 725-735

Fábio L.S. Costa, Renata S. Rodrigues, Luiz F.M. Izidoro, Danilo L. Menaldo, Amélia Hamaguchi, Maria I. Homsi-Brandeburgo, Andre L. Fuly, Sandro G. Soares, Heloisa S. Selistre-de-Araujo, Benedito Barraviera, Andreimar M. Soares, Veridiana M. Rodrigues
Instituto de Genética e Bioquímica, Universidade Federal de Uberlândia, UFU, Uberlândia, MG, Brazil.

37. BthMP: a new Weakly hemorrhagic metalloproteinase from Bothrops moojeni snake venom. Toxicon 53 (2009) 24-32
Mario Sergio R.Gomes, Mirian M. Mendes, Fabio de Oliveira, Rodrigo M. de Andrade, Carolina P. Bernardes, Amélia Hamaguchi, Tânia M. de Alcântara, Andreimar M. Soares, Veridiana M. Rodrigues, Maria I. Homosi-Brandeburgo.
Instituto de Genética e Bioquímica, Universidade Federal de Uberlândia, UFU, Uberlândia, MG, Brazil.

38. Crotalus durissus collilineatus venom gland transcriptome: Analysis of gene expression profile. Biochimie 91 (2009) 586-595
Johara Boldrini França, Renata S. Rodrigues, Fernando P.P. Fonseca, Danilo L. Menaldo, Francis B. Ferreira, Flavio Henrique-Silva, Andreimar M. Soares, Amélia Hamaguchi, Veridiana M. Rodrigues, Antonio R. Otaviano, Maria I. Homsi-Brandeburgo.
Instituto de Genética e Bioquímica, Universidade Federal de Uberlândia, UFU, Uberlândia, MG, Brazil.

39. Role of endothelin receptors in the control of central nervous system parasitism in Trypanosoma cruzi infection in rats. J Neuroimmunol. 2010 Mar 30;220(1-2):64-8. Epub 2010 Feb 8.
Rachid MA, Teixeira AL, Barcelos LS, Machado CR, Chiari E, Tanowitz HB, Camargos ER, Teixeira MM.
Departamento de Patologia Geral, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brazil.

40. Angiostatic activity of human plasminogen fragments is highly dependent on glycosylation. Cancer Sci. 2010 Feb;101(2):453-9. Epub 2009 Oct 16.
Santos IC, Silbiger VN, Higuchi DA, Gomes MA, Barcelos LS, Teixeira MM, Lopes MT, Cardoso VN, Lima MP, Araujo RC, Pesquero JB, Pesquero JL.
Institute of Biological Sciences, Federal University of Minas Gerais, Belo Horizonte, Minas Gerais, Brazil.

41. Role of the chemokines CCL3/MIP-1 alpha and CCL5/RANTES in sponge-induced inflammatory angiogenesis in mice. Microvasc Res. 2009 Sep;78(2):148-54. Epub 2009 May 8.
Barcelos LS, Coelho AM, Russo RC, Guabiraba R, Souza AL, Bruno-Lima G Jr, Proudfoot AE, Andrade SP, Teixeira MM.
Department of Fisiologia e Biofísica, ICB, UFMG, Belo Horizonte, Brazil.

42. Activation of the PI3K/Akt pathway early during vaccinia and cowpox virus infections is required for both host survival and viral replication. J Virol. 2009 Jul;83(13):6883-99. Epub 2009 Apr 22.
Soares JA, Leite FG, Andrade LG, Torres AA, De Sousa LP, Barcelos LS, Teixeira MM, Ferreira PC, Kroon EG, Souto-Padrón T, Bonjardim CA.
Grupo de Transdução de Sinal, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil.

43. Human CD133+ progenitor cells promote the healing of diabetic ischemic ulcers by paracrine stimulation of angiogenesis and activation of Wnt signaling. Circ Res. 2009 May 8;104(9):1095-102. Epub 2009 Apr 2.
Barcelos LS, Duplaa C, Kränkel N, Graiani G, Invernici G, Katare R, Siragusa M, Meloni M, Campesi I, Monica M, Simm A, Campagnolo P, Mangialardi G, Stevanato L, Alessandri G, Emanueli C, Madeddu P.
Bristol Heart Institute, University of Bristol, Upper Maudlin Street, Bristol, United Kingdom.

44. Critical role of tissue kallikrein in vessel formation and maturation: implications for therapeutic revascularization. Arterioscler Thromb Vasc Biol. 2009 May;29(5):657-64. Epub 2009 Jan 22.
Stone OA, Richer C, Emanueli C, van Weel V, Quax PH, Katare R, Kraenkel N, Campagnolo P, Barcelos LS, Siragusa M, Sala-Newby GB, Baldessari D, Mione M, Vincent MP, Benest AV, Al Haj Zen A, Gonzalez J, Bates DO, Alhenc-Gelas F, Madeddu P.
Microvascular Research Laboratories, Bristol Heart Institute, Department of Physiology and Pharmacology, University of Bristol, UK.

45. Desbalanço redox: NADPH oxidase como um alvo terapêutico no manejo cardiovascular. Arquivos Brasileiros de Cardiologia, 2009. in press
Rabelo, L. A., Fonseca, L. J. S., Souza, V.N. ; Sampaio, W. O.

46. Funxctional asymmetry in the descending cardiovascular pathways from dorsomedial hypothalamic nucleus. Neuroscience. 2009 Dec 15;164(3):1360-8. Epub 2009 Sep 15.
Xavier CH, Nalivaiko E, Beig MI, Menezes GB, Cara DC, Campagnole-Santos MJ, Fontes MA.
Laboratório de Hipertensão, Departamento de Fisiologia e Biofísica, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, Brazil.

47. Cardiovascular and thermal responses evoked from the periaqueductal grey require neuronal activity in the hypothalamus. J Physiol. 2009 Mar 15;587(Pt 6):1201-15. Epub 2009 Jan 26.
de Menezes RC, Zaretsky DV, Fontes MA, DiMicco JA.
Department of Pharmacology and Toxicology, Indiana University School of Medicine, Indianapolis, USA.

48. Activation of 5-HT receptors in the periaqueductal gray attenuates the tachycardia evoked from dorsomedial hypothalamus. Auton Neurosci. 2009 Jun 15;148(1-2):36-43. Epub 2009 Mar 20.
Villela DC, da Silva LG Jr, Fontes MA.
Laboratório de Hipertensão, Departamento de Fisiologia e Biofísica, ICB - UFMG, Brazil.

49. Hyperglycaemia protects the heart after myocardial infarction: aspects of programmed cell survival and cell death. Eur J Heart Fail. 2010 Apr 20. [Epub ahead of print]
Malfitano C, Alba Loureiro TC, Rodrigues B, Sirvente R, Salemi VM, Rabechi NB, Lacchini S, Curi R, Irigoyen MC.
Hypertension Unit, Heart Institute (InCor), University of São Paulo, Medical School.

50. Microalbuminuria is associated with impaired arterial and venous endotheliumdependent vasodilation in patients with type 2 diabetes. J Endocrinol Invest. 2010 Mar 30. [Epub ahead of print]
Silva AM, Schaan BD, Signori LU, Plentz RD, Moreno Jr H, Bertoluci MC, Irigoyen MC.

Department of Physiology, Federal University of Rio Grande do Sul, Porto Alegre, Brazil Department of Physiotherapy and Rehabilitation, Federal University of Santa Maria, Santa Maria, Brazil.

51. Hemodynamic, morphometric and autonomic patterns in hypertensive rats - Renin-Angiotensin system modulation. Clinics (Sao Paulo). 2010 Jan;65(1):85-92.
Zamo FS, Lacchini S, Mostarda C, Chiavegatto S, Silva IC, Oliveira EM, Irigoyen MC.
Nephrology Department, Federal University of São Paulo - São Paulo/SP, Brazil.

52. Homocysteine thiolactone induces cardiac dysfunction: Role of oxidative stress. J Cardiovasc Pharmacol. 2010 Feb;55(2):198-202.
Mendes RH, Sirvente RA, Candido GO, Mostarda C, Salemi VM, D'Almeida V, Jacob MH, Ribeiro MF, Belló-Klein A, Rigatto K, Irigoyen MC.
Departamento de Fisiologia, Instituto de Ciências Básicas da Saúde, Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, Brazil.

53. Exercise training associated with estrogen therapy induced cardiovascular benefits after ovarian hormones deprivation. Maturitas. 2010 Mar;65(3):267-71. Epub 2009 Dec 8.
Flues K, Paulini J, Brito S, Sanches IC, Consolim-Colombo F, Irigoyen MC, De Angelis K.
Hypertension Unit, Heart Institute (InCor), University of Sao Paulo Medical School, Sao Paulo, Brazil.

54. Cardiovascular interactions between losartan and fructose in mice. J Cardiovasc Pharmacol Ther. 2010 Mar;15(1):68-77. Epub 2009 Dec 7.
Senador D, Key M, Brosnihan KB, Irigoyen MC, Elased KM, Morris M.
Wright State University, Boonshoft School of Medicine, Dayton, USA.

55. Ace gene dosage influences the development of renovascular hypertension. Clin Exp Pharmacol Physiol. 2010 Apr;37(4):490-5. Epub 2009 Nov 23.
Ceroni A, Moreira ED, Mostarda CT, Silva GJ, Krieger EM, Irigoyen MC.
Institute of Biomedical Science (ICB), Medical School, University of São Paulo, São Paulo, Brazil.

56. Baroreflex deficit blunts exercise training-induced cardiovascular and autonomic adaptations in hypertensive rats. Clin Exp Pharmacol Physiol. 2010 Mar;37(3):e114-20. Epub 2009 Nov 23.
Moraes-Silva IC, De La Fuente RN, Mostarda C, Rosa K, Flues K, Damaceno-Rodrigues NR, Caldini EG, De Angelis K, Krieger EM, Irigoyen MC.
Experimental Hypertension Laboratory, Hypertension Unit, Heart Institute, Sao Paulo, Brazil.

57. Autonomic impairment after myocardial infarction: role in cardiac remodelling and mortality. Clin Exp Pharmacol Physiol. 2010 Apr;37(4):447-52. Epub 2009 Oct 29.
Mostarda C, Rodrigues B, Vane M, Moreira ED, Rosa K, Moraes-Silva IC, Lacchini S, Casarini DE, De Angelis K, Irigoyen MC.
Hypertension Unit, Heart Institute (InCor), Medical School, University of São Paulo, São Paulo, Brazil.

58. Androgenicity and venous endothelial function in postmenopausal women. J Endocrinol Invest. 2009 Oct 9. [Epub ahead of print]
Maturana MA, Rubira MC, Consolin-Colombo F, Irigoyen MC, Spritzer PM.

Gynecological Endocrinology Unit, Division of Endocrinology, Hospital de Clínicas de Porto Alegre, Porto Alegre, RS, Brazil.

59. Tonic and reflex cardiovascular autonomic control in trained-female rats. Braz J Med Biol Res. 2009 Oct;42(10):942-8.
Sanches IC, Sartori M, Jorge L, Irigoyen MC, De Angelis K.
Laboratório do Movimento Humano, Universidade São Judas Tadeu, São Paulo, Brasil.

