

## CURRICULUM VITAE

CHRISTINE ZIOUDROU  
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Born in Thessaloniki, 1926.

### EDUCATION

- 1947-1951 University of Thessaloniki, Dept. of Physics, Mathematics and Chemistry, Diploma in Chemistry.
- 1952-1956 University of Athens, Department of Organic Chemistry, Doctorate in Organic Chemistry (Thesis consultant: Prof. L. Zervas).

### PROFESSIONAL EXPERIENCE

- 1948-1949 Instructor, Analytical Chemistry, University of Thessaloniki.
- 1949-1951 Instructor, Physical Chemistry, University of Thessaloniki.
- 1951-1959 Senior Assistant, Laboratory of Clinical Chemistry "Red Cross Hospital", Athens, Greece (two years leave of absence 1956--1958).
- 1956-1958 Post-doctoral Fellow, Dept. of Biochemistry, Yale University.  
Fellow of the Greek State Fellowship Foundation (IKY).
- 1960-1961 Instructor in Biochemistry, Dept. of Biochemistry, Yale University, New Haven Conn. U.S.A.
- 1961-1963 Assistant Professor in Biochemistry, Dept. of Biochemistry, Yale University, U.S.A.
- 1963-1985 Senior Investigator of the Nuclear Research Center "Demokritos", Athens, Greece. Head of research group on Bioorganic Chemistry and Biochemistry of peptides and proteins.
- 1985-1993 Professor of Biochemistry, University of Crete, School of Health Sciences, Division of Medicine, Heraklion, Crete.
- 1989-1994 Director of the Institute of Biology, National Center for Scientific Research "Demokritos" and Member of the Board of Director of the NCSR "Demokritos".

## **INVITED VISITING SCIENTIST**

- Dept. of Biophysics, The Weizmann Institute of Sciences, Rekovot, Israel 1964, 1965, 1966.
- Michigan State University, Dept. of Chemistry. East Lansing, Michigan (U.S.A) 1967-1968.
- National Institutes of Health, National Institute of Mental Health, Bethesda, Maryland U.S.A. (on sabbatical leave), 1977-1978.
- National Institute of Mental Health, Bethesda, Md, U.S.A. Collaboration on projects related to opioid receptors, 1982.
- Invited lecturer, Weizmann Institute of Sciences, Dept. of Biophysics and Dept. of Life Sciences, Tel Aviv University, Israel, 1983.

## **TEACHING EXPERIENCE**

- a. Lectures and Laboratory Course on "Synthetic Methods in Biochemistry" B.115a for the 1st year graduate students in Biochemistry. Laboratory Manual by C. Zioudrou, Yale University.  
b. Conferences on General Biochemistry to Medical Students, Yale Medical School, 1961-1963.
- Organic Chemistry for Laboratory technicians, NRC "Demokritos", 1963-1964.
- Organized and directed Curriculum in Biology for the graduate trainees of the Dept. of Biology, NRC "Demokritos". Teaching special topics in Biochemistry, 1973-1975.
- Lectures in Biochemistry on Proteins, Enzymes, Kinetics and Thermodynamics in Biochemistry, NCSR "Demokritos", 1979-1983.
- Graduate courses on neuropeptides, peptide hormones, extracellular and intracellular cell communication, NCSR "Demokritos", 1980-1982.
- **Medical School Univ. of Crete, 1986-1993.**  
Courses :  
General Biochemistry  
Brain Biochemistry (elective)  
Spectroscopic Methods in Biochemistry (elective)  
Special topics in Neurosciences (elective)  
In charge of First semester Chemistry Course (theory and practice 1986-1993)  
In charge of 1st Semester Physics Course (theory and practice 1986-1991)

Seven graduate students worked on their thesis under my supervision and received their Doctorate Degrees (PhD) from the University of Athens and University of Crete. Ten University graduates were trained in the Laboratory of Biochemistry of the NRC "Demokritos" and helped to continue their studies abroad.

