

CURRICULUM VITAE

JERSON LIMA SILVA, M.D., Ph.D.

Place of Birth: Rio de Janeiro, RJ

Birth Date: February 29, 1960

Nationality: Brazilian

Present Position

Professor of Biochemistry (Instituto de Bioquímica Medica, Universidade Federal do Rio de Janeiro)

Director of the National Institute of Science and Technology for Structural Biology and Bioimaging (INBEB)

Director of the Jiri Jonas National Center for Nuclear Magnetic Resonance

Scientific Director of the State Funding Agency of Rio de Janeiro “Fundação Carlos Chagas Filho de Amparo à Pesquisa do Estado do Rio de Janeiro – FAPERJ”

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Education:

- Institution: School of Medicine, Federal Univ. Rio de Janeiro. Degree: M.D. (January, 1985).
- Institution: Biophysics Institute, Federal Univ. Rio de Janeiro. Degree: Ph.D. (March, 1987).
- Institution: Department of Biochemistry, University of Illinois. Post Doctoral Fellow (1985-1986).

Positions:

1987-1988-1996 Assistant, Associate, Professor of Biochemistry, Department of Biochemistry, ICB, Federal University of Rio de Janeiro, Rio de Janeiro (UFRJ).

1997-current Professor of Biochemistry, Institute of Medical Biochemistry, ICB, UFRJ.

1991-1992 Visiting Professor, Department of Biochemistry, University of Illinois, Urbana, Illinois.

1994-1997 Chairman, Department of Biochemistry, ICB, UFRJ

- 1997-current Director, Jiri Jonas National Center for Macromolecular Nuclear Magnetic Resonance, UFRJ
- 1996-1998 Member, Presidential Committee on Biosafety
- 1998- Member of the Brazilian Academy of Sciences
- 1997- 2001 Member, Brazilian Research Council, Board of Biochemistry and Biophysics
- 1998-2003 Coordinator of the project in the Program of Centers of Excellence (PRONEX).
- 2000, 2003, 2005, 2007- Scientist of Rio de Janeiro State Award.
- 2003-current Scientific Director of the State Funding Agency “Fundação Carlos Chagas Filho de Amparo à Pesquisa do Estado do Rio de Janeiro”.
- 2005-2008 Director of the Millenium Institute for Structural Biology in Biomedicine and Biotechnology.
- 2007-2013 Director of the Brazilian Academy of Sciences
- 2008-2012 President of the Brazilian Biophysical Society
- 2007-2012 Member of the Editorial Board of the JOURNAL OF BIOLOGICAL CHEMISTRY
- 2012-current Member of the Editorial Advisory Board of the FEBS Journal.
- 2008-2011 Member of the Council of the National Fund for Science and Development of Brazil (FNDCT).
- 2009-2014 Member of the Regional Committee for Latin American and the Caribbean of the International Council for Science – ICSU.
- 2008-current Director of the National Institute of Science and Technology for Structural Biology and Bioimaging.
- 2010-current Member and Chair of the TWAS Membership Advisory Committee (MAC) in Structural, Cell & Molecular Biology.
- 2014-2016 President of the Brazilian Society for Biochemistry and Molecular Biology (SBBq)
- 2015 Program Chair / President of the 23rd Congress of the International Union of Biochemistry and Molecular Biology (IUBMB) and the 44th Annual Meeting of the Brazilian Society for Biochemistry and Molecular Biology (SBBq)

Prizes and Awards:

- 1991 John Simon Guggenheim Fellow
- 1995 Brazilian Sendas Award for Scientific Work on Infectious Diseases of Children
- 1998- Member of the Brazilian Academy of Sciences
- 1998 Unibanco Saude Award in Medicine for Medical Research

- 1998-2002 International Fellow of the Howard Hughes Medical Institute
- 2000, 2003, 2005, 2007- Scientist of Rio de Janeiro State Award.
- 2002 Brazilian National Order of Scientific Merit (“Comand”), Presidency of the Republic of Brazil
- 2005 TWAS Prize in Biology 2005 – Prize of The World Academy of Sciences for the Advance of Science in Developing Countries
- 2006- Elected as Fellow of the The World Academy of Sciences – TWAS
- 2009 Brazilian National Order of Scientific Merit (“Great-Cross”), Presidency of the Republic of Brazil.
- 2010 FCW Prize in General Science from Fundação Conrado Wessel.
- 2011 Elected Member of the National Academy of Medicine.
- 2013 Prize Jornal O Globo in Science and Health

Major Grants

- 1988-1990 Coordinator - FINEP Project: "Energetics and Dynamics of Oligomeric Proteins".
- 1991-present Coordinator - FINEP Project: "Thermodynamics of Proteins and Virus Structures".
- 1991-1996 Coordinator - European Economic Community (EEC) Project: "Phosphorescence Spectroscopy and High Pressure Studies on the Structure, Conformation and Biological Activities of Viruses and Large Oligomers".
- 1993-1996 Coordinator - PADCT/SBIO Project: "Effects of Pressure on Biological Systems: Biotechnological Applications"
- 1995-1997 Coordinator - PADCT/SBIO Project: "Energy Coupling between Protein Folding and Nucleic Acid Recognition"
- 1997-2000 Coordinator - PADCT Multidisciplinary Project: "National Center of Nuclear Magnetic Resonance of Macromolecules".
- 1997-2002 Coordinator - PRONEX (Special Program of the Ministry of Science and Technology)
- 1997-2002 Howard Hughes Medical Institute Scholar
- 2004- Coordinator of the Infrastructure Project of of the Ministry of Science and Technology to install a high field magnet (800 MHz) at the National NMR facility.
- 2005- Director of the Millenium Institute for Structural Biology in Biomedicine and Biotechnology.

2007- Coordinator of the Infrastructure Project of the Ministry of Science and Technology to acquire and install a 7 Tesla Magnetic Resonance Imaging for small animals.

2008- Coordinator of the National Institute of Science and Technology for Biological Structure and Bioimaging.

Research Topics: Protein folding, protein misfolding and amyloidogenic diseases, prions, neurodegenerative diseases, virus assembly, virus inactivation, antiviral vaccines and antiviral drugs.

Supervision of Theses: From 1991 to 2015: 30 MS theses, 31 PhD theses. In progress: 2 MS, 3 PhD.

List of Publications:

1. de Oliveira GA, Silva JL (2015). A hypothesis to reconcile the physical and chemical unfolding of proteins. *Proc Natl Acad Sci U S A*. May 26; 112(21): E2775-84. doi: 10.1073/pnas.1500352112
2. Barroso SP, Nico D, Nascimento D, Santos AC, Couceiro JN, Bozza FA, Ferreira AM, Ferreira DF, Palatnik-de-Sousa CB, Souza TM, Gomes AM, Silva JL, Oliveira AC (2015). Intranasal Immunization with Pressure Inactivated Avian Influenza Elicits Cellular and Humoral Responses in Mice. *PLoS One*. 2015 Jun 9;10(6):e0128785. doi: 10.1371/journal.pone.0128785.
3. de Oliveira GA, Rangel LP, Costa DC, Silva JL (2015). Misfolding, Aggregation, and Disordered Segments in c-Abl and p53 in Human Cancer. *Front Oncol*. 2 Apr 29; 5:97. doi: 10.3389/fonc.2015.00097. eCollection 2015.
4. Silva JL (2015). The increasing velocity of S&T in the State of Rio de Janeiro. *The Academic Executive Brief* 5(1); 14-17.
5. de Moraes MC, Santos JB, Dos Anjos DM, Rangel LP, Vieira TC, Moaddel R, da Silva JL (2015). Prion protein-coated magnetic beads: Synthesis, characterization and development of a new ligands screening method. *J Chromatogr A*. Jan 30;1379:1-8. doi: 10.1016/j.chroma.2014.12.014. Epub 2014 Dec 12.
6. Cortines JR, Lima LM, Mohana-Borges R, Millen Tde A, Gaspar LP, Lanman JK, Prevelige PE Jr, Silva JL (2015). Structural insights into the stabilization of the human immunodeficiency virus type 1 capsid protein by the cyclophilin-binding domain and implications on the virus cycle. *Biochim Biophys Acta*. May; 1854(5): 341-8. doi: 10.1016/j.bbapap.2014.12.008.
7. Silva JL, Barroso SP, Mendes YS, Dumard CH, Santos PS, Gomes AM, Oliveira AC. (2015) Pressure-Inactivated Virus: A Promising Alternative for Vaccine Production. High Pressure Bioscience - Basic Concepts, Applications and Frontiers (Ed.: Kazuyuki Akasaka and