60. Factors associated with health-related quality of life after successful kidney transplantation: a population-based study. Qual Life Res. 2009 Nov;18(9):1185-93. Epub 2009 Sep 10.
Bohlke M, Marini SS, Rocha M, Terhorst L, Gomes RH, Barcellos FC, Irigoyen MC, Sesso R.
Universidade Católica de Pelotas, Pelotas, Brazil.

61. Reversal of postprandial endothelial dysfunction by cyclooxygenase inhibition in healthy volunteers. J Cardiovasc Pharmacol. 2009 Jul;54(1):90-3.
Signori LU, da Silva AM, Plentz RD, Moreno H Jr, Irigoyen MC, Schaan BD.
Institute of Cardiology of Rio Grande do Sul/University Foundation of Cardiology.

62. A brief review of chronic exercise intervention to prevent autonomic nervous system changes during the aging process. Clinics (Sao Paulo). 2009;64(3):253-8.
Wichi RB, De Angelis K, Jones L, Irigoyen MC.
Human Movement Laboratory, Sao Judas Tadeu University - São Paulo/SP, Brazil.

63. Cardiovascular and autonomic phenotype of db/db diabetic mice. Exp Physiol. 2009 Jun;94(6):648-58. Epub 2009 Feb 13.
Senador D, Kanakamedala K, Irigoyen MC, Morris M, Elased KM.
Boonshoft School of Medicine, Wright State University, Dayton, USA.

64. Exercise improves cardiovascular control in a model of dislipidemia and menopause. Maturitas. 2009 Feb 20;62(2):200-4. Epub 2009 Jan 31.
Heeren MV, De Sousa LE, Mostarda C, Moreira E, Machert H, Rigatto KV, Wichi RB, Irigoyen MC, De Angelis K.
Human Movement Laboratory, São Judas Tadeu University, Sao Paulo, Brazil.

65. Exercise training reduces cardiac angiotensin II levels and prevents cardiac dysfunction in a genetic model of sympathetic hyperactivity-induced heart failure in mice. Eur J Appl Physiol. 2009 Apr;105(6):843-50. Epub 2009 Jan 6.
Pereira MG, Ferreira JC, Bueno CR Jr, Mattos KC, Rosa KT, Irigoyen MC, Oliveira EM, Krieger JE, Brum PC.
School of Physical Education and Sport, University of Sao Paulo, Sao Paulo, Brazil.

66. Reduced cortical renal GLUT1 expression induced by angiotensin-converting enzyme inhibition in diabetic spontaneously hypertensive rats. Braz J Med Biol Res. 2008 Nov;41(11):960-8.
Souza MS, Machado UF, Okamoto M, Bertoluci MC, Ponpermeyer C, Leguisamo N, Azambuja F, Irigoyen MC, Schaan BD.
Instituto de Cardiologia do Rio Grande do Sul, Fundação Universitária de Cardiologia, Porto Alegre, RS, Brasil.

67. Diabetes and cardiovascular autonomic dysfunction: application of animal models. Auton Neurosci. 2009 Jan 28;145(1-2):3-10. Epub 2008 Dec 2.
De Angelis K, Irigoyen MC, Morris M.
Pharmacology and Toxicology, Boonshoft School of Medicine, Wright State University, Dayton, USA.

68. Benefits of exercise training in diabetic rats persist after three weeks of detraining. Auton Neurosci. 2009 Jan 28;145(1-2):11-6. Epub 2008 Nov 20.
Mostarda C, Rogow A, Silva IC, De La Fuente RN, Jorge L, Rodrigues B, Heeren MV, Caldini EG, De Angelis K, Irigoyen MC.
Heart Institute (InCor), University of Sao Paulo - Medical School - FMUSP, Brazil.

69. A new controlled release system of chlorhexidine and chlorhexidine:*b*cd inclusion compounds based on porous silica. J Incl Phenom Macrocycl Chem. 2009.Oct.; 29.
Eliete Marc¸al Guimara˜es Raso • Maria Esperanza Cortes •Karina Imaculada Teixeira • Milton Batista Franco • Nelcy Della Santina Mohallem • Ruben Dario Sinisterra.

70. Bioceramic/poly (glycolic)-poly (lactic acid) composite induces mineralized barrier after direct capping of rat tooth pulp tissue. Braz Oral Res. 2010 Mar;24(1):8-14.
Gala-Garcia A, Teixeira KI, Wykrota FH, Sinisterra RD, Cortés ME.
Restorative Dentistry Department, School of Dentistry, Federal University of Minas Gerais, Belo Horizonte, MG, Brazil.

71. In vitro lethal photosensitization of S. mutans using methylene blue and toluidine blue O as photosensitizers. Acta Odontol Latinoam. 2009;22(2):93-7.
Araújo PV, Teixeira KI, Lanza LD, Cortes ME, Poletto LT.
Departamento de Odontologia Restauradora da Faculdade de Odontologia da Universidade Federal de Minas Gerais, Brazil.

72. Bradykinin B2 receptor agonism: a novel therapeutic strategy for myocardial infarction? Am J Hypertens. 2010 May;23(5):459.
Duchene J, Bader M.
Max-Delbrupsilonck Center for Molecular Medicine, Berlin-Buch, Germany.

73. SORLA/SORL1 functionally interacts with SPAK to control renal activation of Na+-K+-Cl- cotransporter 2. Mol Cell Biol. 2010 Apr 12. [Epub ahead of print]
Reiche J, Theilig F, Rafiqi FH, Militz D, Mutig K, Todiras M, Christensen EI, Ellison DH, Bader M, Nykjaer A, Bachmann S, Alessi D, Willnow TE.
Max-Delbrück-Center for Molecular Medicine and Institute for Anatomy, Charité, Universitätsmedizin, Berlin, Germany; School of Life Sciences, University of Dundee, UK; Departments of Anatomy and The Lundbeck Foundation Research Center MIND, University of Aarhus, Denmark; and Oregon Health & Science University, Portland,USA.

74. Characterization of trophoblast and extraembryonic endoderm cell lineages derived from rat preimplantation embryos. PLoS One. 2010 Mar 29;5(3):e9794.
Chuykin I, Lapidus I, Popova E, Vilianovich L, Mosienko V, Alenina N, Binas B, Chai G, Bader M, Krivokharchenko A.
Max-Delbrupsilonck Center for Molecular Medicine, Berlin-Buch, Germany.

75. Inhibition of bradykinin receptor B1 protects mice from focal brain injury by reducing blood-brain barrier leakage and inflammation. J Cereb Blood Flow Metab. 2010 Mar 3. [Epub ahead of print]
Raslan F, Schwarz T, Meuth SG, Austinat M, Bader M, Renné T, Roosen K, Stoll G, Sirén AL, Kleinschnitz C.
Department of Neurosurgery, University of Würzburg, Würzburg, Germany.

76. Increased blood pressure and water intake in transgenic mice expressing rat tonin in the brain. Biol Chem. 2010 Apr;391(4):435-41.
Cardoso CC, Alenina N, Ferreira AJ, Qadri F, Lima MP, Gross V, Todiras M, Pesquero JB, Pesquero JL, Bader M.
Max-Delbrück Center for Molecular Medicine, Berlin-Buch, Germany.

77. Direct angiotensin II type 2 receptor stimulation acts anti-inflammatory through epoxyeicosatrienoic acid and inhibition of nuclear factor kappaB. Hypertension. 2010 Apr;55(4):924-31. Epub 2010 Feb 15.
Rompe F, Artuc M, Hallberg A, Alterman M, Ströder K, Thöne-Reineke C, Reichenbach A, Schacherl J, Dahlöf B, Bader M, Alenina N, Schwaninger M, Zuberbier T, Funke-Kaiser H, Schmidt C, Schunck WH, Unger T, Steckelings UM.
Center for Cardiovascular Research, Charité-Universitätsmedizin Berlin, Germany.

78. Tryptophan hydroxylase as novel target for the treatment of depressive disorders. Pharmacology. 2010;85(2):95-109. Epub 2010 Feb 3.
Matthes S, Mosienko V, Bashammakh S, Alenina N, Bader M.
Max Delbrück Center for Molecular Medicine, Berlin-Buch, Germany.

79. Alternative splicing and extensive RNA editing of human TPH2 transcripts. PLoS One. 2010 Jan 29;5(1):e8956.
Grohmann M, Hammer P, Walther M, Paulmann N, Büttner A, Eisenmenger W, Baghai TC, Schüle C, Rupprecht R, Bader M, Bondy B, Zill P, Priller J, Walther DJ.
Department of Human Molecular Genetics, Max Planck Institute for Molecular Genetics, Berlin, Germany.

80. Visinin-like protein 1 regulates natriuretic peptide receptor B in the heart. Regul Pept. 2010 Apr 9;161(1-3):51-7. Epub 2010 Jan 14.
Buttgereit J, Qadri F, Monti J, Langenickel TH, Dietz R, Braunewell KH, Bader M.
Max-Delbrück-Center for Molecular Medicine (MDC), Campus Berlin-Buch, Berlin, Germany.

81. Tissue renin-angiotensin-aldosterone systems: Targets for pharmacological therapy. Annu Rev Pharmacol Toxicol. 2010;50:439-65.
Bader M.
Max-Delbrück Center for Molecular Medicine, Berlin-Buch, Germany.

82. Signal transduction in CHO cells stably transfected with domain-selective forms of murine ACE. Biol Chem. 2010 Feb-Mar;391(2-3):235-44.
Sun X, Rentzsch B, Gong M, Eichhorst J, Pankow K, Papsdorf G, Maul B, Bader M, Siems WE.
Leibniz-Institut für Molekulare Pharmakologie, Berlin, Germany.

83. Rat models of cardiovascular diseases. Methods Mol Biol. 2010;597:403-14.
Bader M.
Max-Delbrück-Center for Molecular Medicine (MDC), Berlin, Germany.

84. Autonomic dysregulation in ob/ob mice is improved by inhibition of angiotensin-converting enzyme. J Mol Med. 2010 Apr;88(4):383-90. Epub 2009 Dec 12.
Hilzendeger AM, Goncalves AC, Plehm R, Diedrich A, Gross V, Pesquero JB, Bader M.
Department of Biophysics, Escola Paulista de Medicina, Federal University of São Paulo, São Paulo, SP, Brazil.

85. Central control of fever and female body temperature by RANKL/RANK. Nature. 2009 Nov 26;462(7272):505-9.
Hanada R, Leibbrandt A, Hanada T, Kitaoka S, Furuyashiki T, Fujihara H, Trichereau J, Paolino M, Qadri F, Plehm R, Klaere S, Komnenovic V, Mimata H, Yoshimatsu H, Takahashi N, von Haeseler A, Bader M, Kilic SS, Ueta Y, Pifl C, Narumiya S, Penninger JM.
IMBA, Institute of Molecular Biotechnology of the Austrian Academy of Sciences, Vienna, Austria.

