

CURRICULUM VITÆ

(2004)

SHORT VERSION

ARSÉLIO PATO DE CARVALHO

**CENTRO DE NEUROCIÊNCIAS E BIOLOGIA CELULAR (CNC)
UNIVERSIDADE DE COIMBRA**

Professor Catedrático
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Universidade de Coimbra

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(Short version)
(2004)

I. PERSONAL DATA

NAME: Arsélio Pato de Carvalho

DATE OF BIRTH: 1 August 1934

NATIONALITY: Portuguese

ADDRESS: Department of Zoology
 University of Coimbra
 3004-517 Coimbra, Portugal
 Phone: 239 834729
 E-mail: carvalho@cnc.uc.pt

II. EDUCATION: B.A. in Biochemistry (1958)
 University of California
 Berkeley, California, U.S.A.

Ph.D. in Physiology (1963)
 University of California
 Berkeley, California, U.S.A.

III. POSITIONS HELD: Department of Zoology
 University of Coimbra
 3004-517 Coimbra, Portugal
Professor: 1968-2004
Professor and Chairman (1970 - 1999)
Emeritus professor 2004-

Center for Neurosciences of Coimbra
 University of Coimbra
 3004-517 Coimbra, Portugal
Investigator: 1990-Present
Director (1990 - 2002)
Honorary Director (2002-Present)

Center for Cell Biology
 University of Coimbra
 3004-517 Coimbra, Portugal
Director (1976 - 1990)

Institute of Muscle Disease, New York, U.S.A.

Associate Member (1967-1970)
Assistant Member (1965-1967)
Research Associate (1963-1965)

Department of Biological Sciences
 School of General Studies
 Columbia University, New York, U.S.A.
Lecturer (1964-1967, 1969-1970)

Estudos Avançados de Oeiras
 Gulbenkian Institute of Science
 Oeiras, Portugal
Visiting Scientist for periods of 1 month, yearly, to teach
 advanced courses in Cell Physiology, Biomembranes, and
 Neurochemistry (1969-1975, 1980, 1981)

IV. MEMBERSHIP IN ACADEMY OF SCIENCES

Member of the Academia Europaea

Corresponding Member of the Lisbon Academy of Science

Member of the New York Academy of Science

V. MEMBERSHIP IN SCIENTIFIC SOCIETIES:

International Society for Neurochemistry; American Society for Neuroscience; International Brain Research Organization; Biophysical Society; Society for General Physiology; American Physiological Society; Portuguese Biochemical Society; Portuguese Society for Neuroscience; Portuguese Physiological Society; Portuguese Pharmacological Science; Spanish Biochemical Society; Portuguese Society for Natural Science

VI. OFFICES AND CONSULTING BODIES (selected list)

- Member of the Health Scientific Council of the Foundation for Science and Technology 2003-Present
- Member of the Advisory Board of the Science “Service” of the Gulbenkian Foundation, 1980-Present
- Member of the Advisory Council of COTEC

- Member of the European Union High Level Expert Committee for “Quality of Life and Management of Living Responses”, 1999-?
- Member of the committee for evaluating the undergraduate courses of Biochemistry at Portuguese Universities (1998)
- Coordinator of the committee for evaluation of courses in Biochemistry at the Portuguese Universities
- Member of the committee for evaluating the undergraduate courses of Biology and Biotechnology at Portuguese Universities (1998)
- Coordinator of the panels for evaluating Biological Research Centers at the Portuguese Universities (1996,1999,2001)
- Member of the Scientific Committee of JNICT, Exact and Natural Sciences, (1991-1995)
- President of the Portuguese Society for Neuroscience - (1993-1995)
- Member of the Scientific Council of INTAS (1993-1995)
- President of the Portuguese Society for Neurochemistry, (1986-1990)
- President of the Portuguese Biochemical Society (1978-1985)
- Secretary General of the Portuguese Biochemical Society (1975-1978)
- Vice-President of the Portuguese Biochemical Society (1985-1988)
- Member of the Interuniversity Committee of the Portuguese Ministry of Education (1976-1977)
- Member of the Committee on Life Sciences of the Portuguese National Institute of Scientific Research (INIC) (1978-1991)
- Member of the of the Special Committee to Study the Coordination of Scientific Research in the Portuguese Universities(1982)
- Member of the Promotions Committee of the Institute Gulbenkian of Sciences (1981-1983)
- Member of Project Evaluation Panels at F.C.T, J.N.I.C.T., E.U., N.S.F., The Wellcome Trust, etc.