- Hitoshi Matsuki). *Springer* (Dordrecht) *Subcell Biochem.* 2015;72:301-18. doi: 10.1007/978-94-017-9918-8_15. PubMed PMID: 26174388.
8. Vieira TCRG and Silva JL (2015). Glycosaminoglycans in Prion and Prion-like Diseases. The Prion Phenomena in Neurodegenerative Diseases: New Frontiers in Neuroscience (Ed.: G. Legname and G. Giachin). *Nova Science Publishers*, Inc. (Hauppauge, NY) pp 67-87.
 9. Costa DCF, de Oliveira GAP, Cino EA, Soares IN, Luciana P. Rangel LP and Silva JL (2015) The Aggregation and Prion-like Properties of Misfolded Tumor Suppressors: Is Cancer a Prion-like Disease? *Cold Spring Harb Perspect Biol.*, invited article (in press).
 10. Vieira TCRG, Cordeiro Y, Caughey B, and Silva JL (2014) Heparin binding confers prion stability and impairs its aggregation. *FASEB J*, 28(6): 2667-2676. DOI: 10.1096/fj.13246777.
 11. Silva JL, Gallo CV, Costa DC, Rangel LP (2014). Prion-like aggregation of mutant p53 in cancer. *Trends Biochem Sci.* 39(6): 260-267. doi:10.1016/j.tibs.2014.04.001.
 12. Silva JL, Oliveira AC, Vieira TC, de Oliveira GA, Suarez MC, Foguel D (2014). High-Pressure Chemical Biology and Biotechnology. *Chem Rev.* 114(14): 7239-7267. doi: 10.1021/cr400204z.
 13. Rangel LP, Costa DC, Vieira TC, Silva JL (2014). The aggregation of mutant p53 produces prion-like properties in cancer. *Prion.* Feb 7; 8(1): 75-84. [Epub ahead of print] Review.
 14. Carvalho, C. A., Sousa Jr, I. P., Silva, J. L., Oliveira, A. C., Gonçalves, R. B., & Gomes, A. M. (2014). Inhibition of Mayaro virus infection by bovine lactoferrin. *Virology*, 452, 297-302.
 15. Chaves JA, Sanchez-López C, Gomes MP, Sisnande T, Macedo B, de Oliveira VE, Braga CA, Rangel LP, Silva JL, Quintanar L, Cordeiro Y (2014). Biophysical and morphological studies on the dual interaction of non-octarepeat prion protein peptides with copper and nucleic acids. *J Biol Inorg Chem.* 2014 Aug;19(6):839-51. doi: 10.1007/s00775-014-1115-8.
 16. Cordeiro, Y., Macedo, B., Silva, J. L., & Gomes, M. P. (2014) Pathological implications of nucleic acid interactions with proteins associated with neurodegenerative diseases. *Biophys Rev*, 6: 97-110.
 17. de Oliveira GA, Pereira EG, Ferretti GD, Valente AP, Cordeiro Y, Silva JL (2013). Intramolecular dynamics within the N-Cap-SH3-SH2 regulatory unit of the c-Abl tyrosine kinase reveal targeting to the cellular membrane. *J Biol Chem* 288(39): 28331-45 (Paper of the Week and Cover).
 18. Silva JL, Rangel LP, Costa DC, Cordeiro Y, De Moura Gallo CV (2013). Expanding the Prion Concept to Cancer Biology: Dominant-Negative Effect of Aggregates of Mutant p53 Tumor Suppressor. *Biosci Rep.* 2013 Jul 25;33(4). doi:pii: e00054. 10.1042/BSR20130065. PubMed PMID: 24003888
 19. Esperante SA, Noval MG, Altieri TA, de Oliveira GA, Silva JL, Prat-Gay GD (2013). Fine Modulation of the Respiratory Syncytial Virus M2-1 Protein Quaternary Structure by Reversible Zinc Removal from its Cys3-His1 Motif. *Biochemistry.* 52(39): 6779-89.
 20. de Oliveira GA, Rocha CB, Marques Mde A, Cordeiro Y, Sorenson MM, Foguel D, Silva JL, Suarez MC (2013). Insights into the Intramolecular Coupling between the N- and C-Domains of Troponin C Derived from High-Pressure, Fluorescence, Nuclear Magnetic Resonance, and Small-Angle X-ray Scattering Studies. *Biochemistry* 52(1):28-40. doi: 10.1021/bi301139d. Epub 2012 Dec 19.
 21. Cordeiro Y, Foguel D, Silva JL (2013). Pressure-temperature folding landscape in proteins involved in neurodegenerative diseases and cancer. *Biophys Chem* 183: 9-18.