86. The past, present and future of angiotensin II type 2 receptor stimulation. J Renin Angiotensin Aldosterone Syst. 2010 Mar;11(1):67-73. Epub 2009 Oct 27.
Steckelings UM, Rompe F, Kaschina E, Namsolleck P, Grzesiak A, Funke-Kaiser H, Bader M, Unger T.
Center for Cardiovascular Research, Institute of Pharmacology, Charité - Universitätsmedizin Berlin, Germany.

87. Intracellular serotonin modulates insulin secretion from pancreatic beta-cells by protein serotonylation. PLoS Biol. 2009 Oct;7(10):e1000229. Epub 2009 Oct 27.
Paulmann N, Grohmann M, Voigt JP, Bert B, Vowinckel J, Bader M, Skelin M, Jevsek M, Fink H, Rupnik M, Walther DJ.
Department of Human Molecular Genetics, Max Planck Institute for Molecular Genetics, Berlin, Germany.

88. Stress sensitivity is increased in transgenic rats with low brain angiotensinogen. J Endocrinol. 2010 Jan;204(1):85-92. Epub 2009 Oct 6.
Müller H, Kröger J, Jöhren O, Szymczak S, Bader M, Dominiak P, Raasch W.
Institute of Experimental and Clinical Pharmacology and Toxicology Institute of Medical Biometry and Statistics, University of Lübeck, Germany.

89. Inducible transgenic rat model for diabetes mellitus based on shRNA-mediated gene knockdown. PLoS One. 2009;4(4):e5124. Epub 2009 Apr 2.
Kotnik K, Popova E, Todiras M, Mori MA, Alenina N, Seibler J, Bader M.
Max Delbrück Center for Molecular Medicine (MDC), Berlin, Germany.

90. Efficient production of nuclear transferred rat embryos by modified methods of reconstruction. Mol Reprod Dev. 2009 Feb;76(2):208-16.
Popova E, Bader M, Krivokharchenko A.
Max-Delbrück-Center for Molecular Medicine (MDC), Berlin-Buch, Germany.

91. The role of bradykinin B(1) and B(2) receptors for secondary brain damage after traumatic brain injury in mice. J Cereb Blood Flow Metab. 2010 Jan;30(1):130-9. Epub 2009 Sep 23.
Trabold R, Erös C, Zweckberger K, Relton J, Beck H, Nussberger J, Müller-Esterl W, Bader M, Whalley E, Plesnila N.
Department for Neurosurgery, University of Munich Medical Center, Munich, Germany.

92. The FunGenES database: a genomics resource for mouse embryonic stem cell differentiation. PLoS One. 2009 Sep 3;4(9):e6804.
Schulz H, Kolde R, Adler P, Aksoy I, Anastassiadis K, Bader M, Billon N, Boeuf H, Bourillot PY, Buchholz F, Dani C, Doss MX, Forrester L, Gitton M, Henrique D, Hescheler J, Himmelbauer H, Hübner N, Karantzali E, Kretsovali A, Lubitz S, Pradier L, Rai M, Reimand J, Rolletschek A, Sachinidis A, Savatier P, Stewart F, Storm MP, Trouillas M, Vilo J, Welham MJ, Winkler J, Wobus AM, Hatzopoulos AK; Functional Genomics in Embryonic Stem Cells Consortium.
Max-Delbrück-Center for Molecular Medicine Berlin-Buch, Berlin, Germany.

93. Connective tissue growth factor overexpression in cardiomyocytes promotes cardiac hypertrophy and protection against pressure overload. PLoS One. 2009 Aug 25;4(8):e6743.
Panek AN, Posch MG, Alenina N, Ghadge SK, Erdmann B, Popova E, Perrot A, Geier C, Dietz R, Morano I, Bader M, Ozcelik C.
Department of Cardiovascular and Metabolic Disease Research, Max Delbrück Center for Molecular Medicine, Berlin, Germany.

94. Predisposition to atherosclerosis and aortic aneurysms in mice deficient in kinin B1 receptor and apolipoprotein E. J Mol Med. 2009 Oct;87(10):953-63. Epub 2009 Jul 18.
Merino VF, Todiras M, Mori MA, Sales VM, Fonseca RG, Saul V, Tenner K, Bader M, Pesquero JB.
Department of Biophysics, Federal University of São Paulo (UNIFESP), São Paulo, Brazil.

95. Impairment of the angiotensin-converting enzyme 2-angiotensin-(1-7)-Mas axis contributes to the acceleration of two-kidney, one-clip Goldblatt hypertension. J Hypertens. 2009 Oct;27(10):1988-2000.
Bürgelová M, Vanourková Z, Thumová M, Dvorák P, Opocenský M, Kramer HJ, Zelízko M, Malý J, Bader M, Cervenka L.
Department of Nephrology, Transplant Center, Czech Republic.

96. Activation of kinin receptor B1 limits encephalitogenic T lymphocyte recruitment to the central nervous system. Nat Med. 2009 Jul;15(7):788-93. Epub 2009 Jun 28.
Schulze-Topphoff U, Prat A, Prozorovski T, Siffrin V, Paterka M, Herz J, Bendix I, Ifergan I, Schadock I, Mori MA, Van Horssen J, Schröter F, Smorodchenko A, Han MH, Bader M, Steinman L, Aktas O, Zipp F.
Cecilie Vogt Klinik, Charité-University Hospital Berlin, Max Delbrueck Center for Molecular Medicine and NeuroCure Research Center, Berlin, Germany.

97. CENTB5 gene expression in human and mouse. Mol Biol (Mosk). 2009 May-Jun;43(3):407-13.
Shubina DM, Suchkova IO, Slominskaia NA, Alenina N, Bader M, Patkin EL.
Max-Delbrück-Center for Molecular Medicine (MDC), Berlin-Buch, Germany.

98. Growth retardation and altered autonomic control in mice lacking brain serotonin. Proc Natl Acad Sci U S A. 2009 Jun 23;106(25):10332-7. Epub 2009 Jun 11.
Alenina N, Kikic D, Todiras M, Mosienko V, Qadri F, Plehm R, Boyé P, Vilianovitch L, Sohr R, Tenner K, Hörtnagl H, Bader M.
Max-Delbrück-Center for Molecular Medicine, Berlin, Germany.

99. Neutrophil-derived proteinase 3 induces kallikrein-independent release of a novel vasoactive kinin. J Immunol. 2009 Jun 15;182(12):7906-15.

Kahn R, Hellmark T, Leeb-Lundberg LM, Akbari N, Todiras M, Olofsson T, Wieslander J, Christensson A, Westman K, Bader M, Müller-Esterl W, Karpman D.
Department of Pediatrics, Clinical Sciences Lund, Lund University, Lund, Sweden.

100. Cross talk between kinin and angiotensin II receptors in mouse abdominal aorta. Biol Chem. 2009 Sep;390(9):907-13.
Rodrigues ES, Martin RP, Felipe SA, Bader M, Oliveira SM, Shimuta SI.
Department of Biophysics, Universidade Federal de São Paulo-Escola Paulista de Medicina, São Paulo, Brazil.

101. Gene deletion of the kinin receptor B1 attenuates cardiac inflammation and fibrosis during the development of experimental diabetic cardiomyopathy. Diabetes. 2009 Jun;58(6):1373-81. Epub 2009 Mar 10.
Westermann D, Walther T, Savvatis K, Escher F, Sobirey M, Riad A, Bader M, Schultheiss HP, Tschöpe C.
Department of Cardiology and Pneumology, Charité -Universitä tsmedizinBerlin, Campus Benjamin Franklin, Berlin, Germany.

102. Excessive Hypertension and End-organ Damage in a Transgenic Mouse Line Carrying the Rat Angiotensinogen Gene. J Cardiovasc Pharmacol. 2009 Jan 6. [Epub ahead of print]
Xu P, Wang Y, Sterner-Kock A, Bader M, Schultheiss HP, Walther T.
Department of Cardiology, Charité-Universitätsmedizin Berlin, Campus Benjamin Franklin, Berlin, Germany; dagger Centre for Biomedical Research, Hull York Medical School, University of Hull, Hull, United Kingdom; double daggerInstitute for Veterinary Pathology, Freie Universität, Berlin, Germany; and section signMax-Delbrück Centre, Berlin-Buch, Germany.

103. The kinin B1 receptor contributes to the cardioprotective effect of angiotensin-converting enzyme inhibitors and angiotensin receptor blockers in mice. Exp Physiol. 2009 Mar;94(3):322-9. Epub 2008 Dec 5.
Xu J, Carretero OA, Shesely EG, Rhaleb NE, Yang JJ, Bader M, Yang XP.
Hypertension and Vascular Research Division, Department of Internal Medicine, Henry Ford Hospital, Detroit, USA.

104. Diabetic hypertensive leptin receptor-deficient db/db mice develop cardioregulatory autonomic dysfunction. Hypertension. 2009 Feb;53(2):387-92. Epub 2008 Nov 24.
Goncalves AC, Tank J, Diedrich A, Hilzendeger A, Plehm R, Bader M, Luft FC, Jordan J, Gross V.
Max Delbrück Center for Molecular Medicine, Robert-Rössle-Strasse 10,13125 Berlin, Germany.

105. Spectral imaging reveals microvessel physiology and function from anastomoses to thromboses. J Biomed Opt. 2010 Jan-Feb;15(1):011111.
Wankhede M, Agarwal N, Fraga-Silva RA, deDeugd C, Raizada MK, Oh SP, Sorg BS.
University of Florida, College of Engineering, J. Crayton Pruitt Family Department of Biomedical Engineering, Gainesville, USA.

106. ACE2 Activation Promotes Anti-Thrombotic Activity. Mol Med. 2010 Jan 29. [Epub ahead of print]
Fraga-Silva RA, Sorg BS, Wankhede M, Dedeugd C, Jun JY, Baker MB, Li Y, Castellano RK, Katovich MJ, Raizada MK, Ferreira AJ.

Departments of Physiology and Functional Genomics.

107. Prevention of pulmonary hypertension by Angiotensin-converting enzyme 2 gene transfer. Hypertension. 2009 Aug;54(2):365-71. Epub 2009 Jun 29.
Yamazato Y, Ferreira AJ, Hong KH, Sriramula S, Francis J, Yamazato M, Yuan L, Bradford CN, Shenoy V, Oh SP, Katovich MJ, Raizada MK.
Department of Physiology and Functional Genomics, College of Medicine, University of Florida, Gainesville, USA.

108. Evidence for angiotensin-converting enzyme 2 as a therapeutic target for the prevention of pulmonary hypertension. Am J Respir Crit Care Med. 2009 Jun 1;179(11):1048-54. Epub 2009 Feb 26.
Ferreira AJ, Shenoy V, Yamazato Y, Sriramula S, Francis J, Yuan L, Castellano RK, Ostrov DA, Oh SP, Katovich MJ, Raizada MK.
Department of Physiology and Functional Genomics, College of Medicine, Gainesville, USA.