## **OTHER PROFESSIONAL ACTIVITIES**

- Head of the Dept. of Biochemistry and Experimental Medicine (renamed Dept. of Biology, 1968), NRC "Demokritos" and Member of the Scientific Committee, 1966-1967.
- Assigned by the Ministry of Education to organize a team of physicists and chemists for the writing of text books in Physics and Chemistry for the 5th and 6th Grade of the Greek Elementary Schools, 1974-1975.
- Consultant of the Ministry of Education, 1974.
- Member of the Scientific Committee of the Institute of Biology NRC "Demokritos", 1976-1977.
- Member of the Scientific Committee of the National Center for Scientific Research NCSR "Demokritos", 1981-1982.
- Consultant of the Ministry of National Economy on Biotechnology, 1983-1984.
- Member of the Scientific Board of the "Biohellas Company S.A.", 1984-1988.
- Head of the Dept. of Basic Medical Sciences of the Medical School, University of Crete, Heraklion, 1986-1988.
- Founding Member and President of the "Leonidas Zervas" Foundation. Fellowships to graduate students in Organic Chemistry, 1984-today.
- Member of the Ethics Committee of NCSSR "Demokritos" , 1992, 1993.
- President of the Scientific Review and Promotion Committees a) at the Institute of Biology and Biotechnology of the National Hellenic Foundation (EIE) 1990 and b) at the Institute of Biology NCSR "Demokritos", 1993.
- Member of Examining Committees of the Greek State Fellowship Foundation (IKY).
- Reviewer of Research Projects of a) Greek General Secretariat of Research and Technology b) Human Frontiers Projects of International Collaboration and c) Scientific papers submitted for publication to international journals.

## **RESEARCH GRANTS**

- |           |                                                                                                                                                                                              |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1961-1963 | National Institutes of Health (NIH-5-K63M 14936 Project "Interactions of functional groups in Proteins" (\$ 11,740).                                                                         |
| 1962-1963 | Supplementary support (NIH GM-09951) (\$ 8,850).                                                                                                                                             |
| 1964-1966 | National Institute of Health (NIH-GM-11628 Project "Interactions of phosphate with functional groups into proteins" Organized and equipped a laboratory at the NRC "Demokritos" (\$ 19,150). |
| 1980      | Research Grant from the Foundation of "Alexandros Onassis" Project: Interaction of catecholamines with phospholipid vesicles". (\$ 3,000).                                                   |

- 1981-1983 Research support from the Greek Ministry of Coordination. Project title: "Opioid peptides from food proteins" (\$ 55,000).
- 1989-1991 Research support from the Secretariat of Research and Technology (Ministry of Industry). Project : "Exogenous and endogenous opioid peptides, pharmacology and clinical significance" (\$ 40,000).
- 1991-1993 Participants in the Program "Development of the Institute for Mental Health" (STRIDE nr. 250). Director: Professor Costas Stephanis, Dept. of Psychiatry, University of Athens. Sub-project : Neurochemistry-neurobiology of opioids. C. Zioudrou, Dept. of Biology, NRCS "Demokritos" (12,000 ECU).
- 1989 Participated in a project for the organization of a laboratory for Neurosciences at the University of Crete financed by the Ministry of Education of Greece. Responsible: A. Plaitakis, Professor of Neurology, Univ. of Crete.

## AWARDS

- Fellowship of the Greek state Fellowship Foundation (IKY), 1956.
- **Career Development Award**, Public Health Service, NIH, U.S.A. National Institutes of Health, Bethesda, Md., 1961.
- **Academy of Athens, A. Tsoufli. Award** for contribution in the elucidation of reaction mechanisms of biochemical interest, 1971.

## MEMBER OF SCIENTIFIC SOCIETIES

Greek Chemists Union 1953.  
 American Chemical Society 1957.  
 International Narcotics Research Conference 1978.  
 Hellenic Biochemical, Biophysical Society 1980.  
 Society for Neuroscience USA 1983.  
 Hellenic Society for Neurosciences 1985.