22. Dumard CH, Barroso SP, de Oliveira GA, Carvalho CA, Gomes AM, Couceiro JN, Ferreira DF, Nico D, Oliveira AC, Silva JL, Santos PS (2013). Full inactivation of human influenza virus by high hydrostatic pressure preserves virus structure and membrane fusion while conferring protection to mice against infection. *PLoS One*. 2013 Nov 25;8(11):e80785. doi: 10.1371/journal.pone.0080785.
23. Silva, J. L., Ano Bom, A. P., Costa, D. C., de Oliveira, G. A., Cordeiro, Y., De Moura Gallo, C. V., & Rangel, L. P. (2013). Is cancer a prion disease? Prion-like properties of amyloid oligomers fibrils of mutant p53. *Prion* 7: 16-17.
24. Ano Bom APD, Rangel LP, Costa DCF, de Oliveira GAP, Sanches D, Braga CA, Gava LM, Ramos CHI, Cepeda AOT, Stumbo AC, De Moura Gallo CV, Cordeiro Y, and Silva JL (2012). Mutant p53 aggregates into prion-like amyloid oligomers and fibrils: Implications for cancer. *J Biol Chem*, 287: 28152-28162.
25. Gomes MP, Vieira TC, Cordeiro Y, and Silva JL (2012). The role of RNA in mammalian prion protein conversion. *Wiley Interdiscip Rev RNA* 3(3): 415-28.
26. Casanova F, Quarti J, da Costa DC, Ramos CA, da Silva JL, Fialho E. (2012). Resveratrol chemosensitizes breast cancer cells to melphalan by cell cycle arrest. *J Cell Biochem*. 113: 2586-2596.
27. Macedo B, Millen TA, Braga CA, Gomes MP, Ferreira PS, Kraineva J, Winter R, Silva JL, Cordeiro Y (2012). Non-Specific Prion Protein-Nucleic Acid Interactions Lead to Different Aggregates and Cytotoxic Species. *Biochemistry*. 51: 5402–5413
28. Barroso SPC, Nico D, Gomes DC, dos Santos ACV, Couceiro JNSS, de Sousa CBP, Silva JL, and Oliveira AC. (2012). Mice Vaccination with High Hydrostatic Pressure-Inactivated H3N8 Virus Protects Against Experimental Avian Flu. *Procedia in Vaccinology* 6: 98 – 105.
29. de Oliveira GAP., Pereira EG, Dias CV, Souza TLF, Ferretti GDS, Cordeiro Y, Camillo LR, Cascardo J, Almeida FC, Valente AP, and Silva JL (2012) Moniliophthora perniciosa Necrosis- and Ethylene-Inducing Protein 2 (MpNep2) as a Metastable Dimer in Solution: Structural and Functional Implications. *PLoS ONE* 7(9): e45620. doi:10.1371/journal.pone.0045620
30. Mendes YS, Alves NS, Souza TLF, Sousa IP Jr, Bianconi ML, Bernardi RC, Pascutti PG, Silva JL, Gomes AMO, and Oliveira AC (2012). The Structural Dynamics of the Flavivirus Fusion Peptide–Membrane Interaction. *PLoS ONE* 7(10): e47596. doi:10.1371/journal.pone.0047596
31. Ferraz da Costa DC, Casanova FA, Quarti J, Malheiros MS, Sanches D, Santos PS, Fialho E, and Silva JL (2012) Transient Transfection of a Wild-Type p53 Gene Triggers Resveratrol-Induced Apoptosis in Cancer Cells. *PLoS ONE* 7(11): e48746. doi:10.1371/journal.pone.0048746
32. Vieira, T. C. R. G., Reynaldo, D. P., Gomes, M. P. B., Almeida, M. S., Cordeiro, Y. and Silva, J. L. (2011). Heparin Binding by Murine Recombinant Prion Protein Leads to Transient Aggregation and Formation of RNA-Resistant Species. *J Amer Chem Soc* 133: 334-344.
33. Silva JL, Vieira TC, Gomes MP, Rangel LP, Scapin SM, Cordeiro Y (2011). Experimental approaches to the interaction of the prion protein with nucleic acids and glycosaminoglycans: Modulators of the pathogenic conversion. *Methods* 53: 306-317. Epub 2010 Dec 8.
34. Braga AC, Follmer C, Palhano F, Khattar E, Freitas MS, Romão L, Di Giovanni S, Lashuel HA, Silva JL, and Foguel D (2011). The Anti-Parkinsonian Drug Selegiline Delays the

- Nucleation Phase of Alpha-Synuclein Aggregation Leading to the Formation of Non-Toxic Species. *J Mol Biol* 405: 254-273.
35. Sousa Jr., I. P., Carvalho, C. A. M., Ferreira, D. F., Weissmüller, G., Rocha, G. M., Silva, J. L., and Gomes, A. M. O. (2011). Envelope lipid-packing as a critical factor for the biological activity and stability of alphavirus particles isolated from mammalian and mosquito cells. *J Biol Chem* 286(3): 1730-1736.
 36. Levy CB, Stumbo AC, Ano Bom APD, Portari E, Cordeiro Y, Silva JL, and De Moura-Gallo CV (2011). Co-localization of mutant p53 and amyloid-like protein aggregates in breast tumors. *Int J Biochem Cell Biol* 43: 60-64.
 37. Freitas, M. S., Follmer, C., Costa, L. T., Vilani, C., Bianconi, M. L., Achete, C. A., and Silva, J. L. (2011). Measuring the Strength of Interaction between the Ebola Fusion Peptide and Lipid Rafts: Implications for Membrane Fusion and Virus Infection. *PLoS ONE* 6(1): e15756.
 38. Silva JL, Vieira TC, Gomes MP, Bom AP, Lima LM, Freitas MS, Ishimaru D, Cordeiro Y, Foguel D. (2010) Ligand Binding and Hydration in Protein Misfolding: Insights from Studies of Prion and p53 Tumor Suppressor Proteins. *Acc Chem Res.* 43: 271-279.
 39. Silva, JL, Gomes, MPB, Vieira, TCRG and Cordeiro, Y (2010) Functional and Pathological Roles of Prion-Nucleic Acid Interactions. *Frontiers in Bioscience*, 15: 132-150.
 40. Macedo B, Kaschula CH, Hunter R, Chaves JAP, van der Merwe JD, Silva JL, Egan TJ and Cordeiro Y. (2010) Synthesis and anti-prion activity evaluation of aminoquinoline analogues. *Eur J Med Chem* 45: 5468-5473.
 41. Ano Bom AP, Freitas MS, Moreira FS, Ferraz D, Sanches D, Gomes AM, Valente AP, Cordeiro Y, Silva JL. (2010) The p53 core domain is a molten globule at low pH: Functional implications of a partially unfolded structure. *J Biol Chem.* 285: 2857–2866.
 42. Oliveira, G. A. P. ; Costa, E. S.; Freitas, M. S.; Dutra, F. F. ; Maia, S. F. ; Guerra, M. C. ; Tabernero, M. D. ; Borojevic, R. ; Otazu, I. B. ; Silva, Jerson L. (2010). Positive response to imatinib mesylate therapy for childhood chronic myeloid leukemia. *Braz J Med Biol Res* 43: 580-584.
 43. Souza TLF, Sanches D, Gonçalves RB, Pita SSR, Pascutti PG, Bianconi ML, Almeida FCL, Silva JL and Oliveira AC. (2010). Conformational selection, dynamic restriction and the hydrophobic effect coupled to stabilization of the BIR3 domain of the human X-linked inhibitor of apoptosis protein by the tetrapeptide AVPI. *Biophys Chem.* 152: 99-108.
 44. Romano SA, Cordeiro Y, Lima LM, Lopes MH, Silva JL, Foguel D, Linden R. (2009). Reciprocal remodeling upon binding of the prion protein to its signaling partner hop/STI1. *FASEB J.* 23(12):4308-4316. Epub 2009 Aug 24.
 45. Silva JL, Oliveira AC. (2009). Science and technology to combat dengue virus. *An Acad Bras Cienc.* 81(4):631-632.
 46. Silva, JL and Foguel, D (2009) Hydration, cavities and volume in protein folding, aggregation and amyloid assembly. *Phys. Biol.* 6: 15002 (1-12).
 47. Ishimaru D, Ano Bom AP, Lima LM, Quesado PA, Oyama MF, Gallo CV, Cordeiro Y, Silva JL (2009) Cognate DNA stabilizes the tumor suppressor p53 and prevents misfolding and aggregation. *Biochemistry* 48: 6126-6135.
 48. Silva, JL, Lima, LMTR, Foguel, D and Cordeiro, Y (2009) Response to Radulescu and Brenig: Infectious nucleic acids in prion disease: halfway through. *Trends Biochem. Sci.*, 34: 5-6.