109. Quercetin/beta-cyclodextrin solid complexes prepared in aqueous solution followed by spray-drying or by physical mixture. AAPS PharmSciTech. 2009;10(1):235-42. Epub 2009 Mar 12.
Borghetti GS, Lula IS, Sinisterra RD, Bassani VL.
Universidade Federal do Rio Grande do Sul, Porto Alegre, Rio Grande do Sul, Brazil.

110. Studies on coumestrol/beta-cyclodextrin association: Inclusion complex characterization. Int J Pharm. 2009 Mar 18;369(1-2):5-11. Epub 2008 Nov 5.
Franco C, Schwingel L, Lula I, Sinisterra RD, Koester LS, Bassani VL.
Programa de Pós-Graduação em Ciências Farmacêuticas, Faculdade de Farmácia, Universidade Federal do Rio Grande do Sul. Porto Alegre, RS, Brazil.

111. Metformin inhibits inflammatory angiogenesis in a murine sponge model. Biomed Pharmacother. 2010 Mar;64(3):220-5. Epub 2009 Oct 24.
Xavier DO, Amaral LS, Gomes MA, Rocha MA, Campos PR, Cota BD, Tafuri LS, Paiva AM, Silva JH, Andrade SP, Belo AV.
FUMEC University, Physiology, Nova Lima, Minas Gerais, Brazil.

112. Brazilian Green Propolis Inhibits Inflammatory Angiogenesis in a Murine Sponge Model. Evid Based Complement Alternat Med.. [Epub ahead of print]
Moura SA, Ferreira MA, Andrade SP, Reis ML, Noviello MD, Cara DC.
Institute of Biological Sciences, Federal University of Minas Gerais (UFMG), Belo Horizonte, Minas Gerais, Brazil.

113. Atorvastatin inhibits inflammatory angiogenesis in mice through down regulation of VEGF, TNF-alpha and TGF-beta1. Biomed Pharmacother. 2010 Jan;64(1):29-34. Epub 2009 Sep 8.
Araújo FA, Rocha MA, Mendes JB, Andrade SP.
Department of Physiology and Biophysics, Institute of Biological Sciences, Federal University of Minas Gerais-UFMG, Belo Horizonte, Brazil.

114. Differential effects of rolipram on chronic subcutaneous inflammatory angiogenesis and on peritoneal adhesion in mice. Microvasc Res. 2009 Dec;78(3):265-71. Epub 2009 Sep 2.
Mendes JB, Rocha MA, Araújo FA, Moura SA, Ferreira MA, Andrade SP.

Departments of Physiology and Biophysics and General Pathology, Institute of Biological Sciences, Federal University of Minas Gerais, Belo Horizonte, Brazil.

115. Aqueous Extract of Brazilian Green Propolis: Primary Components, Evaluation of Inflammation and Wound Healing by Using Subcutaneous Implanted Sponges. Evid Based Complement Alternat Med. 2009 Aug 18. [Epub ahead of print]
Moura SA, Negri G, Salatino A, Lima LD, Dourado LP, Mendes JB, Andrade SP, Ferreira MA, Cara DC.
Department of Physiology, Institute of Biological Sciences, Federal University of Minas Gerais-UFMG, Belo Horizonte, Minas Gerais, Brazil.

116. The sponge implant model of angiogenesis. Methods Mol Biol. 2009;467:295-304.
Andrade SP, Ferreira MA.
Department of Physiology, Institute of Biological Sciences, Federal University of Minas Gerais, Brazil.

117. Cilostazol and pentoxifylline decrease angiogenesis, inflammation, and fibrosis in sponge-induced intraperitoneal adhesion in mice. Life Sci. 2009 Apr 10;84(15-16):537-43. Epub 2009 Feb 14.
Mendes JB, Campos PP, Rocha MA, Andrade SP.
Department of Physiology and Biophysics, Institute of Biological Sciences, Federal University of Minas Gerais, Belo Horizonte/MG, Brazil.

118. Granulocyte-macrophage colony-stimulating factor gene based therapy for acute limb ischemia in a mouse model. J Gene Med. 2009 Apr;11(4):345-53.
Sacramento CB, Cantagalli VD, Grings M, Carvalho LP, Baptista-Silva JC, Beutel A, Bergamaschi CT, de Campos Junior RR, de Moraes JZ, Takiya CM, Samoto VY, Borojevic R, da Silva FH, Nardi NB, Dohmann HF, Junior HS, Valero VB, Han SW.
Interdisciplinary Center for Gene Therapy, Federal University of São Paulo, São Paulo, Brazil.

119. Synergistic effect of vascular endothelial growth factor and granulocyte colony-stimulating factor double gene therapy in mouse limb ischemia. J Gene Med. 2010 Mar;12(3):310-9.
Sacramento CB, da Silva FH, Nardi NB, Yasumura EG, Baptista-Silva JC, Beutel A, de Campos RR, de Moraes JZ, Junior HS, Samoto VY, Borojevic R, Han SW.
Interdisciplinary center for gene therapy, Federal University of São Paulo, São Paulo-SP, Brazil.

120. Alterations in oxidative markers in the cerebellum and peripheral organs in MPS I mice. Cell Mol Neurobiol. 2009 Jun;29(4):443-8. Epub 2008 Dec 25.
Reolon GK, Reinke A, de Oliveira MR, Braga LM, Camassola M, Andrades ME, Moreira JC, Nardi NB, Roesler R, Dal-Pizzol F.
Department of Pharmacology, Cellular and Molecular Neuropharmacology Research Group, Institute for Basic Health Sciences, and Cancer Research Laboratory, Academic Hospital Research Center, Federal University of Rio Grande do Sul, Porto Alegre, RS, Brazil.

121. Mesenchymal stem cells as a platform for gene therapy protocols. Science Progress (2010), 93(2), 153–000
Dalberto, T.P; Nardi, N.B.; Camassola, M.

122. Effects of therapeutic angiogenesis with plasmid VEGF165 on ventricular function in a canine model of chronic myocardial infarction. Rev Bras Cir Cardiovasc. 2009 Jun;24(2):143-9.
Furlani AP, Kalil RA, Castro I, Cañedo-Delgado A, Barra M, Prates PR, Sant'Anna RT, Nesralla IA.
Instituto de Cardiologia do Rio Grande do Sul / Fundação Universitária de Cardiologia, Porto Alegre, RS, Brasil.

123. Alpha1A-adrenergic receptor-directed autoimmunity induces left ventricular damage and diastolic dysfunction in rats. PLoS One. 2010 Feb 24;5(2):e9409.
Wenzel K, Wallukat G, Qadri F, Hubner N, Schulz H, Hummel O, Herse F, Heuser A, Fischer R, Heidecke H, Luft FC, Muller DN, Dietz R, Dechend R.
Medical Faculty of the Charité, Berlin, Germany.

124. Distinct patterns of autoantibodies against G-protein-coupled receptors in Chagas' cardiomyopathy and megacolon. Their potential impact for early risk assessment in asymptomatic Chagas' patients. J Am Coll Cardiol. 2010 Feb 2;55(5):463-8.
Wallukat G, Muñoz Saravia SG, Haberland A, Bartel S, Araujo R, Valda G, Duchen D, Diaz Ramirez I, Borges AC, Schimke I.
Max-Delbrück-Centrum Berlin, Berlin, Germany.

125. Cellular uptake and biological activity of peptide nucleic acids conjugated with peptides with and without cell-penetrating ability. J Pept Sci. 2010 Jan;16(1):71-80.
Turner Y, Wallukat G, Säälik P, Wiesner B, Pritz S, Oehlke J.
Leibniz-Institute of Molecular Pharmacology, Berlin, Germany.

126. Hypertension in response to autoantibodies to the angiotensin II type I receptor (AT1-AA) in pregnant rats: role of endothelin-1. Hypertension. 2009 Oct;54(4):905-9. Epub 2009 Aug 24.
LaMarca B, Parrish M, Ray LF, Murphy SR, Roberts L, Glover P, Wallukat G, Wenzel K, Cockrell K, Martin JN Jr, Ryan MJ, Dechend R.
Department of Obstetrics & Gynecology, Division of Maternal-Fetal Medicine, University of Mississippi Medical Center, USA.

127. Prevalence of agonistic autoantibodies against the angiotensin II type 1 receptor and soluble fms-like tyrosine kinase 1 in a gestational age-matched case study. Hypertension. 2009 Feb;53(2):393-8. Epub 2008 Dec 8.
Herse F, Verlohren S, Wenzel K, Pape J, Muller DN, Modrow S, Wallukat G, Luft FC, Redman CW, Dechend R.
Medical Faculty of the Charité, Franz-Volhard Clinic, HELIOS Klinikum Berlin-Buch and Experimental and Clinical Research Center, Berlin, Germany.

128. Potential relevance of alpha(1)-adrenergic receptor autoantibodies in refractory hypertension. PLoS One. 2008;3(11):e3742. Epub 2008 Nov 17.
Wenzel K, Haase H, Wallukat G, Derer W, Bartel S, Homuth V, Herse F, Hubner N, Schulz H, Janczikowski M, Lindschau C, Schroeder C, Verlohren S, Morano I, Muller DN, Luft FC, Dietz R, Dechend R, Karczewski P.
Medical Faculty of the Charité, Franz-Volhard Clinic and HELIOS Klinikum-Berlin, Experimental and Clinical Research Center, Berlin, Germany.

129. Potentiation of vascular oxidative stress and nitric oxide-mediated endothelial dysfunction by high-fat diet in a mouse model of estrogen deficiency and hyperandrogenemia. J Am Soc Hypertens. 2009 Sep-Oct;3(5):295-305.
Javeshghani D, Schiffrin EL, Sairam MR, Touyz RM.
Vascular and Hypertension Research Unit, Lady Davis Institute for Medical Research, Sir Mortimer B. Davis-Jewish General Hospital, McGill University, Montreal, Quebec, Canada; Reproduction Research Laboratory, Clinical Research Institute of Montreal, Montreal, University of Montreal, Quebec, Canada; Kidney Research Centre, Ottawa Hospital Research Institute, University of Ottawa, Ottawa, Ontario, Canada.

130. Nicotinamide Adenine Dinucleotide Phosphate Reduced Oxidase 5 (Nox5) Regulation by Angiotensin II and Endothelin-1 Is Mediated via Calcium/Calmodulin-Dependent, Rac-1-Independent Pathways in Human Endothelial Cells. Circ Res. 2010 Mar 25. [Epub ahead of print].
Montezano AC, Burger D, Paravicini TM, Chignalia AZ, Yusuf H, Almasri M, He Y, Callera GE, He G, Krause KH, Lambeth D, Quinn MT, Touyz RM.
Kidney Research Centre, Ottawa Hospital Research Institute, University of Ottawa, Ontario, Canada; Department of Geriatrics, Geneva University Hospitals, Switzerland; Department of Pathology Laboratory Medicine, Emory University School of Medicine, Atlanta, Georgia; and Department of Veterinary Molecular Biology, Montana State University, Bozeman.

131. New insights into molecular mechanisms of hypertension. Curr Opin Nephrol Hypertens. 2010 Mar;19(2):160-2.
Burger D, Nishigaki N, Touyz RM.