## RESEARCH INTERESTS

Bioorganic chemistry: Stereochemistry, Enzyme mechanisms.  
 Role of phospholipids in the actions or activation of membrane bound proteins and enzymes.  
 Neuropeptides and peptide hormones with selective biological activity (isolation, characterization, synthesis).  
 Opioid peptides derived from food proteins and their physiological significance.  
 Isolation, characterization and cloning of subtypes of opioid receptors.  
 Mode of interactions of opioid receptors with G-proteins.  
 Effects of opioid peptides on reproduction.  
 Effects of opioid peptides with selective agonist or antagonist activities on the peripheral and central nervous system (*in vivo* and *in vitro* experiments).  
 Neuronal responsiveness, long-lasting effects of opioids and neuronal plasticity.

## PUBLICATION (C. Zioudrou)

1. Danopoulos, E., B. Angelopoulos, C. Zioudrou and P. Amira. Experimental Study of the Absorption of Oxytetracycline by the Stomach and small intestine and its Excretion in the Bile. *Antibiotics and Chemotherapy*. 4:451-454 (1954).
2. Danopoulos, E., B. Angelopoulos, C. Zioudrou and P. Amira. Chloramphenicol Excretion in the Bile. *British Journal of Phar and Chemoth.* 9:260-261 (1954).
3. Danopoulos, E., B. Angelopoulos, G. Kottakis and C. Zioudrou. Experimentelle Versuch ueber die Resorption von Aureomycin durch Magen und Duodenum und ueber dessen Ausscheidung durch die Galle. *Schw. Med. Wochen* 34:1064-1066 (1954).
4. C. Zioudrou, Ph. D. Dissertation (1956). University of Athens "Oxidations and Reductions of Carbohydrates" (Ph. D. Organic Chemistry).
5. Zervas, L. and C. Zioudrou. Catalytic reduction of Acetobromosugars. *J. Chem. Soc. (London)* 41:214-215 (1956).
6. Zioudrou, C., William K. Meyer and Joseph S. Fruton. Reactions of nitrous acid with p-hydroxycinnamic acid. *J. Am. Chem. Soc.* 79:4114-4116 (1957).
7. Zioudrou, C. and Joseph S. Fruton. Reactions of Phenylpropene derivatives with nitrous acid. *J. Am. Chem. Soc.* 79: 5951-5953 (1957).
8. Zioudrou, C., Setsuro Fujii and Joseph S. Fruton. Labelling of proteins by isotopic <sup>amino</sup>acid derivatives. *J. Biol. Chem.* 234: 583-585 (1959).
9. Zioudrou, C. and Joseph S. Fruton. Labelling of mitochondrial proteins by C<sup>14</sup>-tyrosinamide acid and C<sup>14</sup>-tyrosyladenylate. *Proc. Natl. Acad. Sci.* 44: 439-445 (1958).
10. Zioudrou, C. Reaction of N-acylphosphoramidic acid with alcohols. *Tetrahedron*. 18: 197-204 (1962).