VII. EDITORIAL BOARDS

Member of the Editorial Board of Journal of Neurochemistry International (1991-1995)

Member of the Editorial Board of Neurochemical Research (1981-1991)

Chief Editor of Ciência Biológica (1972- ?)

VIII. ORGANIZATION OF MEETINGS AND CONFERENCES (selected list)

1. President of the Organizing Committee of the XI National Congress of the Portuguese Society for Biochemistry, 1998.
2. Coordinator and promoter of the Graduate Studies in Experimental Biology and Biomedicine at the University of Coimbra (1980-present).
3. Member of the Committee Responsible for the Water Research Institute of Coimbra, 1985.
4. Coordinator of the Advanced Studies Program of the University of Coimbra (1980-Present).
5. Co-organizer of an International Cell Research Organization (ICRO) training course (1990).
6. President of the Organizing and Cientific Committees of the I Congresso Nacional de Neurociências (1992).
7. Coordinator of the Simpósio de Biociências - Perspectivas para o Ano 2000 (1990).
8. President of the Organizing Committee of the 12th ISN Meeting in Portugal (1989).
9. Co-organizer of the Special FEBS Meeting in Portugal (1985).
10. Co-organizer of the Luso-Espanhol Congress (1980, 1983 and 1988).
11. Co-organizer of several Biochemistry Congresses of the Portuguese Biochemical Society.

IX. ADVISER AND COADVISOR TO DOCTORAL CANDIDATES IN THE FOLLOWING THESIS, AT THE UNIVERSITY OF COIMBRA

1. Influência das hormonas esteróides na síntese e secreção da anexina 1 na actividade do factor de transcrição NF-kB. Margarida Casal Ribeiro Castro Caldas Braga, 2004-11-29

2. Eventos pós-receptor na neurotoxicidade do glutamato: Contribuição da subunidade dos receptores AMPA para a activação do factor de transcrição AP-1. Aramanda Emanuela Castro de Santos
3. Caracterização da libertação de neurotransmissores pelas células da retina. Paulo Fernando Martins Santos, 1999
4. Acção Moduladora do Glutamato nos Terminais Nervosos do Hipocampo de Rato - Identificação de um Receptor de Cainato na Sub-Região CA3
João O. Malva - 1997
5. Regulação do Ca^{2+} Intracelular e da Neurosecreção em Sinaptossomas e Células em Cultura
Carlos J. Duarte - 1993
6. Caracterização e Transporte do Ácido Aminobutírico em Vesículas da Membrana Plasmática Sináptica
M.P. Gonçalves - 1992
7. Caracterização da Ligação de Tamoxifeno aos Receptores de Estrogénio e Antiestrogénio M.C. Lopes - 1991
8. Mecanismos de Neurosecreção: Transporte do Ácido Gama-Aminobutírico
M.S. Santos - 1990
9. Regulação da Secreção de Catecolaminas pelos Receptores Muscarínicos em Células Cromafins
E.P. Duarte - 1990
10. Regulação do Ca^{2+} e do pH Intracelulares em Células HL-60
F.J. Regateiro - 1987
11. Interacção da Calmodulina com Membranas do Cérebro
J. Alface - 1986
12. Transporte do Cálcio em Sinaptossomas e em Vesículas das Membranas Sinápticas
O. Coutinho - 1986
13. Caracterização dos Receptores da Dopamina do Cérebro de Carneiro
C. Oliveira - 1985
14. Arranjo Molecular e Actividade Bioquímica das Membranas do Retículo Sarcoplásmico
M.G.Vale - 1985
15. Interacções de Catiões com Membranas do Músculo e do Cérebro
C. Carvalho - 1982

16. Propriedades Físico-Químicas do Sarcolema Isolado do Músculo do Coelho
V. Madeira - 1972

X. NATURE OF RESEARCH AND RECENTLY FINANCED PROJECTS WHICH SUPPORTED THE RESEARCH (1994-2004).

Research in Neuroscience; glutamate receptors, regulation of neurosecretion, nitric oxide in exocytosis and apoptosis, models for studying ischaemia in nerve cell cultures.