49. Marques, AF, Cordeiro, Y, Silva, JL, and Lima, LMTR (2009). Enhanced prion protein stability coupled to DNA recognition and milieu acidification. *Biophys. Chem.* 141(2-3): 135-139.
50. Ferreira E, Mendes YS, Silva JL, Galler R, Oliveira AC, Freire MS, Gaspar LP (2009). Effects of hydrostatic pressure on the stability and thermostability of poliovirus: A new method for vaccine preservation. *Vaccine* 27(39):5332-7. Epub 2009 Jul 17.
51. Silva, J. L., Lima, L. M. T. R., Foguel, D., and Cordeiro, Y. (2008). Intriguing nucleic-acid-binding features of the mammalian prion protein. *Trends Biochem. Sci.* 33: 132-140.
52. Rocha, C. B., Suarez, M. C., Yu, A, Ballard, L., Sorenson, M. M., Foguel, D. and Silva, J. L. (2008) Volume and Free Energy of Folding for Troponin C C-domain: Linkage to Ion Binding and N-domain Interaction. *Biochemistry* 47: 5047-5058.
53. Gonçalves, R. B., Sanches, D., Souza, T. L. F., Silva, J. L., and Oliveira, A. C. (2008). The pro-apoptotic protein Smac/DIABLO dimer has the highest stability as measured by pressure and urea denaturation. *Biochemistry* 47: 3832-3841.
54. Gomes MP, Millen TA, Ferreira PS, E Silva NL, Vieira TC, Almeida MS, Silva JL, Cordeiro Y. (2008) Prion Protein Complexed to N2a Cellular RNAs through Its N-terminal Domain Forms Aggregates and Is Toxic to Murine Neuroblastoma Cells. *J. Biol. Chem.* 283:19616-19625.
55. Santos, J. L., Aparicio, R., Joekes, I., Silva, J. L., Bispo, J. A., and Bonafe, C. F. S. (2008). Different Urea Stoichiometries Between the Dissociation and Denaturation of Tobacco Mosaic Virus as Probed by Hydrostatic Pressure. *Biophys. Chem.* 134: 214-224.
56. Gaspar, L. P., Mendes, Y. S., Yamamura, A. M. Y., Almeida, L. F. C., Caride, E., Gonçalves, R. B., Silva, J. L., Oliveira, A. C., Galler, R., & Freire, M. S. (2008). Pressure-inactivated yellow fever 17DD virus: Implications for vaccine development. *J. Virol. Methods* 150: 57-62.
57. Oliveira, A. C., Gomes, A. M. O., Lima, S. M. B., Gonçalves, R. B., Schwarcz, W. D., Silva, A. C. B., Cortines, J. R. and Silva, J. L. (2008). Effects of Hydrostatic Pressure on Viruses. In: High-Pressure Microbiology (C. Michiels; D. Bartlett and A. Aertsen, Editors). Washington, DC: ASM press, Chapter 2, pp. 19-34.
58. Schwarcz, W. D., Carnelocce, L., Silva, J. L., Oliveira, A. C., and Gonçalves, R. B. (2008) Conformational Changes in Bovine Lactoferrin induced by slow or fast temperature increase. *Biological Chemistry* 389: 1137-1142.
59. Suarez, M. C., Barbosa, C. B., Sorenson, M. M., Silva, J. L. and Foguel, D. (2008) Free-Energy Linkage between Folding and Calcium Binding in EF-Hand Proteins. *Biophys. J.* 95: 4820-4828.
60. Gomes, MPB, Cordeiro, Y and Silva, JL (2008) The peculiar interaction between mammalian prion protein and RNA. *Prion* 2: 64-66.
61. Follmer, C., Romão, L., Einsiedler, C. M., Porto, T. C. R., Lara, F. A., Monçores, M., Weissmüller, G., Lashuel, H. A., Lansbury, P., Moura Neto, V., Silva, J. L and Foguel, D. (2007) Dopamine affects the stability, hydration and packing of protofibrils and fibrils of wild-type and variants of α -synuclein. *Biochemistry* 46: 472-482.
62. Gonçalves, R. B., Mendes, Y.S., Soares, M. R., Katpally, U., Smith, T.J., Silva, J. L. and Oliveira, A.C., (2007). VP4 protein from human rhinovirus 14 is released by pressure and locked in the capsid by the antiviral compound WIN. *J. Mol. Biol.* 366: 295-306.
63. Freitas, M. S., Gaspar, L. P., Lorenzoni, M., Almeida, F. C. L., Tinoco, L. W., Almeida, M. S., Maia, L. F., Degreève, L., Valente, A. P. and Silva, J. L. (2007). Structure of the Ebola

- Fusion Peptide in a Membrane-mimetic Environment and the Interaction with Lipid Rafts. **J. Biol. Chem.** 282: 27306-27314.
64. Cordeiro, Y., Kraineva, J., Suarez, M. C., Tempesta, A. G., Kelly, J. W., Silva, J. L., Winter, R. and Foguel, D. (2006) FT-IR spectroscopy provides a fingerprint for the tetramer and for the aggregates of transthyretin. **Biophys. J.** 91: 957-967.
 65. Braga, C. A., Pinto, J. R., Valente, A. P., Silva, J. L., Sorenson, M. M., Foguel, D., Suarez, M. C. (2006). Ca²⁺ and Mg²⁺ binding to weak sites of TnC C-domain induces exposure of a large hydrophobic surface that leads to loss of TnC from the thin filament. **Int. J. Biochem. Cell Biol.** 38: 110-122.
 66. Silva, J. L., Cordeiro, Y. and Foguel, D. (2006). Protein Folding and Aggregation: Two sides of the same coin in the condensation of proteins revealed by pressure studies. **Biochim. Biophys. Acta** 1764: 443-451.
 67. Lima, S. M., Vaz, A. C. Q., Souza, T. L. F., Peabody, D. S., Silva, J. L. and Oliveira, A. C. (2006). Dissecting the role of protein-protein and protein-nucleic acid interactions on MS2 bacteriophage stability. **FEBS Journal** 273: 1463-1475.
 68. Freitas, M. S., Da Poian, A. T., Barth, O. M., Rebello, M. A., Silva, J. L., and Gaspar, L. P. (2006) The fusogenic state of Mayaro virus induced by low pH and by hydrostatic pressure. **Cell Biochem. Biophys.** 44: 325-335.
 69. Sousa, F. J. R., Lima, L. M. T. R., Pacheco, A. B. F., Oliveira, C. L. P., Torriani, I., Almeida, D. F., Foguel, D., Silva, J. L. And Mohana-Borges, R. (2006). Tetramerization of the LexA repressor in solution: Implications for gene regulation of the E. Coli SOS system at acidic pH. **J. Mol. Biol.** 359: 1059-1074
 70. Lima, L. M. T. R., Cordeiro, Y., Tinoco, L. W., Marques, A. F., Oliveira, C. L. P., Sampath, S., Kodali, R., Choi, G., Foguel, D., Torriani, I., Caughey, B. and Silva, J. L. (2006). Structural insights into the interaction between prion protein and nucleic acid. **Biochemistry** 45: 9180-9187.
 71. Maia, L. F., Soares, M. R., Valente, A. P., Almeida, F. C. L., Oliveira, A. C., Gomes, A. M. O., Freitas, M. S., Schneemann, A., Johnson, J. E. and Silva, J. L. (2006). Structure of a membrane-binding domain from a non-enveloped animal virus: Insights into the mechanism of membrane permeability and cell entry. **J. Biol. Chem.** 281: 29278-29286.
 72. Cordeiro, Y., and Silva, J. L. (2005) The hypothesis of the catalytic action of nucleic acid on the conversion of prion protein. **Protein Pept. Lett.**, 12: 251-255.
 73. Cordeiro, Y., Kraineva, J., Winter, R. and Silva, J. L. (2005). Volume and Energy Folding Landscape of Prion Protein Revealed by Pressure. **Braz. J. Med. Biol. Res.** 38: 1195-1201.
 74. Mignaco, J. A., Lima, L. M., Rosenthal, A., Foguel, D. and Silva, J. L. (2005). Highlights of the 3rd international conference on high pressure bioscience and biotechnology. **Braz. J. Med. Biol. Res.** 38: 1147-1155.
 75. Cordeiro, Y., Kraineva, J., Gomes, M. P. B., Lopes, M. H., Martins, V. R., Lima, L. M. T. R., Foguel, D., Winter, R. and Silva, J. L. (2005). The amino-terminal PrP domain is crucial to modulate prion misfolding and aggregation. **Biophys. J.** 89: 2667-2676.
 76. Ferrão-Gonzales, A. D., Robbs, B. K., Moreau, V. H., Ferreira, A., Juliano, L., Valente, A. P., Almeida, F. C. L., Silva, J. L. & Foguel, D. (2005). Controlling β amyloid oligomerization by the use of naphthalene sulfonates: trapping low molecular weight species. **J. Biol. Chem.**, 280: 34747-34754.