11. Zioudrou C. and G. L. Schmir. The participation of the Amide group in the Solvolysis of Phosphoric Acid Esters I. Phosphotriesters in Alkaline Media. *J. Am. Chem. Soc.* 85 : 3528 - 3534 (1963).
12. Schmir, G. and Zioudrou C. The participation of the Amino group in the Solvolysis of Phosphoric Acid Esters II. Phosphotriesters in neutral Ethanolic and Aqueous Media. *Biochemistry* 2 : 1305-1313 (1963).
13. Zioudrou C, M. Wilchek, M. Sokolovsky, A. Patchornik. Conversion of L-seryl to L-cysteiny Residues, *Israel J. Chem.* 2 : 326-328 (1964).
14. Zioudrou, C, M. Wilchek and A. Patchornik. Conversion of L-Serine Residue to an L-Cysteine Residue in Peptides. *Biochemistry* 4 : 1811-1822 (1965).
15. Wilchek, M, C. Zioudrou and A. Patchornik. The conversion of L-Chloroalanine peptides to L-cysteine peptides. *Israel J, Chem* 3 : 67-68 (1965).
16. Wilchek, M, C. Zioudrou and A. Patchornik. The conversion of L-β-Chloroalanine peptides to L-cysteine peptides. *J. Org. Chem.* 31 : 2865-2867 (1966).
17. Zioudrou C. and Joseph S. Fruton. Reactions of diacylamides containing N-Protected Aminoacyl Group. *Biochemistry.* 5 : 2468-2473 (1966).
18. Patchornik, A., M. Wilchek and C. Zioudrou. An Approach to the enzymatic cleavage of seryl peptide bonds. *Israel Journal of Chemistry.* 7 : 559- 565 (1969).
19. R. K. Chaturvedi, T. C. Pletcher, C. Zioudrou and G. L. Schmir. The hydrolysis of an iminophosphorane; <sup>Evidence</sup> for an intermediate. *Tetrahedron Letters* 4339-4342 (1969).
20. McMurray, W. J., S.R. Lipsky, C. Zioudrou and G. L. Schmir. The Mass Spectra of N-phenyl Phosphoramidate Esters. *Organic Mass Spectroscopy.* 3: 1031 - 1034 (1970).

21. Karabatsos, G. J., C. Zioudrou and M. Meyerson. The question of protonated cyclopropanes in the reactions of 1-propanol and 1-chloropropane with Zinc Chloride. *J. Am. Chem. Soc.* 92 : 5996-5998 (1970).
22. Zioudrou C., I. Moustakali and G. J. Karabatsos. Assymmetric induction III Effect of the t-butyl group directly bonded to carbonyl. *Tetrahedron Letters* 5289-5292 (1972).
23. C. I. Stassinopoulou and C. Zioudrou. A Study of the dimeric structures of glycolaldehyde in solution by NMR. *Tetrahedron* 28 : 1257-1263 (1972).
24. C. I. Stassinopoulou, C. Zioudrou and G. J. Karabatsos. Temperature dependence of the C-Methyl Chemical Shifts of N-substituted hydrazones of Aceton. *Tetrahedron Letters*, 3671-3674 (1972).
25. C. Zioudrou, P. Chrysochou, G. Karabatsos. Asymmetric induction IV. Dependence of some Diastereometric product of  $\Delta\Delta H$  and  $\Delta\Delta S$ . *Tetrahedron Letters*, 5293-5296 (1972).
26. C. I. Stassinopoulou, C. Zioudrou and G. J. Karabatsos. Solvent Effects of the syn-anti isomerization rates of Hydrazones of Acetone. *Tetrahedron* 32 : 1147 - 1151 (1976).
27. C. Zioudrou, P. Chrysochou. Asymmetric syntheses with  $\alpha$ -Hydroxypropionaldehyde. Temperature dependence of the diastereometric products. *Tetrahedron* 33 : 2103-2108 (1977).
28. C. Zioudrou, E. Moustakali, P. Chrysochou and G. J. Karabatsos. Asymmetric synthesis VV. Effects of bulky groups directly to carbonyl. Absolute configuration of products. *Tetrahedron* 34 : 3181 - 3186 (1978).
29. C. Zioudrou, C. Stassinopoulou and S. Loukas. The mechanism of isomerization of Lactaldehyde to Hydroxyacetone. *Bioorganic Chemistry* 9 : 163-173 (1980).