Distribuição espacial de receptores do glutamato e de canais de cálcio em células em cultura investigada por técnicas de imagiologia. PRAXIS 2/2.1/BIA/74/94

Ação do Ca^{2+} no transporte de neurotransmissores através da membrana plasmática e da membrana de vesículas sinápticas. PRAXIS XXI/PRAXIS-2/2.1/BIA/224/94

Receptores pré-sinápticos: receptores do cainato de alta afinidade no hipocampo. PRAXIS XXI (PRAXIS2/2.1/SAU/1348/95)

Actividade dos receptores do glutamato nas células amacrinas colinérgicas; estudos de imagiologia. PBIC/C/BIA/2079/95

Co-transmissão nas células cromafins: caracterização na maquinaria excitatória de catecolaminas e neuropeptídeos. JNICT/PBIC/C/BIA/2044/95

Morte celular do condrócito induzida por agentes oxidantes e citoquinas; mecanismos de protecção. JNICT/PBIC/C/BIA/2053/95.

Mecanismos de morte celular durante a terapia fotodinâmica em células excitáveis. PRAXIS XXI/PRAXIS-2/2.1/1198/95.

Modulação da neurosecreção por neurotrofinas no hipocampo. PRAXIS/PCNA/C/BIA/96.

Alterações celulares iniciais induzidas nas células apresentadas de antígenos durante a fase de sensibilização química. PRAXIS XXI/PSAU/SAU/126/96.

Regulação da actividade dos receptores AMPA e da libertação de neurotransmissores por receptores metabotrópicos do glutamato em células amacrinas na retina em cultura. PRAXIS/P/BIA/10181/1998.

Importância das proteases na morte de células tumorais por apoptose induzida por terapia fotodinâmica. PRAXIS/P/SAU/12235/1998.

Neurotoxicidade do glutamato nas células da retina; eventos pós-receptor. FCT/PRAXIS/P/SAU/14120/1998.

Efeito protector das neurotrofinas contra a toxicidade do glutamato no hipocampo: mecanismos de sinalização intracelular. POCTI/BCI/32631/2000.

Neurotoxicidade mediada por receptores de AMPA e cainato no hipocampo: função do óxido nítrico. POCTI 35875/NSE/2000.

Expressão e características funcionais de formas nativas truncadas das subunidades dos receptores do glutamato do tipo AMPA. POCTI/BCI/39127/2001.

Alterações neuroprotectoras no proteoma induzidas por BDNF: estudos de proteómica em neurónios do hipocampo em cultura. POCTI/NSE/46441/2002.

Regulação da expressão dos receptores ionotrópicos do glutamato pelo BDNF em neurónios do hipocampo. POCTI/BCI/46466.

XI .PUBLICATIONS

1. PUBLICATIONS IN INTERNATIONAL REFEREED JOURNALS

1962:

1. Sanui, H., A.P. Carvalho and N. Pace. Relationship of hydrogen ion binding to sodium and potassium binding by rat liver cell microsomes and human erythrocyte ghosts. *J. Cell. Comp. Physiol.* 59: 241-250, 1962.

1963:

2. Carvalho, A.P., H. Sanui and N. Pace. Calcium and magnesium binding properties of cell membrane materials. *J. Cell. Comp. Physiol.* 62: 311-317, 1963.

1965:

3. Carvalho, A.P., H. Sanui and N. Pace. Binding of calcium and magnesium by lipoprotein subfractions of rat liver cell microsomes. *J. Cell Comp. Physiol.* 66: 57-64, 1965.

1966:

4. Carvalho, A.P.. Binding of cations by microsomes from rabbit skeletal muscle. *J. Cell Physiol.* 67: 73-83, 1966.
5. Carvalho, A.P. and Y. Avivi. Effects of zinc on adenosine triphosphatase activity and superprecipitation of actomyosin from skeletal muscle of rabbit. *Arch. Biochem. Biophys.* 113: 617-628, 1966.