77. Cordeiro, Y., Kraineva, J., Ravindra, R., Lima, L. M. T. R., Gomes, M. P. B., Foguel, D., Winter, R., and Silva, J. L. (2004) Hydration and packing effects on prion folding and β -sheet conversion: High-pressure spectroscopy and pressure perturbation calorimetry studies. *J. Biol. Chem.* 279: 32354-32359.
78. Foguel, D. and Silva, J. L. (2004) New Insights into the Mechanisms of Protein Misfolding and Aggregation in Amyloidogenic Diseases derived from Pressure Studies. *Biochemistry* 43: 11361-11370 (**Current Topics Review**).
79. Lima, S. M., Peabody, D. S., Silva, J. L. and Oliveira, A. C. (2004) Mutations in the hydrophobic core and in the protein-RNA interface affect the packing and stability of icosahedral viruses. *Eur. J. Biochem.* 271: 135-145.
80. Cordeiro, Y., Lima, L. M., Gomes, M. P., Foguel, D. and Silva, J. L. (2004). Modulation of Prion Protein Oligomerization, Aggregation, and Beta-sheet Conversion by 4,4'-Dianilino-1,1'-binaphthyl-5,5'-sulfonate (bis-ANS). *J. Biol. Chem.* 279: 5346-5352. (Epub 2003 Nov 21).
81. Silva, J. L., Foguel, D., Suarez, M. C., Gomes, A. M. O. and Oliveira, A. C. (2004) High Pressure Applications in Medicine and Pharmacology. *J. Phys.: Condens. Matter* 16: S929–S944
82. Ishimaru, D., Carvalho, D., and Silva, J. L. (2004). Pressure-inactivated FMDV: a potential vaccine. *Vaccine* 22: 2334-2339.
83. Ishimaru, D., Maia, L. F., Lopez, P. C., Ano Bom, A. P., Valente, A. P. and Silva, J. L. (2004). An aggregation-prone intermediate of p53 core domain formed at equilibrium unfolding. *Biophysical Journal* 87: 2691-2700.
84. Lima, L. M. T. R. and Silva, J. L. (2004). Positive contribution of hydration on DNA binding by E2c protein from papillomavirus. *J. Biol. Chem.* 279: 47968-47974.
85. Schwarcz, W. D., Barroso, S. P. C., Gomes, A. M. O., Johnson, J. E., Schneemann, A., Oliveira, A. C., and Silva, J. L. (2004). Stability and Protein-Nucleic Acid Interaction as Studied by High-Pressure Effects on Nodaviruses. *Cellular and Molecular Biology* 50: 419-427.
86. Ishimaru, D., Andrade, L. R., Teixeira, L. S. P., Quesado, P. A., Maiolino, L. M., Lopez, P. C. M., Cordeiro, Y., Costa, L. T., Heckl, W. M., Weissmüller, G., Foguel, D. and Silva, J. L. (2003) Fibrillar aggregates of tumor suppressor p53 core domain. *Biochemistry* 42: 9022 – 9027.
87. Foguel, D., Suarez, M. C., Ferrão-Gonzales, A. D., Porto, T. C. R., Palmieri, L. Einsiedler, C., Lashuel, H. A., Lansbury, P., Kelly, J. W. and Silva, J. L. (2003) Dissociation of amyloid fibrils of α -synuclein and transthyretin by pressure reveals their reversible nature and the formation of water-excluded cavities. *Proc. Natl. Acad. Sci. USA* , 100: 9831-9836.
88. Ishimaru, D., Maia, L. F., Maiolino, L. M., Quesado, P. A., Lopez, P. C. M., Almeida, F. C., Valente, A. P. and Silva, J. L. (2003). Conversion of wild-type p53 core domain into a conformation that mimics a hot-spot mutant. *J. Mol. Biol.* 333: 443-451.
89. Gomes, A.M.O., Pinheiro, A.S., Bonafe, C.F.S., and Silva, J.L. (2003) Pressure-induced fusogenic conformation of vesicular stomatitis glycoprotein. *Biochemistry* 42: 5540-5546.
90. AnoBom, C.D., Albuquerque, S.C., Albernaz, F.P., Oliveira A. C., Silva, J.L., Peabody, D.S., Valente, A. P. and Almeida, F. C. L. (2003). Structural Studies of MS2 Bacteriophage Virus Particle Disassembly by Nuclear Magnetic Resonance Relaxation Measurements. *Biophys. J.* 84: 3894-3903.

91. Freitas, T. R. P., Gaspar, L. P., Caldas, L. A., Silva, J. L. And Rebello, M. A. (2003). Inactivation of classical swine fever virus: association of hydrostatic pressure and ultraviolet irradiation. *J. Virol. Methods*, 108(2): 205-211.
92. Ferrão-Gonzales, A.D., Palmieri, L., Valory, M., Silva, J. L., Lashuel, H., Jeffery W. Kelly, J. W., and Foguel, D (2003) Hydration and packing are crucial to amyloidogenesis as revealed by pressure studies on transthyretin variants that either protect or worsen amyloid disease. *J. Mol. Biol.* 328: 963-974.
93. Suarez, M. C., Machado, C. J. V., Lima, L. M. T. R., Smillie, L. B., Pearlstone, J. R., Silva, J. L., Sorenson, M. M., and Foguel, D. (2003). Role of hydration in the closed to-open transition involved in Ca²⁺-binding by Troponin C. *Biochemistry* 42: 5522-5530.
94. Silva, J. L., Oliveira, A. C., Gomes, A. M., Lima, L. M., Mohana-Borges, R., Pacheco, A.B.F., and Foguel, D. (2002). Pressure Induces Folding Intermediates that are Crucial for Protein-DNA Recognition and Virus Assembly. *Biochim. Biophys. Acta*, 1595: 250-265.
95. Ishimaru, D., Lima, L. M., Ferrão-Gonzales, A., Quesado, P. A., Maiolino, L. M., Silva, J. L. and Foguel, D. (2002) Pressure Studies on Protein Folding, Misfolding, Protein-DNA Interactions and Amyloidogenesis. Trends in High Pressure Biosciences and Biotechnology, (Ed.: R. Hayashi) Springer-Verlag, Heidelberg , *Progress in Biotechnology*, Volume 19, pp. 79-86.
96. Gaspar L. P., Silva, A.C., Gomes, A. M., Freitas, M. S., Ano Bom, A.P.D., Schwarcz, W.D., Mestecky, J., Novak, M. J. , Foguel, D., Silva, J.L. (2002) Pressure induces the formation of fusion-active states of membrane-enveloped viruses. *J. Biol. Chem.*, 277: 8433-8439.
97. Da Poian, A. T., Johnson, J. E. and Silva, J. L. (2002). Protein-RNA interactions and virus stability as probed by the dynamics of Tryptophan side chains. *J. Biol. Chem.* 277: 47596-47602.
98. Silva, J.L., Foguel, D., and Royer C. A. (2001) Pressure Provides New Insights into Protein Folding, Dynamics and Structure. *Trends Biochem. Sci.*, 26: 612-618.
99. Cordeiro, Y, Machado, F, Juliano, L., Juliano, M. A., Brentani, R. R., Foguel, D, and Silva, J. L. (2001) DNA Converts Cellular Prion Protein into the β -Sheet Conformation and Inhibits Prion Peptide Aggregation. *J. Biol. Chem.*, 276: 49400-49409.
100. Silva C. C. M., Giongo, V., Simpson, A. J. G., Camargo, E. R. S., Silva, J. L., Koury, M. C. (2001) Effects of Hydrostatic Pressure on the *Leptospira interrogans* : High Immunogenicity of the Pressure- Inactivated Serovar *hardjo*. *Vaccine*, 19(11-12): 1511-1514
101. Suarez, M.C., Lehrer, S.S., and Silva, J.L. (2001) Local Heterogeneity in the Pressure Denaturation of the Coiled-Coil Tropomyosin Because of Subdomain Folding Units. *Biochemistry*, 40: 1300-1307.
102. Gaspar, L. P., Terezan, A. F., Pinheiro, A. S., Foguel, D., Rebello, M. A., and Silva, J. L. (2001). The Metastable State of Nucleocapsids of Enveloped Viruses as Probed by High Hydrostatic Pressure. *J. Biol. Chem.*, 276: 7415-7421.
103. Saad-Nehme, J., Silva, J. L., and Meyer-Fernandes, J. R. (2001) Osmolytes Protect Mitochondrial F₀F₁-ATPase Complex against Pressure Inactivation. *Biochim. Biophys. Acta* 1546:164-170.
104. Pontes, L., Cordeiro, Y., Giongo, V., Villas-Boas, M., Barreto, A., Araujo, J.R., and Silva, J.L. (2001). Pressure-induced formation of inactive triple-shelled rotavirus particles is associated with changes in the spike protein VP4. *J. Mol. Biol.*, 307: 1171-1179.