132. Receptor and nonreceptor tyrosine kinases in vascular biology of hypertension. Curr Opin Nephrol Hypertens. 2010 Mar;19(2):169-76.
Yogi A, O'Connor SE, Callera GE, Tostes RC, Touyz RM.
Kidney Research Center, Ottawa Hospital Research Institute, University of Ottawa, Ottawa, Ontario, Canada.

133. Ethanol-induced vasoconstriction is mediated via redox-sensitive cyclo-oxygenase-dependent mechanisms. Clin Sci (Lond). 2010 Mar 9;118(11):657-68.
Yogi A, Callera GE, Hipólito UV, Silva CR, Touyz RM, Tirapelli CR.
Kidney Research Centre, Ottawa Hospital Research Institute, University of Ottawa, Ontario, Canada.

134. Moderate exercise decreases inflammation and oxidative stress in hypertension: but what are the mechanisms? Hypertension. 2009 Dec;54(6):1206-8. Epub 2009 Oct 19.
Briones AM, Touyz RM.

135. Loss of Lkb1 in adult beta cells increases beta cell mass and enhances glucose tolerance in mice. Cell Metab. 2009 Oct;10(4):285-95.
Fu A, Ng AC, Depatie C, Wijesekara N, He Y, Wang GS, Bardeesy N, Scott FW, Touyz RM, Wheeler MB, Screaton RA.
Apoptosis Research Centre, Children's Hospital of Eastern Ontario Research Institute, Ottawa, Canada.

136. Endothelial cells negatively modulate reactive oxygen species generation in vascular smooth muscle cells: role of thioredoxin. Hypertension. 2009 Aug;54(2):427-33. Epub 2009 Jun 29.

Xu S, He Y, Vokurkova M, Touyz RM.
Kidney Research Centre, University of Ottawa/Ottawa Hospital Research Institute, Canada.

137. Molecular mechanisms of hypertension: role of Nox family NADPH oxidases. Curr Opin Nephrol Hypertens. 2009 Mar;18(2):122-7.
Sedeek M, Hébert RL, Kennedy CR, Burns KD, Touyz RM.
Kidney Research Centre, Ottawa Health Research Institute, University of Ottawa, Ontario, Canada.

138. Regulation of the novel Mg2+ transporter transient receptor potential melastatin 7 (TRPM7) cation channel by bradykinin in vascular smooth muscle cells. J Hypertens. 2009 Jan;27(1):155-66.
Callera GE, He Y, Yogi A, Montezano AC, Paravicini T, Yao G, Touyz RM.
Kidney Research Centre, Ottawa Health Research Institute, University of Ottawa, Ontario, Canada.

139. Expression of NAD(P)H oxidase subunits and their contribution to cardiovascular damage in aldosterone/salt-induced hypertensive rat. J Korean Med Sci. 2008 Dec;23(6):1039-45. Epub 2008 Dec 24.
Park YM, Lim BH, Touyz RM, Park JB.
Samsung Biomedical Research Institutue, Ottawa Health Research Institute, University of Ottawa, Ottawa, Canada.

140. Dysregulation of vascular TRPM7 and annexin-1 is associated with endothelial dysfunction in inherited hypomagnesemia. Hypertension. 2009 Feb;53(2):423-9. Epub 2008 Dec 22.
Paravicini TM, Yogi A, Mazur A, Touyz RM.
Kidney Research Centre, University of Ottawa/Ottawa Health Research Institute, Canada.

141. Brain-selective overexpression of human Angiotensin-converting enzyme type 2 attenuates neurogenic hypertension. Circ Res. 2010 Feb 5;106(2):373-82. Epub 2009 Nov 19.
Feng Y, Xia H, Cai Y, Halabi CM, Becker LK, Santos RA, Speth RC, Sigmund CD, Lazartigues E.
Louisiana State University Health Sciences Center, School of Medicine, Department of Pharmacology and Experimental Therapeutics, New Orleans, USA.

142. ACE2: A new target for neurogenic hypertension. Exp Physiol. 2009 Nov 18. [Epub ahead of print]
Feng Y, Xia H, Santos RA, Speth RC, Lazartigues E.
Louisiana State University Health Sciences Center, School of Medicine, Department of Pharmacology and Experimental Therapeutics, New Orleans, USA.

143.Angiotensin-(1-7) prevents cardiomyocyte pathological remodeling through a nitric oxide/guanosine 3',5'-cyclic monophosphate-dependent pathway. Hypertension. 2010 Jan;55(1):153-60. Epub 2009 Dec 7.
Gomes ER, Lara AA, Almeida PW, Guimarães D, Resende RR, Campagnole-Santos MJ, Bader M, Santos RA, Guatimosim S.
Department of Physiology and Biophysics, Federal University of Minas Gerais, Belo Horizonte MG, Brazil.

144. The role of angiotensin-(1-7) receptor Mas in spermatogenesis in mice and rats. J Anat. 2009 May;214(5):736-43.
Leal MC, Pinheiro SV, Ferreira AJ, Santos RA, Bordoni LS, Alenina N, Bader M, França LR.
Department of Morphology, Federal University of Minas Gerais, Belo Horizonte, MG, Brazil.

145. Genetic deletion of the angiotensin-(1-7) receptor Mas leads to glomerular hyperfiltration and microalbuminuria. Kidney Int. 2009 Jun;75(11):1184-93. Epub 2009 Mar 4.
Pinheiro SV, Ferreira AJ, Kitten GT, da Silveira KD, da Silva DA, Santos SH, Gava E, Castro CH, Magalhães JA, da Mota RK, Botelho-Santos GA, Bader M, Alenina N, Santos RA, Simoes e Silva AC.
Department of Pediatrics, Federal University of Minas Gerais, Belo Horizonte, Brazil.

146. Angiotensin-(1-7) activates a tyrosine phosphatase and inhibits glucose-induced signalling in proximal tubular cells. Nephrol Dial Transplant. 2009 Jun;24(6):1766-73. Epub 2009 Jan 14.
Gava E, Samad-Zadeh A, Zimpelmann J, Bahramifarid N, Kitten GT, Santos RA, Touyz RM, Burns KD.
Division of Nephrology, Department of Medicine, Kidney Research Centre, Ottawa Health Research Institute, University of Ottawa, Ottawa, Ontario, Canada.

147. Angiotensin-(1-7) antagonist, A-779, microinjection into the caudal ventrolateral medulla of renovascular hypertensive rats restores baroreflex bradycardia. Peptides. 2009 Oct;30(10):1921-7. Epub 2009 Jul 3.
Cangussu LM, de Castro UG, do Pilar Machado R, Silva ME, Ferreira PM, dos Santos RA, Campagnole-Santos MJ, Alzamora AC.
Departamento de Ciências Biológicas, Instituto de Ciências Exatas e Biológicas, Universidade Federal de Ouro Preto, Ouro Preto, MG, Brazil.

148. Attenuation of isoproterenol-induced cardiac fibrosis in transgenic rats harboring an angiotensin-(1-7)-producing fusion protein in the heart. Ther Adv Cardiovasc Dis. 2010 Jan 5. [Epub ahead of print]
Ferreira AJ, Castro CH, Guatimosim S, Almeida PW, Gomes ER, Dias-Peixoto MF, Alves MN, Fagundes-Moura CR, Rentzsch B, Gava E, Almeida AP, Guimarães AM, Kitten GT, Reudelhuber T, Bader M, Santos RA.
Department of Morphology, Federal University of Minas Gerais, Belo Horizonte, Brazil.

149. Gonadotropin stimulation increases the expression of angiotensin-(1--7) and MAS receptor in the rat ovary. Reprod Sci. 2009 Dec;16(12):1165-74. Epub 2009 Aug 24.
Pereira VM, Reis FM, Santos RA, Cassali GD, Santos SH, Honorato-Sampaio K, dos Reis AM.
Department of Physiology and Biophysics, Institute of Biological Sciences, Federal University of Minas Gerais, Belo Horizonte, Minas Gerais, Brazil.

150. Relationship between angiotensin-(1-7) and angiotensin II correlates with hemodynamic changes in human liver cirrhosis. World J Gastroenterol. 2009 May 28;15(20):2512-9.
Vilas-Boas WW, Ribeiro-Oliveira A Jr, Pereira RM, Ribeiro Rda C, Almeida J, Nadu AP, Simões e Silva AC, dos Santos RA.
Department of Physiology, Laboratory of Hypertension, Biological Sciences institute, Federal University of Minas Gerais, Belo Horizonte, MG, Brazil.

151. Renin-angiotensin system in the pathogenesis of liver fibrosis. World J Gastroenterol. 2009 Jun 7;15(21):2579-86.
Pereira RM, dos Santos RA, da Costa Dias FL, Teixeira MM, Simões e Silva AC.
Department of Pediatrics, Faculty of Medicine, Federal University of Minas Gerais,Belo Horizonte, Minas Gerais, Brazil.

152. Structure-function studies of Tityus serrulatus Hypotensin-I (TsHpt-I): a new agonist of B(2) kinin receptor. Toxicon. 2010 Apr 21. [Epub ahead of print]
Verano-Braga T, Figueiredo-Rezende F, Melo MN, Lautner RQ, Gomes ER, Mata-Machado LT, Murari A, Rocha-Resende C, de Lima ME, Santos RA, Guatimosim S, Pimenta AM.
Laboratório de Venenos e Toxinas Animais, Departamento de Bioquímica e Imunologia, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil; Laboratório de Hipertensão, Departamento de Fisiologia e Biofísica, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais,Belo Horizonte, Minas Gerais, Brazil.

153. Angiotensin (1-7) and its receptor Mas are expressed in the human testis: implications for male infertility. J Mol Histol. 2010 Feb;41(1):75-80. Epub 2010 Apr 2.
Reis AB, Araújo FC, Pereira VM, Dos Reis AM, Santos RA, Reis FM.
Department of Physiology, Federal University of Minas Gerais, Belo Horizonte, Brazil.

154. Lifetime overproduction of circulating Angiotensin-(1-7) attenuates deoxycorticosterone acetate-salt hypertension-induced cardiac dysfunction and remodeling. . Hypertension. 2010 Apr;55(4):889-96. Epub 2010 Mar 8.
Santiago NM, Guimarães PS, Sirvente RA, Oliveira LA, Irigoyen MC, Santos RA, Campagnole-Santos MJ.
Laboratory of Hypertension and Instituto Nacional de Ciência e Tecnologia-Nanobiofar, Departamento de Fisiologia e Biofísica, Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil.

155. Improved lipid and glucose metabolism in transgenic rats with increased circulating angiotensin-(1-7). Arterioscler Thromb Vasc Biol. 2010 May;30(5):953-61. Epub 2010 Mar 4.
Santos SH, Braga JF, Mario EG, Pôrto LC, Rodrigues-Machado Mda G, Murari A, Botion LM, Alenina N, Bader M, Santos RA.
Laboratory of Hypertension, INCT-NanoBiofar, Minas Gerais, Brazil.