1967:

6. Carvalho, A.P. and B. Leo. Effects of ATP on the interaction of Ca²⁺, Mg²⁺, and K⁺ with fragmented sarcoplasmic reticulum isolated from rabbit skeletal muscle. *J. Gen. Physiol.* 50: 1327, 1967.

1968:

7. Carvalho, A.P.. Effects of potentiators of Muscular contraction on binding of cations by sarcoplasmic reticulum. *J. Gen. Physiol.* 51: 427-442, 1968.

8. Carvalho, A.P.. Calcium-binding properties of sarcoplasmic reticulum as influenced by ATP, caffeine, quinine, and local anesthetics. *J. Gen Physiol.* 52: 662-642, 1968.

1971:

9. Carvalho, A.P. and A.M. Mota. The role of ATP and a bound phosphoryl group acceptor on Ca binding and exchangeability in sarcoplasmic reticulum. *Arch. Biochem. Biophys.* 142: 201-212, 1971.
10. Madeira, V.M.C., M.C. Antunes-Madeira and A.P. Carvalho. Effect of potentiators of muscular contractions on contractile and enzymatic activities of sarcolemma. *Biochem. Biophys. Acta* 234: 210-221, 1971.

1972:

11. Carvalho, A.P.. Binding and release of cations by sarcoplasmic reticulum before and after removal of lipid. *Eur. J. Biochem.* 27: 491-502, 1972.
12. Madeira, V.M.C. and A.P. Carvalho. Interaction of cations and local anesthesia with isolated sarcolemma. *Biochem. Biophys. Acta.* 266: 670-683, 1972.

1973:

13. Vale, M.G.P. and A.P. Carvalho. Effects of ruthenium red of Ca²⁺ uptake and ATPase of sarcoplasmic reticulum of rabbit skeletal muscle. *Biochim. Biophys. Acta* 325: 29-37, 1973.

1974:

14. Madeira, V.M.C., M.C. Antunes-Madeira and A.P. Carvalho. Activation energies of the ATPases on the ATPase activity of sarcoplasmic reticulum. *Biochim. Biophys. Res. Comm.* 58: 897-904, 1974.

1975:

15. Castro, V.R.O., M.G.P. Vale and A.P. Carvalho. Effects of X-537A on the phosphorylated protein in sarcoplasmic reticulum vesicles. *Experientia* 32: 424-426, 1975.
16. Graça, M.G.P. and A.P. Carvalho. Utilization of X-537A to distinguish between intravesicular and membrane bound calcium ions in sarcoplasmic reticulum. *Biochim. Biophys. Acta* 413: 202-212, 1975.

1976:

17. Vale, M.G.P., V.R. Osório e Castro and A.P. Carvalho. Synthesis of adenosine triphosphate during release of intravesicular and membrane-bound calcium ions from passively loaded sarcoplasmic reticulum. *Biochem.J.* 156: 239-244, 1976

1977:

18. Carvalho, C.A.M. and A.P. Carvalho. Fluorimetric monitoring of calcium binding to sarcoplasmic reticulum membranes. *Biochim. Biophys. Acta* 468: 21-30, 1977.

1979

19. Carvalho, C.A.M. and A.P. Carvalho. Effect of temperature and ionophores on the permeability of synaptosomes. *J. Neurochem.* 33: 309-317, 1979.

1980:

20. Antunes-Madeira, M.C., A.P. Carvalho and V.M.C. Madeira. Effects of insecticides on thermotropic lipid phase transition. *Pestic. Biochem. Physiol.* 14: 161-169, 1980.
21. Vale, M.G.P. and A.P. Carvalho. Interaction of chemical probes with sarcoplasmic reticulum membranes. *Biochim. Biophys. Acta* 601: 620-629, 1980.
22. Vale, M.G.P. Vale and A.P. Carvalho. Effect of temperature on the reversal of the calcium ion pump in sarcoplasmic reticulum. *Biochem. J.* 186: 461-467, 1980.