105. Mohana-Borges, R., Pacheco, A.B.F., Sousa, F.J.R., Foguel, D., Almeida, D.F. and **Silva, J.L.** (2000) LexA Repressor Forms Stable Dimers in Solution: The Role of Specific DNA in Tightening Protein-Protein Interactions. *J. Biol. Chem.* 275, 4708-4712.
106. Lima, L. M. T., Foguel, D., and Silva, J. L. (2000) DNA tightens the dimeric DNA binding domain of human papillomavirus E2 protein without changes in volume. *Proc. Natl. Acad. Sci USA* 97: 14289-14294.
107. Oliveira, A. C., Gomes, A. M. O., Almeida, F. C. L., Mohana-Borges, R., Valente, A.P., Reddy, V. S., Johnson, J. E., Silva, J. L. (2000) Virus Maturation Targets the Protein Capsid to Concerted Disassembly and Unfolding. *J. Biol. Chem.* 275:16037-16043.
108. Lemos, A. P., Peres-Sampaio, C. E., Guimaraes-Motta, H., Silva, J.L., Meyer-Fernandes, J.R. (2000) Effects of naturally occurring polyols and urea on the mitochondrial FoF1ATPase. *Zeitschrift für Naturforschung* 55:392-398.
109. Ferrão-Gonzales, A.D., Souto, S.O., Silva, J.L., Foguel, D. (2000) The Pre-Aggregated State of an Amyloidogenic Protein: Hydrostatic Pressure Converts Native Transthyretin into the Amyloidogenic State. *Proc. Natl. Acad. Sci USA* 97: 6445-6450.
110. Bonafe, C. F. S., Glaser, M., Voss, E. W., Weber, G., and Silva, J. L. (2000). Virus inactivation by anilinonaphtalene sulfonate compounds and comparison with other ligands. *Biochem. Biophys. Res. Commun.* 275(3):955-961.
111. Saad-Nehme, J., Silva, J.L., Meyer-Fernandes, J.R. (2000) Carbohydrates protect mitochondrial F0F1-ATPase complex against thermal inactivation. *Zeitschrift für Naturforschung* 55: 594-599.
112. Oliveira, A. C., Ishimaru, D., Gonçalves, R. B., Mason, P., Carvalho, D., Smith, T. **Silva, J. L.** (1999). Low Temperature and Pressure Stability of Picornaviruses: Implication for Virus Uncoating. *Biophys. J.* 76, 1270-1279.
113. Mohana-Borges, R., **Silva, J. L.**, Ruiz-Sanz, J, Prat-Gay, G. (1999) Folding of a pressure denatured model protein. *Proc. Natl. Acad. Sci USA* 96: 7888-7893.
114. Oliveira, A. C., Valente, A. P., Almeida, F., Lima, S. M., Ishimaru, D., Gonçalves, R. B., Peabody, D., Foguel, D. and **Silva, J. L.** (1999). Hydrostatic pressure as a tool to study virus assembly: Inactivated vaccines and antiviral drugs. In "*High Pressure Molecular Science*", **NATO ASI series E** (R. Winter and J. Jonas, Eds), Kluwer Academic Publishers, Dordrecht, Volume 358: 497-513.
115. Foguel, D, Robinson, C. R., Sousa Jr., P. C., **Silva, J. L.**, and Robinson, A. S. (1999) Hydrostatic Pressure Rescues Native Protein from Aggregates. *Biotechnol. Bioeng.* 63: 552-558.
116. Yu, A., Jonas, A., Jonas, J., Ballard, L., Smillie, L., Pearstone, J., Foguel, Silva, J. L. (1999). Structure and stability of wildtype and F29W mutant forms of the N-domain of avian troponin C subjected to high pressures. In "*High Pressure Molecular Science*", **NATO ASI series E** (R. Winter and J. Jonas, Eds), Kluwer Academic Publishers, Dordrecht, Volume 358: 515-521.
117. Mohana-Borges, R., **Silva, J. L.**, Prat-Gay, G. (1999) Protein folding in the absence of chemical denaturants. Reversible pressure denaturation of the non-covalent complex formed by the association of two protein fragments. *J. Biol. Chem.* 274: 7732-7740.
118. Sousa-Jr., P. C., Roman, T., Prevelige, P. E., **Silva, J. L.**, Foguel, D. (1999) Cavity defects in the procapsid of bacteriophage P22 and the mechanism of capsid maturation. *J. Mol. Biol.* 287: 527-538.