156. Blockage of Angiotensin II type 2 receptor prevents thyroxine-mediated cardiac hypertrophy by blocking Akt activation. Basic Res Cardiol. 2010 May;105(3):325-35. Epub 2010 Feb 14.
Carneiro-Ramos MS, Diniz GP, Nadu AP, Almeida J, Vieira RL, Santos RA, Barreto-Chaves ML.
Department of Cell and Developmental Biology, Institute of Biomedical Sciences, University of São Paulo, São Paulo, Brazil.

157. Therapeutic implications of the vasoprotective axis of the renin-angiotensin system in cardiovascular diseases. Hypertension. 2010 Feb;55(2):207-13. Epub 2009 Dec 28.
Ferreira AJ, Santos RA, Bradford CN, Mecca AP, Sumners C, Katovich MJ, Raizada MK.
Departments of Physiology and Functional Genomics, University of Florida, Gainesville, USA.

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Activities

Events

- **RENIN-ANGIOTENSIN SYSTEM SYMPOSIUM**

  The Institute organized a satellite symposium of the Joint Meeting SBH/IASH 2009 with the participation of many invited speakers from abroad. Different novel aspects of the renin-angiotensin system were discussed in the symposium. The symposium had more than 400 participants.

FINAL PROGRAM

RENIN ANGIOTENSIN ALDOSTERONE SYSTEM SATELLITE SYMPOSIUM

AUGUST 4, 2009 Tuesday

Date: August, 4
Hour: 2:00 - 6:00pm
Symposium Venue: Ouro Minas Hotel
2:00 - 3:30pm Prorenin/Renin/(P)RR/Renin Inhibition
Chairs: Jan Danser (Rotterdam - The Netherlands)
Geneviève Nguyen (Paris France)
2:00 - 2:30pm Diabetes, Renin System Blockade and the State of the Blood Supply to the Kidney and the Eye
Norman Hollenberg (Brigham and Women's Hospital, Boston, Massachusetts USA)
2:30 - 3:00pm The Rise in Renin During Renin Inhibition: Cause and Consequences
A.H. Jan Danser (Division of Pharmacology, Vascular and Metabolic Diseases, Department of Internal medicine, Erasmus

MC, Rotterdam - The Netherlands)

3:00 - 3:30pm The (Pro)Renin Receptor: Biology and Roles in Pathophysiology
Geneviève Nguyen (Institut National de la Santé et de la Recherche Médicale, Unit 833 and Collège de France, Paris France)
3:30 - 4:00pm Animal Models with Altered (Pro)Renin Receptor Expression
Michael Bader (Max-Delbrueck-Center, Berlin Germany)

4:30 - 6:00pm ACE2-Angiotensin(1-7)-Mas Axis
Chairs: Mariella Gironacci (Buenos Aires Argentina)
Robson Santos (Belo Horizonte Brazil)
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4:30 - 5:00pm ACE2-Angiotensin(1-7)-Mas Axis: an Overview
Robson Santos (Department of Physiology, Federal University of Minas Gerais, Belo Horizonte, MG Brazil)
5:00 - 5:30pm Angiotensin-(1-7) and Protection from Hypertensive Remodeling in Mice
Timothy L. Reudelhuber (Clinical Research Institute of Montréal (IRCM), Montréal Canada)
5:30 - 6:00pm Role of ACE2 in Cardio-Pulmonary Pathophysiology
Mohan K. Raizada (Department of Physiology and Functional Genomics, University of Florida, College of Medicine, Gainesville, Florida USA)
6:00 - 6:30pm Contrasting Roles of the Renin-Angiotensin System in Maternal Uterus and Fetal Placenta in Normal and Preeclamptic Pregnancy
Bridget Brosnihan (Wake Forest Univ. Health Sciences, Winston-Salem USA)

AUGUST 5, 2009 Wednesday

Date: August, 5
Hour: 8:00am - 12:00pm
Symposium Venue: Ouro Minas Hotel
8:00 - 10:00am Aminopeptidase A-Angiotensin III-AT2 Receptor-Bradykinin B2 Receptor-EDHF Axis
Chairs: Michael Bader (Berlin Germany)
João Pesquero (São Paulo Brazil)
8:00 - 8:30am Regulation of Renal Sodium Excretion by Angiotensin III and AT2 receptors
Robert Carey (Division of Endocrinology and Metabolism, Department of Medicine, University of Virginia Health System, Charlottesville, VA USA)
8:30 - 9:00am Orally Active Aminopeptidase A Inhibitors Reduce Blood Pressure: a New Strategy for Treating Hypertension

Catherine Llorens-Cortes (Institut National de la Santé et de la Recherche Médicale, Unit 691 and Collège de France, Paris France)
9:00 - 9:30am Angiotensin AT2 Receptor Agonism a New Pharmacological Concept for Anti-Inflammation and Tissue-Protection?
Ulrike Steckelings (Center for Cardiovascular Research, Charité-Universitätsmedizin Berlin, Berlin Germany)
9:30 - 10:00am Kinin Receptors and Obesity. A New Role for Kinins
3
João B Pesquero (Department of Biophysics, Universidade Federal de São Paulo, São Paulo Brazil)

10:15 - 12:15pm ACE-Angiotensin II-AT1 Receptor-Aldosterone-Mineralocorticoid Receptor Axis
Chairs: Timothy Reudelhuber (Montreal Canada)
Gabriel Navar (New Orleans USA)
10:15 - 10:45am ACE and AT1 Receptor Function as Angiotensin II-Independent Mechanotransducers
Jose Krieger (Heart Institute/Univ. São Paulo Med School, São Paulo Brazil)
10:45 - 11:15am Structural Aspects Related to AT1 Receptor Activation
Claudio Costa-Neto (Department of Biochemistry and Immunology Faculty of Medicine at Ribeirão Preto University of São Paulo, São Paulo - Brazil)
11:15 - 11:45pm Networking Between Angiotensin II and Aldosterone
Rhian Touyz (Kidney Research Centre, Ottawa Health Research Institute, University of Ottawa, Ontario Canada)
11:45 - 12:15pm Effects of Aldosterone on Coronary Function
Claude Delcayre (INSERM Unit 942 Université Paris-Diderot, Hôpital Lariboisière, Paris France)

- # SBH/IASH 2009 Meeting

The coordinator of the INCT-NanoBiofar, Prof. Robson Santos, was the president of the XVII congress of the Brazilian Society of Hypertension and the XVIII scientific session of the Interamerican Society of Hypertension (Belo Horizonte, August 4-8, 2009). Many investigators of the Institute participated in the organizing committee and as speakers in the meeting. NanoBiofar provided air tickets and cover hotel expenses of many speakers from abroad. Details of the meeting can be found at:

http://itpack31.itarget.com.br/uploads/hi2/arquivos/Programacao_Final_02-08-2009noite1.pdf

Education and Training

- ## UFMG & SCHOOLS PROGRAM

The institute is given support to the program UFMG& Schools directed to elementary school students. Prof. Andrea Macedo, investigator of NanoBiofar is one of the coordinators of this educational program. The aim of this program is to teach basic science concepts to young students serving as a motivational activity as well.

- ## Workshops

Two workshops were organized in the period. One of them (November 23-24, 2009) with two invited speakers from the center of excellence in aging and regeneration (CARE, Chile): Dr. Carlos Vio and Enrique Brandan. An agreement for a collaborative project involving NanoBiofar and CARE was made, at the end of the workshop. The first workshop held at Chemistry Department (March 12, 2009) was organized to discuss the research activities scheduled for the first (2009) period.

- ## Hypertension League

The Institute has an Academic Hypertension League (LAH-UFMG). The league has many educational and preventive activities over the year, including the organization of regional events for detection of hypertension.

- # Professional Master Program in Bio-pharmaceutics Innovation

As a part of its initiatives Nanobiofar helped the Physiology and Pharmacology PhD program of the Federal University of Minas Gerais to launch the innovative Professional Science Master's program in Biopharmaceutical Innovation to meet the future workforce needs of a growing bioscience industry. The INCT-Nanobiofar investigators are participating actively in the program as advisors of projects aimed to generate novel and innovative processes and products. In addition they are responsible for many disciplines and for the field of Intellectual Property of the Professional Master program.
A course of good laboratory practice is part of the professional master program.

PATENTS APPLICATION- BRAZIL

Back

Filing date: 15/01/2009
Application in Brazil: C1 0206336-0
Filing date: 17/01/2008
Application Number: C1 0206336-0
Title: COMPLEXOS SUPRAMOLECULARES DE ALTA ESTEQUIOMETRIA EM SISTEMAS NANOAGREGADOS CONSTITUÍDOS POR CLOREXIDINA OU TETRACICLINA INCLUÍDOS EM CICLODEXTRINA
Inventors: Ruben Dario Sinisterra Millan, Maria Esperanza Cortes Segura, Michel Victor Furtado Araujo, Andre Luiz Pataro

Filing date: 15/01/2009
Priority in Brazil: PI 0800596-6
Filing date: 31/01/2008
Application Number: PI 0800596-6
Title: MÉTODO PARA A POTENCIALIZAÇÃO DA FUNÇÃO ERÉTIL ATRAVÉS DO USO DAS COMPOSIÇÕES FARMACÊUTICAS DE TOXINA Tx2-6 DA ARANHA PHONEUTRIA NIGRIVENTER
Inventors: Ruben Dario Sinisterra Millan, Adriano Monteiro Castro Pimenta, Maria Elena Lima Perez Garcia, Romulo Cerqueira Leite, Luciana Franco Lanza, Kenia Pedrosa Nunes, Marcelo Diniz

Filing date: 15/01/2009
Priority in Brazil: PI 0800606-7
Filing date: 13/02/2008
Application Number: PI 0800606-7
Title: USO DE ANGIOTENSINA-(1-7)-ß-HPCD, ANÁLOGOS OU DERIVADOS PARA O TRATAMENTO DE CONDIÇÕES CARDÍACAS
Inventors: Ruben Dario Sinisterra Millan, Robson Augusto Souza Santos, Anderson Jose Ferreira, Fulvia Dias Marques.