1981:

23. Antunes-Madeira, M.C., A.P. Carvalho and V.M.C. Madeira. Interactions of insecticides with erythrocyte membranes. *Pestic. Biochem. Physiol.* 15: 79-89, 1981.
24. Vale, M.G.P. and A.P. Carvalho. Differentiation between Ca^{2+} transport and ATP-induced Ca^{2+} binding by sarcoplasmic reticulum. *Biochim Biophys. Acta* 643: 168-176, 1981.

1983:

25. Carvalho, A.P., O.P. Coutinho, V.M.C. Madeira and C.A.M. Carvalho. Calcium transport synaptosomes and synaptic plasma membrane vesicles. *In: Biomembranes: Dynamics and Biology.* R.M. Burton and F. Burton and F.C. Guerra, eds., Plenum Press, N.Y., pp. 291-316, 1983.
26. Coutinho, O.P., A.P. Carvalho and C.A.M. Carvalho. Effect of monovalent cations on $\text{Na}^+/\text{Ca}^{2+}$ exchange and ATP dependent Ca^{2+} transport in synaptic plasma membranes. *J. Neurochem.* 41: 670-676, 1983.
27. Oliveira, C.R., I. Lajtha, A. Lajtha and A.P. Carvalho. Effect of cations and temperature on the binding of [^3H]-spiperona to sheep caudate nucleus. *Biochem. Pharmacol.* 23: 417-422, 1983.
28. Vale, M.G.P., A.J.M. Moreno and A.P. Carvalho. Effects of calmodulin antagonists on the active Ca^{2+} uptake by rat liver mitochondria. *Biochem. J.* 214: 929-935, 1983.

1984:

29. Coutinho, O.P., C.A.M. Carvalho and A.P. Carvalho. Calcium uptake related to K⁺-depolarization and Na⁺/Ca²⁺ exchange in sheep synaptosomes. *Brain Res.* 290: 261-271, 1984.
30. Faria, T.N., M. Matos, M.C.F. Tavares and A.P. Carvalho. Study of the effect of some neuroleptics and insecticides on estrogen-receptor binding of estrogen. *Ciênc. Biol.* 9: 233-243, 1984.
31. Oliveira, C.R., E.P. Duarte and A.P. Carvalho. Effect of phospholipase digestion and lysophosphatidylcholine on dopamine receptor binding. *J. Neurochem.* 43: 455-465, 1984.

1986:

32. Carvalho, C. A. M., C. R. Oliveira, M. C. P. Lima and A. P. Carvalho. Partition of Ca²⁺ channel blockers in brain plasma membranes. *J. Neurochemistry* 48: S76, 1986.
33. Carvalho, C.A.M., M.S. Santos and A.P. Carvalho. γ -aminobutyric acid release from synaptosomes as influenced by Ca²⁺ and Ca²⁺ channel blockers. *Eur. J. Pharmacol.* 131: 1-12, 1986.
34. Carvalho, C.A.M., O.P. Coutinho and A.P. Carvalho. Effects of Ca²⁺ channel blockers on Ca²⁺ translocation across synaptosomal membranes. *J. Neurochem.* 47: 1774-1784, 1986.
35. Santos, M. S., P. P. Gonçalves and A. P. Carvalho. Compartmentation and release of exogenous GABA in sheep brain synaptosomes. *Neurochem. Res.* 12: 297-304, 1986.

1987:

36. Carvalho, C. A. M., C. R. Oliveira, M. C. P. Lima and A. P. Carvalho. Partition of Ca²⁺ channel blockers in brain plasma membranes. *J. Neurochem.* 48 : S76, 1987.
37. Santos, M. S., P. P. Gonçalves and A. P. Carvalho. Compartmentation and release of exogenous GABA in sheep brain synaptosomes. *Neurochem. Res.* 12: 297-304, 1987.