119. Yu, A., Ballard, L., Smillie, L., Pearstone, J., Foguel, D., Silva, J. L., Jonas, A., Jonas, J., (1999). Effects of High Pressure and Temperature on the Wildtype and F29W Mutant Forms of the N-Domain of Avian Troponin C. *Biochim. Biophys. Acta*, 1431(1): 53-63.
120. Fornells, L. A. G., Guimaraes-Motta, H., Nehme, J. S., Martins, O. B., **Silva, J. L.** (1998). Pressure effects on the interaction between natural inhibitor protein and mitochondrial F₁-ATPase. *Arch. Biochem. Biophys.* 349: 304-317.
121. Ferreira ST, Silva JL, Foguel D, Sampaio TC (1998) International symposium on protein condensation. *Biophys. J.* 75: 418.
122. Foguel, D., Silva, J. L. and Prat-Gay, G. (1998). Characterization of a Partially Folded Monomer of the DNA-Binding Domain of Human Papillomavirus E2 Protein obtained at High Pressure. *J. Biol. Chem.* 273: 9050-9057.
123. Pontes, L., Fornells, L. A., Giongo, V., Araujo, J. R. V., Sepulveda, A., Villas-Boas, M., Bonafe, C. F. S., and **Silva, J. L.** (1997). Pressure Inactivation of Animal Viruses: Potential Biotechnological Applications. **High Pressure Research in the Bioscience and Biotechnology** (Heremans, K., Ed.), Leuven University Press, Leuven, pp. 91-94.
124. Ferrão-Gonzales, A.D., Zandonadi, D. C., Mariz, F. P., **Silva, J. L.**, and Foguel, D. (1997). Cold Denaturation of Proteins under Pressure. **High Pressure Research in the Bioscience and Biotechnology** (Heremans, K., Ed.), Leuven University Press, Leuven, pp. 95-98.
125. Gaspar L, Johnson J, **Silva JL**, Da Poian AT (1997) Different Partially Folded States of the Capsid Protein of Cowpea Severe Mosaic Virus in the Disassembly Pathway. *J. Mol. Biol.* 273: 456-466.
126. Saad-Nehme, J., Bezerra, A. L., Fornells, L. A. M., **Silva, J. L.**, and Meyer-Fernandes, J. R. (1997). A Contribution of the Mitochondrial Adenosinetriphosphate Inhibitor Protein to the Thermal Stability of the F₀F₁-ATPase. *Zeitschrift für Naturforschung* 52(7-8): 459-465.
127. Rosenthal, A. and **Silva, J. L.** (1997). Alimentos sob Pressão. *Engenharia de Alimentos* 14: 37-39.
128. Robinson, C., Rentzeperis, D., **Silva, J. L.**, Sauer, R. T. (1997). Formation of a Denatured Dimer Limits the Stability of Arc Repressor. *J. Mol. Biol.* 273: 692-700.
129. **Silva, J. L.**, Foguel, D., Da Poian, A. T., and Prevelige, P. E. (1996). The Use of Hydrostatic Pressure as a Tool to Study Viruses and Other Macromolecular Assemblages. *Curr. Opin. Struct. Biol.* 6: 166-176.
130. Da Poian, A., Gomes, A. M. O., Oliveira, R. J. N. and **Silva, J. L.** (1996). Migration of Vesicular Stomatitis Virus Glycoprotein to the Nucleus of Infected Cells. *Proc. Natl. Acad. Sci. USA* 93: 8268-8273.
131. Foguel, D., Suarez, M. C., Barbosa, C., Rodrigues, J. J., Sorenson, M. M., Smillie, L. B. and **Silva, J. L.** (1996). Mimicry of the Calcium-Induced Conformational State of Troponin C by Low Temperature under Pressure. *Proc. Natl. Acad. Sci. USA* 93: 10642-10646.
132. Weber, G., Da Poian, A. T., **Silva, J. L.** (1996). Concentration Dependence of the Subunit Association of Oligomers and Viruses and the Modification of the Latter by Urea Binding. *Biophys. J.* 70: 167-173.
133. Peng, X., **Silva, J. L.**, Zhang, J., Ballard, L. E., Jonas, A., Jonas, J. (1996). High Pressure NMR Studies of the Dissociation of Arc Repressor and the Cold Denaturation of Ribonuclease. Steenbock Symposium on High Pressure Effects in Molecular Biophysics and Enzymology. (Markley, J. L., Northrop, D.B., Royer, C.A.C., Eds.), Oxford Press, Oxford, pp. 96-109.

134. Villas-Boas, M. **Silva, J. L.**, Sepulveda-Resende, A., Zechell, A., Clegg, R. M. (1996). Exploring Structural, Functional, and Kinetic Aspects of Nucleic Acid-Protein Complexes with High Pressure. Steenbock Symposium on High Pressure Effects in Molecular Biophysics and Enzymology. (Markley, J. L., Northrop, D. B., Royer, C. A.C., Eds.), Oxford Press, Oxford, pp. 110-132.
135. **Silva, J. L.**, Da Poian, A., Foguel, D. (1996) Pressure and Cold Denaturation of Proteins and Viruses. Steenbock Symposium on High Pressure Effects in Molecular Biophysics and Enzymology. (Markley, J. L., Northrop, D. B., and Royer, C. A., C., Eds.), Oxford Press, Oxford, pp. 133-148.
136. Foguel, D., Teschke, C.M., Prevelige, P.E. and **Silva, J.L.** (1995) The role of entropic interactions in viral capsids: single-amino-acid substitutions in P22 bacteriophage coat protein resulting in loss of capsid stability. *Biochemistry* 34: 1120-1126.
137. Jurkiewicz, E., Villas-Boas, M., **Silva, J. L.**, Weber, G., Hunsmann, G., Clegg, R. M.. (1995). Inactivation of Simian Immunodeficiency Viruses by Hydrostatic Pressure. *Proc. Natl. Acad. Sci. USA* 92: 6935-6937.
138. Sousa-Jr, P.C., **Silva, J.L.** Foguel, D., Teschke, C.M. and Prevelige, P.E. (1995) Single-amino acid substitutions in P22 bacteriophage coat protein result in loss of pressure stability of the shells. *Protein Engineering* 8 (supl.1): 23.
139. Da Poian, A. T., Oliveira, A. C. and **Silva, J. L.** (1995). Cold Denaturation of An Icosahedral Virus. The Role of Entropy for Virus Assembly. *Biochemistry* 34: 2672-2678.
140. Suarez, M.C., Foguel, D., Sorenson, M., Smillie, L. and Silva, J.L. (1995). Low temperatures drives the conformation of F29W/N-domain troponin C mutant towards the calcium -bound form. *Protein Engineering* 8 (supl.1): 36.
141. Da Poian, D. and Silva, J. L. (1995). Protein-RNA Interactions in Cowpea Mosaic Virus Studied by Time-Resolved Fluorescence. *Protein Engineering* 8 (supl.1): 121.
142. Bonafe, C. F. S., Araujo, J. R. V., **Silva, J. L.** (1994). Intermediates of Assembly in the Deterministic Dissociation of Gastropod Hemocyanin by Hydrostatic Pressure. *Biochemistry* 33: 2651-2661
143. Prevelige, P., King, J., **Silva, J. L.** (1994). Pressure Denaturation of P22 Coat Protein Monomers and its Entropic Stabilization in the Icosahedral Shells. *Biophys. J.* 66: 1631-1641.
144. Oliveira, A. C., Gaspar, L. P., Da Poian, A. T., **Silva, J. L.** (1994). Arc Repressor will not Denature in the Absence of Water. *J. Mol. Biol.* 240: 184-187.
145. Da Poian, A. T., Johnson, J. E., **Silva, J. L.** (1994). Differences in Pressure Stability of the Three Capsid Components of Cowpea Mosaic Virus: Implications for Virus Assembly and Disassembly. *Biochemistry* 33: 8339-8346.
146. Foguel, D., **Silva, J. L.** (1994). Cold denaturation of a repressor-operator complex: the role of entropy in protein-DNA recognition. *Proc. Natl. Acad. Sci. USA* 91: 8244-8247.
147. Peng, X., Jonas, J., **Silva, J. L.** (1994). High Pressure NMR Study of the Dissociation of Arc Repressor. *Biochemistry* 33: 8323-8329.
148. Moreno, S., **Silva, J. L.**, Vercesi, A. and DoCampo, R. (1994). Cytosolic Free Calcium Elevation in Trypanosoma cruzi Precedes Calcium Mobilization In Myoblasts During Invasion. *J. Exp. Med.* 180: 1535-1540.