Filing date: 15/01/2009
Priority in Brazil: PI 0800585-0
Filing date: 13/02/2008
Application Number: PI 0800585-0
Title: PEPTÍDIO DES-[ASP1]-[ALA1]- AGONISTA DA ANGIOTENSINA-(1-7) E COMPOSIÇÕES FARMACÊUTICAS PARA TRATAMENTO DE DOENÇAS
Inventors: Ruben Dario Sinisterra Millan, Robson Augusto Souza Santos, Anderson Jose Ferreira

Filing date: 15/01/2009
Priority in Brazil: PI 0801542-2
Filing date: 18/03/2008
Application Number: PI 0801542-2
Title: MODIFICAÇÃO, REDUÇÃO DA ESTRUTURA PRIMÁRIA E SÍNTESE DE PEPTÍDEOS HIPOTENSIVOS PRESENTES NO VENENO DE ESCORPIÃO PARA OTIMIZAÇÃO NA UTILIZAÇÃO DOS MESMOS COMO FÁRMACOS

Inventors: Robson Augusto Souza Santos, Adriano Monteiro Castro Pimenta, Maria Elena Lima Perez Garcia, Carlos Ribeiro Diniz (Falecido), Marie France Martin Eauclaire, Pierre Edouard Bougis, Thiago Verano Braga

Filing date: 15/01/2009
Priority in Brazil: PI 0802009-4
Filing date: 30/04/2008
Application Number: PI 0802009-4
Title: FORMULAÇÃO FARMACÊUTICA À BASE DE ALOE VERA PARA CAPEAMENTO DIRETO EM POLPA DENTÁRIA E COMO MATRIZ PARA TRANSPORTE DE FÁRMACOS E/OU CÉLULAS
Inventors: Ruben Dario Sinisterra Millan, Maria Esperanza Cortes Segura, Alfonso Gala Garcia

Filing date: 15/01/2009
Priority in Brazil: PI 0802806-0
Filing date: 22/07/2008
Application Number: PI 0802806-0
Title: USO DO PEPTÍDEO ANGIOTENSINA-(1-7), SEUS ANÁLOGOS, AGONISTAS OU DERIVADOS PARA O TRATAMENTO DE CONDIÇÕES DOLOROSAS
Inventors: Robson Augusto Souza Santos, Igor Dimitri Gama Duarte, Aline Conceiçao Oliveira Costa

Filing date: 15/01/2009
Priority in Brazil: PI 0901877-8
Filing date: 19/05/2009
Application Number: PI 0901877-8
Title: PROCESSO DE OBTENÇÃO DE NANOAGREGADOS NA BASE DOS ANTAGONISTAS DO RECEPTOR AT1 COM CÁTIONS METÁLICOS
Inventors: Ruben Dario Sinisterra Millan, Maria Esperanza Cortes Segura, Angelo Marcio Leite Denadai, Izabela Mariane Pampolini Daniel, Luan Alves Lopes Carneiro

Filing date: 15/01/2009
Priority in Brazil: PI 0902242-2
Filing date: 30/06/2009
Application Number: PI 0902242-2
Title: PROCESSO DE OBTENÇÃO DE NANOAGREGADOS NA BASE DOS ANTAGONISTAS DO RECEPTOR AT1 COM CÁTIONS METÁLICOS
Inventors: Mauro Martins Teixeira, Robson Augusto Souza Santos, Katia Daniela Silveira

Filing date: 15/01/2009
Priority in Brazil: 14090005008 (Protocol)
Filing date: 06/11/2009
Application Number: 14090005008 (Protocol)
Title: PROCESSO DE PREPARAÇÃO DE UM SISTEMA DE LIBERAÇÃO CONTROLADA DE CLOREXIDINA E SEUS COMPOSTOS DE INCLUSÃO, A PARTIR DE CIMENTO RESINOSO, PRODUTO E USO

Inventors: Ruben Dario Sinisterra Millan, Maria Esperanza Cortez, Eliete Marçal Guimaraes Raso

INTERNATIONAL PATENTS APPLICATION

Filing date: 18/12/2008
Priority in Brazil: PI 0602372-0
Priority Date: 18/05/2006
Publication Number:
Publication Date:
Application Number: Europa PCT/BR2007/000160
Title: COMPOSITE PREPARATION PROCESS ON A BASIS OF BIOCERAMICS AND BIODEGRADABLE OR NON BIODEGRADABLE POLYMERS, CEMENTING AND/OR CARRIER SUBSTANCES CONTAINING ENCAPSULATED OR NON-ENCAPSULATED MICRO OR NANOPARTICULATED ANTIBIOTICS AND ANGIOSTENSIN (1-7) FOR TISSUE RESTITUTION AND PRODUCTS THEREFROM
Inventors: Robson Augusto Souza dos Santos, Rubén Dario Sinisterra Millan, Maria Esperanza Cortés Segura, André Luiz Parato, Michele Fabiane de Oliveira, Miriam Teresa Paz Lopes, Regina Maria de Marco Truchetti Maia

Filing date: 30/01/2009
Priority in Brazil: PI 0800596-6
Priority Date: 31/01/2008
Publication Number: WO/2009/094742
Publication Date: 06/08/2009
Application Number: PCT/BR2009/000040
Title: TOXIN OF THE SPIDER PHONEUTRIA NIGRIVENTER FOR TREATMENT OF ERECTILE DYSFUNCTION
Inventors: Maria Elena de Lima Perez Garcia, Rubén Dario Sinisterra Millán, Kênia Pedrosa Nunes, Rômulo Leite, Luciana Franco Lanza, Marcelo Ribeiro Vasconcelos Diniz, Marta do Nascimento Cordeiro, Adriano Monteiro de Castro Pimenta, Michael Richardson, Maria do Carmo Valentim

Filing date: 13/02/2009
Priority in Brazil: PI 0800585-0
Priority Date: 13/02/2008
Publication Number: WO/2009/100513
Publication Date: 20/08/2009
Application Number: PCT/BR2009/000046
Title: "PEPTIDE DES-[ASP1]-[ALA1], ANGIOTENSIN-(1-7) AGONIST AND PHARMACEUTICAL COMPOUNDS FOR THE TREATMENT OF DISEASES"

Inventors: Robson Augusto Souza dos Santos, Anderson José Ferreira, Rubén Dario Sinisterra

Filing date: 22/07/2009
Priority in Brazil: PI0802806-0
Priority Date: 22/06/2008
Publication Number: WO/2010/009524
Publication Date: 28/01/2010
Application Number: PCT/BR2009/000217
Title: USE OF THE PEPTIDE ANGIOTENSIN (1-7) AND ITS ANALOGUES, AGONISTS OR DERIVATIVES FOR THE TREATMENTOF PAINFUL CONDITIONS
Inventors: Robson Augusto Souza dos Santos, Igor Dimitri Gama Duarte, Aline Conceição Oliveira Costa

Filing date: 30/12/2009
Priority in Brazil: C 10200751-7
Priority Date: 02/07/2007
Publication Number:
Publication Date:
Application Number: EUA PCT/BR2008/000023
Title: PHARMACEUTICAL COMPOSITIONS COMPRISING SEMICARBAZONES AND THIOSEMICAR-BAZONES AND METHOD FOR TREATING INFLAMMATORY, PAINFUL AND FEBRILE CONDITIONS AND PREVENTING SIGNS AND SYMPTOMS
Inventors: Heloisa de Oliveira Beraldo, Márcio de Matos Coelho, Rubén Dario Sinisterra Millan, Maria Carolina Doretto

Filing date: 31/12/2009
Priority in Brazil: C 10200751-7
Priority Date: 02/07/2007
Publication Number:
Publication Date:
Application Number: INDIA PCT/BR2008/000023
Title: PHARMACEUTICAL COMPOSITIONS COMPRISING SEMICARBAZONES AND THIOSEMICAR-BAZONES AND METHOD FOR TREATING INFLAMMATORY, PAINFUL AND FEBRILE CONDITIONS AND PREVENTING SIGNS AND SYMPTOMS
Inventors: Heloisa de Oliveira Beraldo, Márcio de Matos Coelho, Rubén Dario Sinisterra Millan, Maria Carolina Doretto

Filing date: 27/07/2009
Priority in Brazil:
Priority Date:
Publication Number:
Publication Date:
Application Number: BRASIL PCT/BR2008/000022
Title: PHARMACEUTICAL COMPOSITIONS AND METHODS FOR TREATING ERECTILE DYSFUNCTION.

Inventors: Ruben Dario Sinisterra Millan, Robson Augusto Souza dos Santos, Frederic Jean Georges Frezard, Andrey Christian da Costa Gonçalves, Rodrigo Araujo Fraga da Silva

Filing date: 27/07/2009
Priority in Brazil:
Priority Date:
Publication Number:
Publication Date:
Application Number: EUA PCT/BR2008/000022
Title: PHARMACEUTICAL COMPOSITIONS AND METHODS FOR TREATING ERECTILE DYSFUNCTION.
Inventors: Ruben Dario Sinisterra Millan, Robson Augusto Souza dos Santos, Frederic Jean Georges Frezard, Andrey Christian da Costa Gonçalves, Rodrigo Araujo Fraga da Silva

Filing date: 20/08/2009
Priority in Brazil:
Priority Date:
Publication Number:
Publication Date:
Application Number: Europa PCT/BR2008/000022
Title: PHARMACEUTICAL COMPOSITIONS AND METHODS FOR TREATING ERECTILE DYSFUNCTION.
Inventors: Ruben Dario Sinisterra Millan, Robson Augusto Souza dos Santos, Frederic Jean Georges Frezard, Andrey Christian da Costa Gonçalves, Rodrigo Araujo Fraga da Silva

Filing date: 30.04.2009
Priority in Brazil: PI 0504978-4
Priority Date: 30/09/2005
Publication Number:
Publication Date:
Application Number: EUA PCT/BR2006/000233
Title: PROCESS FOR THE PREPARATION OF COMPOUNDS OF AT1 RECEPTOR ANTAGONISTS WITH ANGIOTENSIN-(1-7), ANALOGUES THEREOF AND/OR MIXTURES OF THESE SYSTEMS, PHARMACEUTICAL COMPOSITIONS THEREOF AND USE OF THEIR DERIVATIVE PRODUCTS
Inventors: Cynthia Fernandes Ferreira Santos, Robson Augusto Souza dos Santos, Ivana Silva Lula, Frederico Barros de Sousa, Pedro Pires Goulart Guimarães, Rubén Dario Sinisterra Millan, Angelo Márcio Leite Denadai

Filing date: 31.03.2009
Priority in Brazil: PI 0602366-5
Priority Date: 26/04/2006
Publication Number:
Publication Date:
Application Number: EUA PCT/BR2007/000100

Title: USE OF MAS-G-PROTEIN-COUPLED RECEPTOR AGONISTS IN THE TREATMENT OF THE METABOLIC SYNDROME, ITS COMPONENTS AND ITS COMPLICATIONS
Inventors: Robson Augusto Souza dos Santos, Sergio Henrique Sousa Santos, Jaqueline Isaura Alvarez Leite, Marina Matos de Moura, Andrea Siqueira Haibara, Luciana Rodrigues Fernandes, Rubén Dario Sinisterra Millan, Michael Bader, Natalia Alemina

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INTERNATIONAL PATENTS GRANTED

Filing date: 5/11/2002
Priority in Brazil: PI0105509-7
Priority Date: 5/11/2001
Application Number: 10/494,756
Title: PROCESS OF PREPARATION OF FORMULATIONS OF THE PEPTIDE ANGIOTENSIN-(1-7) AND ITS ANALOGUES, AGONISTIC AND ANTAGONISTS USING CYCLODEXTRINS, LIPOSSOMES AND BIODEGRADABLE POLYMERS AND/OR MIXTURES AND PRODUCTS THEREOF
Inventors: Rubén Dario Sinisterra Millan, Frederic Jean Georges Frezard, Ana Paula Nadu, Robson Augusto Souza dos Santos