1988:

38. Carvalho, A.P., M.S. Santos, A.O. Henriques, P. Tavares and C.A.M. Carvalho. Calcium channels and Na⁺/Ca²⁺ exchanges in synaptosomes. *In: Cellular and Molecular Basis of Synaptic Transmission.* NATO ASI Series, vol. H-21 (Zimmermann, H. eds.), Springer-Verlag Berlin, pp. 263-284, 1988.
39. Duarte, E.P., C.R. Oliveira and A.P. Carvalho. Thermodynamics of antagonist and agonist interactions with dopamine receptors. *Eur. J. Pharmacol.* 147: 227-241, 1988

1989:

40. Carvalho, C.M., C.R. Oliveira, M.P. Lima, A.P. Carvalho. Partition of Ca^{2+} antagonists in brain plasma membranes. *Biochem. Pharmacol.* 38: 2121-2127, 1989.
41. Carvalho, C. A. M., O. P. Coutinho and A. P. Carvalho. The importance of $\text{Na}^+/\text{Ca}^{2+}$ exchange in the regulation of synaptosomal Ca^{2+} concentration. *In: Methodological Surveys in Biochemistry and Analysis* (Reid, E. *et al.*, eds). Royal Society of Chemistry, London, vol. 19: 137, 1989.
42. Carvalho, C.A.M., C. Bandeira-Duarte, D.L. Santos, E. Cragoe Jr., and A.P. Carvalho. Calcium uptake by synaptosomes with low and high Na^+ content and effect of Ca^{2+} antagonists. *In: Methodological Surveys in Biochemistry and Analysis* (Reid, E. *et al.*, eds.), Royal Society of Chemistry, London, vol. 19: 133-136, 1989.
43. Carvalho, C. M., C. R. Oliveira, M. C. P. Lima, J. E. Leysen and A. P. Carvalho. Partition of Ca^{2+} antagonists in brain plasma membranes. *Biochem. Pharmacol.* 13: 2121-2127, 1989.
44. Oliveira, C. R., M. C. P. Lima, C. A. M. Carvalho, J. E. Leysen and A. P. Carvalho. Partition coefficients of dopamine antagonists in brain membranes and liposomes. *Biochem. Pharmacol.* 38: 2113-2120, 1989.

1990:

45. Bandeira-Duarte, C., C. A. M. Carvalho, E. J. Gragoe Jr. and A. P. Carvalho. Influence of isolation media on synaptosomal properties: intracellular pH, pCa and Ca^{2+} uptake. *Neurochem. Res.* 15: 313-320, 1990.
46. Gonçalves, P. P., M. S. Santos and A. P. Carvalho. Ionic requirements for transport and release of [^3H]GABA by synaptic plasma membrane vesicles. *Neurochem. Int.* 17:401-413, 1990.
47. Lopes, M. C. L.: M. G. P. Vale and A. P. Carvalho. Ca^{2+} -dependent binding of tamoxifen to calmodulin isolated from bovine brain. *Cancer Res.* 50: 2753-2758, 1990.
48. Malva, J. O., M. C. F. Lopes, M. G. P. Vale and A. P. Carvalho. Action of antiestrogens on the $(\text{Ca}^{2+}+\text{Mg}^{2+})$ -ATPase and $\text{Na}^+/\text{Ca}^{2+}$ exchange of brain cortex membranes. *Biochem. Pharmacol.* 40: 1877-1884, 1990.

49. Santos, M. S., P. P. Gonçalves and A. P. Carvalho. Effect of ouabain on the $^-$ ^3H aminobutyric acid uptake and release in absence of Ca^{2+} and K^+ -depolarization. *J. Pharmacol. Exptl. Therap.* 253: 620-626, 1990.

1991:

50. Carvalho, A.P., C. Bandeira-Duarte, I.L. Ferreira, O.P. Coutinho and C.M. Carvalho. Sodium-calcium exchange in nerve terminals. Influence on internal Ca^{2+} and neurosecretion. *Ann. N.Y. Acad. Sci.* 639: 300-311, 1991.
51. Carvalho, C.A.M., C. Bandeira-Duarte, I.L. Ferreira and A.P. Carvalho. Regulation of carrier-mediated and exocytotic release of ^3H -GABA in rat brain synaptosomes. *Neurochem. Res.* 16: 763-772, 1991.
52. Duarte C.B., C.A.M. Carvalho, I.L. Ferreira and A.P. Carvalho. Synaptosomal $[\text{Ca}^{2+}]_i$ exchange and K^+ -depolarization. *Cell Calcium* 12: 623-633, 1991.
53. Gonçalves, T.M., A.P. Carvalho and C.R. Oliveira. Antiperoxidant effect of Ca^{2+} antagonists on microsomal membranes isolated from different brain areas. *Eur. J. Pharmacol.* 204: 315-322, 1991.
54. Lopes, M.C., M.C. Tavares, M.G. Vale e A.P. Carvalho. Characterization of estrogen antiestrogen binding to the cytosol and microsomes of breast tumors. *J. Steroid Biochem.* 39: 343-352, 1991.
55. Regateiro, F., C.M. Carvalho, I.L. Ferreira and A.P. Carvalho. Calcium stores in electropermeabilized HL-60 cells before and after differentiation. *Cell Signall.* 3: 41-49, 1991.
56. Santos, M.S., P.P. Gonçalves and A.P. Carvalho. Release of $^-$ ^3H aminobutyric acid from synaptosomes: effect of external cations and ouabain. *Brain Res.* 547: 135-141, 1991.
57. Silva, C.M.P., M.C.P. Lima, C.R. Oliveira and A.P. Carvalho. A flow microcalorimetric study of the inhibition of acetylcholinesterase by catecholamine derivatives. *Thermodynam. Acta* 179: 221-230, 1991.

1992:

58. Cristóvão, J.A., A.P. Carvalho and C.A.M. Carvalho. $\text{Ins}(1,4,5)\text{P}_3$ causes Ca^{2+} release from brain microsomes loaded with Ca^{2+} either by the Ca^{2+} -ATPase or by $\text{Na}^+/\text{Ca}^{2+}$ exchange *Cell Signal.* 4: 687-696, 1992.
59. Duarte, C.B., I.L. Ferreira, P.F. Santos, C.R. Oliveira and A.P. Carvalho. Ca^{2+} release of ^3H GABA in cultured chick retina cells. *Brain Res.* 591: 27-32, 1992.

60. Lima, M.C.P., J. Ramalho-Santos, M.F. Martins, A.P. Carvalho, V.A. Bairos and F. Nir. Kinetic modeling of Sandai virus with PC-12 cells: Effect of pH and temperature on fusion and viral inactivation. *Eur. J. Biochem.* 205: 181-186, 1992.
61. Santos, M.S., R. Rodriguez and A.P. Carvalho. Effect of depolarizing agents on the Ca^{2+} -independent and Ca^{2+} -dependent release of [^3H]GABA from sheep brain synaptosomes. *Biochem. Pharmacol.* 44: 301-308, 1992.
62. Seppen, J., J. Ramalho-Santos, A.P. Carvalho, M. Beest, J.W. Kok, M.C. Pedroso de Lima and D. Hoekstra. Interaction of clathrin with large unilamellar phospholipid vesicles at neutral pH: Lipid dependence and protein penetration. *Biochim. Biophys. Acta* 1106: 209-215, 1992.

1993:

63. Duarte, C.B., A.R. Tomé, E. Forsberg, C.A.M. Carvalho, A.P. Carvalho, R.M. Santos and L.M. Rosário. Neomycin blocks dihydropyridine-insensitive Ca^{2+} influx in bovine adrenal chromaffin cells. *Eur. J. Pharmacol.* 244: 259-267, 1993.
64. Duarte, C.B., I.L. Ferreira, A.P. Carvalho and C.A.M. Carvalho. Relation of exocytotic of γ -aminobutyric acid to Ca^{2+} entry through Ca^{2+} channels or by reversal of the $\text{Na}^+/\text{Ca}^{2+}$ exchanger in synaptosomes. *Eur. J. Physiol.* 423: 314-323, 1993.
65. Duarte, C.B., I.L. Ferreira, P.F. Santos, C.R. Oliveira and A.P. Carvalho. Glutamate increases the $[\text{Ca}^{2+}]_i$ and stimulates Ca^{2+} -independent release of ^3H -GABA in cultured chick retina cells. *Brain Res.* 611: 130-138, 1993.
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