149. **Silva, J. L.** (1994). Molten-Globule and Collapsed States under Pressure. **Basic and Applied High Pressure Biology** (R. E. Marquis, & P. B. Bennett, Eds.). University of Rochester Press pp. 86-92
150. Peng, X., Jonas, J., **Silva, J. L.** (1993). Molten Globule Conformation of Arc Repressor Monomers Determined by High Pressure (¹H) NMR Spectroscopy. *Proc. Natl. Acad. Sci. USA* 90: 1776-1780.
151. **Silva, J.L.**, Silveira, C.F. (1993). Energy Coupling Between DNA Binding and Subunit Association is Crucial for the Specificity of a DNA-Protein Interaction. *Prot. Sci.* 2: 945-950.
152. Da Poian, A. T. Oliveira, A. C., Gaspar, L. P., Weber, G., **Silva, J. L.** (1993). Pressure Dissociation of RNA Bacteriophage: The Individuality of Virus Particles. *J. Mol. Biol.* 231, 999-1008.
153. **Silva, J. L.**, Weber, G. (1993). Pressure Stability of Proteins. *Annu. Rev. Phys. Chem.* 44, 89-113.
154. **Silva, J. L.** (1993). Effects of Pressure on Multimeric Proteins and Viruses. In "*High Pressure Chemistry, Biochemistry and Material Sciences*", **NATO ASI series C** (R. Winter and J. Jonas, Eds), Kluwer Academic Publishers, Dordrecht, 401: 561-578.
155. **Silva, J. L.** (1993). The Drifted and Molten-Globule State of Proteins Dissociated by Pressure. *Braz. J. Med. Biol. Res.* 26, 335-440.
156. Villas-Boas, M. S., **Silva, J. L.**, Clegg, R. (1993). Pressure studies on protein-DNA interactions. In "*High Pressure Chemistry, Biochemistry and Material Sciences*", **NATO ASI series C** (R. Winter and J. Jonas, Eds), Kluwer Academic Publishers, Dordrecht, 401: 579-602.
157. **Silva, J. L.**, Silveira, C. F., Correa, A., Pontes, L. (1992). Dissociation of a Native Dimer to a Molten globule Monomer. Effects of Pressure and Dilution on the Association Equilibrium of Arc Repressor. *J. Mol. Biol.* 223: 545-555.
158. **Silva, J. L.**, Luan, P., Glaser, M., Voss, E. and Weber, G. (1992). Effects of Hydrostatic Pressure on a Membrane-Enveloped Virus: High Immunogenicity of the Pressure-Inactivated Virus. *J. Virol.* 66: 2111-2117.
159. Foguel, D., Chaloub, R. M., **Silva, J. L.**, Crofts, A. R., Weber, G. (1992). Pressure and Low Temperature Effects on the Fluorescence Emission Spectra and Lifetime of the Photosynthetic Components of Cyanobacteria. *Biophys J.* 63: 1613-1622.
160. Bonafe, C.F.S., Villas-Boas, M., Suarez, M. C., **Silva, J. L.** (1991). Reassembly of a Large Multisubunit Protein Promoted by Nonprotein Factors. Effects of Calcium and Glycerol on the Association of Extracellular Hemoglobin. *J. Biol. Chem.* 266: 13210-13216.
161. Gomes, F. C., Pereira, E. R., Bonafe, C. F. S., **Silva, J. L.** (1990). Dissociation of the hemocyanin of *Megalobulimus ovatus* (Gastropoda) induced by hydrostatic pressure. In "*Invertebrate Dioxygen Carriers*" (G. Preaux and R. Lontie, Ed.), University of Leuven Press, Leuven, pp. 315-318.
162. Villas-Boas, M, Meirelles, N.C., Bonafe, C.F.S., **Silva, J. L.**, (1990). Dissociation of the Extracellular Hemoglobin of *Glossoscolex Paulistus* Induced by Hydrostatic Pressure. In "*Invertebrate Dioxygen Carriers*" (G. Preaux and R. Lontie, Ed.), University of Leuven Press, Leuven, pp 259-263.

163. Paladini, A.A., **Silva J.L.** and Weber, G. (1989). Slab Gel Electrophoresis Subjected to High Hydrostatic Pressures: A New Approach for the Study of Oligomeric Proteins. In "**Fluorescent Biomolecules**", Plenum Press, New York, pp 101-113.
164. **Silva, J.L.**, Villas-Boas, M, Meirelles, N.C. and Bonafe, C.F.S (1989). Anomalous Pressure-Dissociation of Large Protein Aggregates. Lack of Concentration Dependence and Irreversibility at Extreme Degrees of Dissociation of Extracellular Hemoglobin. *Journal of Biological Chemistry* 264: 15863-15868.
165. **Silva, J.L.** and Weber, G. (1988). Pressure-Induced Dissociation of Brome Mosaic Virus. *Journal of Molecular Biology* 199: 149-161.
166. Dreyfus, G., Guimaraes-Motta, H. and **Silva, J.L.** (1988). Effect of Hydrostatic Pressure on the Mitochondrial ATP Synthase. *Biochemistry* 27: 6704-6710.
167. Paladini, A.A., **Silva J.L.** and Weber, G. (1987). Slab Gel Electrophoresis of Oligomeric Proteins Under High Hydrostatic Pressure. I. Description of the System and Resolution of the Pressure Dissociation of a Dimer. *Analytical Biochemistry* 161: 358-364.
168. **Silva, J.L.**, Miles, E.W., and Weber, G. (1986). Pressure Dissociation and Conformational Drift of the Beta Dimer of Tryptophan Synthase. *Biochemistry* 25: 5780-86.
169. **Silva, J. L.** Tese de Doutorado - publicada em 1987, no Instituto de Biofísica da UFRJ, sob o título: "Dissociação por Pressão e Deriva Conformacional de Proteínas Oligoméricas e Virus Icosaédricos".
170. **Silva, J.L.** (1986). Applications of Fluorescence Techniques to Biology, Medicine and Industry. In "**Monographic Series in Science and Technology of the Brazilian Embassy**", Volume 35.
171. **Silva, J.L.** (1986). Synchropak GPC HPLC support "excellent" for virus sizing. *SynChronotes* 1 (3), 1.
172. **Silva, J.L.** and Verjovski-Almeida, (1985). Monomer-Dimer Association Constant of Solubilized Sarcoplasmatic Reticulum ATPase. *Journal of Biological Chemistry* 260: 4764-69.
173. **Silva, J.L.** and Verjovski-Almeida, S. (1983). Self-Association and Modification of Calcium Binding in Solubilized Sarcoplasmatic Reticulum ATPase. *Biochemistry* 22: 707-716.
174. Verjovski-Almeida, S. and **Silva, J.L.** (1981). Different Degrees of Cooperativity of the Ca²⁺ - Induced Changes in Fluorescence Intensity of Solubilized Sarcoplasmatic Reticulum ATPase. *Journal of Biological Chemistry* 256: 2940-44.

Patents:

1. SILVA, J. L., FOGUEL, D. 2. U., ROBINSON, C. 2. U., CLIFF, A. 2. M.
Use of hydrostatic pressure to inhibit and reverse protein aggregation and facilitate protein refolding USPTO 7,615,617, 2009
2. GASPAR, L. P., Freire, M. S., OLIVEIRA, A. C., SILVA, J. L
WO 2009111849 (A1) - METHOD FOR STABILIZED VACCINE PRODUCTION, 2009
2. GASPAR, L. P., OLIVEIRA, A. C., Freire, M. S., SILVA, J. L.
Método para a produção de uma vacina estabilizada, 2008

Patente: Privilégio de Inovação n.PI0800357-2, Método para a produção de uma vacina est. 26 de Set de 2008 (Depósito);