Filing date: 5/11/2002
Priority in Brazil: PI0105509-7
Priority Date: 5/11/2001
Application Number: 1214/CHENP/2004
Title: PROCESS OF PREPARATION OF FORMULATIONS OF THE PEPTIDE ANGIOTENSIN-(1-7) AND ITS ANALOGUES, AGONISTIC AND ANTAGONISTS USING CYCLODEXTRINS, LIPOSSOMES AND BIODEGRADABLE POLYMERS AND/OR MIXTURES AND PRODUCTS THEREOF
Inventors: Rubén Dario Sinisterra Millan, Frederic Jean Georges Frezard, Ana Paula Nadu, Robson Augusto Souza dos Santos

Filing date: 5/11/2002
Priority in Brazil: PI0105509-7
Priority Date: 5/11/2001
Application Number: 02824013.8
Title: PROCESS OF PREPARATION OF FORMULATIONS OF THE PEPTIDE ANGIOTENSIN-(1-7) AND ITS ANALOGUES, AGONISTIC AND ANTAGONISTS USING CYCLODEXTRINS, LIPOSSOMES AND BIODEGRADABLE POLYMERS AND/OR MIXTURES AND PRODUCTS THEREOF
Inventors: Rubén Dario Sinisterra Millan, Frederic Jean Georges Frezard, Ana Paula Nadu, Robson Augusto Souza dos Santos

Filing date: 9/4/2002
Priority in Brazil: PI 0102252-0
Priority Date: 10/4/2001
Application Number: 2,444,145
Title: PREPARATION OF FORMULATIONS OF ANGIOTENSIN II AT1 RECEPTORS ANTAGONISTS FOR THE TREATMENT OF ARTERIAL HYPERTENSION, OTHER CARDIOVASCULAR ILLNESSES AND ITS COMPLICATIONS
Inventors: Rubén Dario Sinisterra Millan, Frederic Jean Georges Frezard, Washington Xavier de Paula, Robson Augusto Souza dos Santos

Filing date: 9/4/2002
Priority in Brazil: PI 0102252-0
Priority Date: 10/4/2001
Application Number: 578949
Title: PREPARATION OF FORMULATIONS OF ANGIOTENSIN II AT1 RECEPTORS ANTAGONISTS FOR THE TREATMENT OF ARTERIAL HYPERTENSION, OTHER CARDIOVASCULAR ILLNESSES AND ITS COMPLICATIONS
Inventors: Rubén Dario Sinisterra Millan, Frederic Jean Georges Frezard, Washington Xavier de Paula, Robson Augusto Souza dos Santos

Filing date: 9/4/2002
Priority in Brazil: PI 0102252-0
Priority Date: 10/4/2001
Application Number: 02810681.4
Title: PREPARATION OF FORMULATIONS OF ANGIOTENSIN II AT1 RECEPTORS ANTAGONISTS FOR THE TREATMENT OF ARTERIAL HYPERTENSION, OTHER CARDIOVASCULAR ILLNESSES AND ITS COMPLICATIONS
Inventors: Rubén Dario Sinisterra Millan, Frederic Jean Georges Frezard, Washington Xavier de Paula, Robson Augusto Souza dos Santos

PARTNERS

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- **Laboratório de Hipertensão:** Robson Augusto de Souza Santos;
- **Laboratório de Química de Inclusão e Encapsulamento Molecular:** Ruben Dario Sinisterra Millan;
- **Laboratório de Biofísica de Nanossistemas Lipídicos:** Frederic Frezard;
- **Laboratório de Metabolismo Celular:** Leida Maria Botion;
- **Laboratório de Genética Bioquímica:** Andréa Mara Macedo;
- **Odontologia Clínica/Biomateriais:** Maria Esperanza Cortés Segura;
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- **Faculdade de Medicina Veterinária da Universidade Federal de Uberlândia:** Leonilda Stanziola;
- **Laboratório de Fisiologia Cardiovascular da Universidade Federal de Ouro Preto:** Andréia Carvalho Alzamora;

- **Laboratório de Fisiologia e Biofísica:** Silvia Passos Andrade;
- **Max-Delbruck- Center for Molecular Medicine (Alemanha):** Michael Bader;
- **Kidney Research Centre, Ottawa Health Research Institute, University of Ottawa, (Canada):** Rhian Touyz.

ASSOCIATED PARTNERS

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- Langer Laboratory – MIT (USA) – Prof. Robert Langer;
- Department of Biomedical Engineering - Vanderbilt University (USA);
- University of Florida (USA) - Mohan Raizada laboratory;
- Chemistry Department - Illinois State University (USA);
- University of Kansas (USA);
- Laboratoire BioMoCeTi, CNRS UMR 7033, Université Paris Nord (France);
- CNRS - FRE 2738 – Ingénierie des Protéines, Université de la Méditerranée, Marseille (France);
- CNRS UMR 5160, Centre de Pharmacologie et Biotechnologie pour la Santé Faculté de Pharmacie, Montpellier (France);
- Lady Davis Research Institute - McGill University (Canada);
- Laboratory of Biophysics - Institute of General and Molecular Biology, N. Copernicus University (Poland).
- CYL Pharmazeutika GmbH (Austria).
- Compugen *Ltd* (Israel)
- Erasmus University (Netherland)

FACILITIES

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Facilities for research at the INCT-NanoBiofar include:

- Cell Culture rooms
- Molecular Biology laboratories, including RT-PCR
- Stem cell research facility
- Western Blot facilities
- RIA Assay facility
- High resolution echocardiography
- Elisa Assay facility
- Telemetry unit
- Drug delivery formulations
- Bio-analytic instrumentation
- *In vivo* and *in vitro* cardiovascular facilities
- Physical-chemical analysis facility

EQUIPMENTS

Some of the equipments disponible for the network are listed below:

1) High Resolution Echocardiography - VEVO 2100
2) Li-Cor – Fluorescence Scanner for Western Blot
3) Potencial Zeta Zetasiser
4) Spectrofluorimeter for microplates and cuvet
5) Simultaneous thermogravimetry modulus (Tga-Dta) - Dtg-60
6) Nano Itc 2g System With Hastelloy Cylindrical Cell
7) PCR Life Express 96 with temperature gradient (Tc - 96thg)
8) Ultraviolet Uv-B Transiluminator
9) Powerlab 4/30

10) Activity Wheel and Activity Wheel Software
11) Micropippet Puller (Twist) - Harvard Apparatus
12) Powerease 500 P C System Kit for WB – Invitrogen
13) Datascience Telemetry Equipment (36 telemetry sensors)
14) Nuclear Magnetic Ressonance Spectroscopy
15) Infrared Spectroscope

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Technology Transfer

Nanobiofar has made technology transfer agreements with two companies. With Scitech the objective is to use a technology protected by patents issued in US, India and China to produce Eluting Stents (see granted patents list) . With União Quimica the objective is to finalize the Phase I/II clinical trial in preeclamptic patients using an intravenous formulation of Ang-(1-7) and to start a Phase III study. An orally active formulation of Ang-(1-7) will be also tested for treatment of hypertension and cardio-metabolic diseases. In addition a technology based on an ongoing collaboration with investigators of the University of Gratz in Austria, will be transferred to the Austrian company CYL, this year.

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C- INDICATORS OF KNOWLEDGE AND TECHNOLOGY TRANSFER	
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D- INDICATORS OF EDUCATION AND SCIENCE DISSEMINATION	
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HUMAM RESOURCE FORMATION

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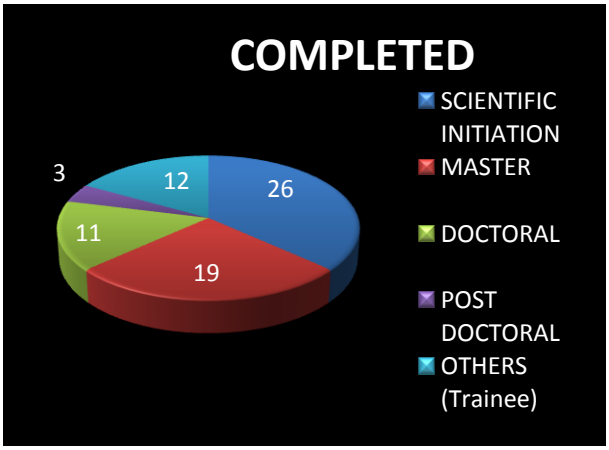

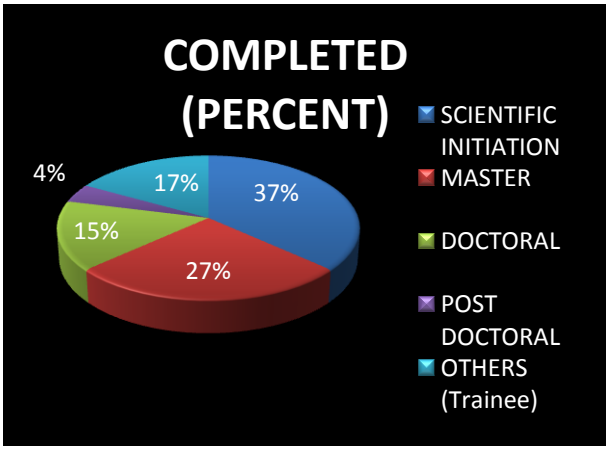

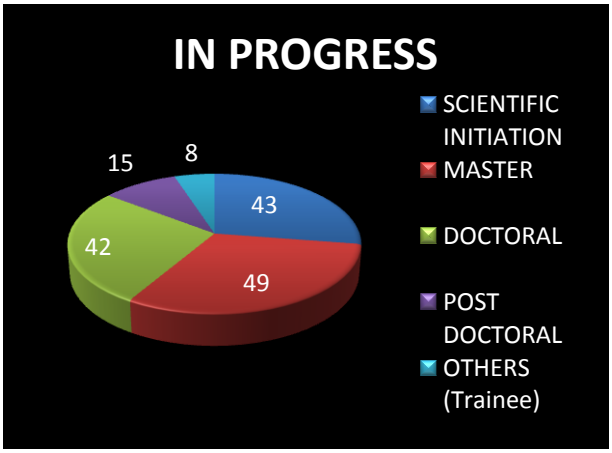

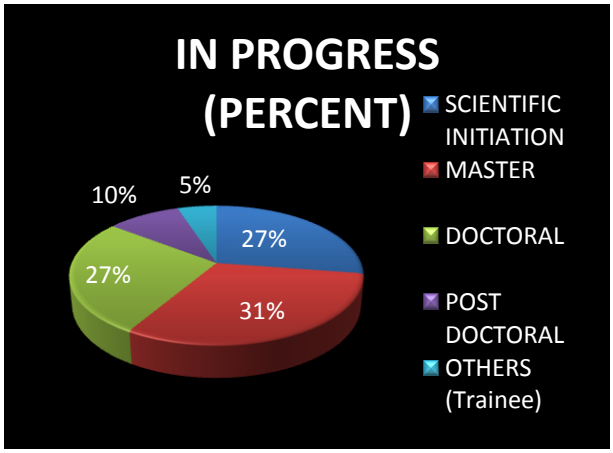

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INSTITUTE OF CARDIOLOGY – FUC - RS

FEDERAL UNIVERSITY OF OURO PRETO - MG

ADDITIONAL PICTURES