30. M. R. Issidorides, C. Zioudrou, E. Lykouras and C. N. Stafanis. Drug induced Changes in Chromatin ultrastructure and nuclear basic proteins of the neutrophils of chronic schizophrenics. *Progress in Neuro-Psychopharmacology* 2: 79-85 (1978).
31. W. A. Klee, C. Zioudrou and R.A. Streaty. Exorphins : Peptides with opioid activity isolated from wheat gluten and their possible role in the etiology of schizophrenia. *Endorphins and Mental Health Research*, (eds. E. Usdin, W.a. Bunney and N.S. Kline). pp. 209-218, McMillan, N.Y. (1978).
32. C. Zioudrou, W.A. Klee. Exorphins Peptides with opioid activity derived from  $\alpha$ -casein and wheat gluten, in *Characteristics and function of opioid*. J. M. van Ree and L. Tenen<sup>1</sup> eds. elsevier/North Holland, amsterdam pp. 205-207 (1978).
33. C. Zioudrou, R.A. Streaty and W.A. Klee. Opioid peptides derived from food proteins. *Journal Biological Chemistry*. 254 : 2446-2449 (1979).
34. C. Zioudrou and W.A. Klee. Possible roles of peptides derived from food proteins in brain function. Review Article for *V. 4 Nutrition and the Brain* ed. R. J. Wurtman and J. J. Wurtman, Raven Press, N.Y. (1979). pp. 125-158.
35. W.A. Klee and C. Zioudrou. The possible actions of peptides with opioid activity derived from pepsin hysrolysates of wheat gluten and  $e\frac{1}{2}$  other constituents of gluten in the function of the centra nervous system. In *Biochemistry of Schizophrenia and Addiction*, eds. W.A. and G. Hemmings, MTP Press Ltd Lancaster, England. pp. 53-76 (1980).
36. C. Zioudrou, S. Loukas, D. Varoucha, W.A. Klee and R.A. Streaty. Synthesis and biological activity of opioid  $\alpha$ -casein peptides structure activity relationship. In *Advances in endogenous and Exogenous opioid* 392-395 (1981).
37. C. Zioudrou, D. Varoucha. Interactions of catecholamines with phospholipids from chicken erythrocyte membranes, Eighth International Congress of Pharmacology. 343 (1981) Tokyo, Japan.



38. **Zioudrou C**, Loukas S, Varoucha D, Nikolaou N, Klee W. A. and Streaty A. R. Photolabile derivatives of D-Ala<sup>2</sup>-Leu<sup>5</sup>-Enkephalin and their interaction with the opiate receptor. *J. Biol. Chem.* 258: 10934-10937 (1983).
39. Loukas S, Varoucha D, **Zioudrou C**, Klee W. A. and Streaty R.A. Opioid activities and structures of  $\alpha$ -casein derived exorphins. *Biochemistry* 22:4567-4573 (1983).
40. **Zioudrou C**, Loukas S. and Varoucha D, Klee W.A. and Streaty R.A. Potential photoaffinity Ligands for Opiate receptor, *Life Sciences* 31: 1671-1674 (1982).
41. Dourtoglou V, Groos B, Lambropoulou V. and **Zioudrou C**. The benzotriazolyl N, N-tetramethyluronium hexafluorophosphate as coupling reagent for peptides of biological interest. *Synthesis* 572-574 (1984).
42. **Zioudrou C**, Loukas S. and Nicolaou N. Substitution of D-aminoacid in  $\alpha$ -casein exorphins yields opioid antagonists. *Alcohol and Drug Research* 6:174 (1986).
43. Nicolaou N. and **Zioudrou C**. The effect of calcium on the responses to opioid peptides and morphine in the Rat vas deferens. *Alcohol and Drug Research* 6:224 (1986).
44. Loukas S, Nicolaou N. and **Zioudrou C**. Synthetic analogs of  $\alpha$ -casein exorphins with selective antagonistic activity at  $\delta$ -opioid receptors. Proceedings of the 10th Hellenic Symposium of Chemistry. Vol I pp. 110-113 (1985).
45. Loukas S, Panetsos F, **Zioudrou C**, (1990). Purification of Solubilized opioid binding sites from rat brain by photolabeling and affinity chromatography using specific  $\delta$ -opioid antagonist exorphin analogs in Progress in Clinical and Biological Research vol. 328 eds R. Quirion et al, Alan Liss N.Y. p.p. 97-100.
46. Loukas S, Panetsos F, **Zioudrou C**, (1990). Selective  $\delta$ -antagonist peptide analogs of  $\alpha$ -casein exorphin, as probes for the opioid receptor in " $\beta$ -Casomorphins and Related Peptides" Eds. (F. Nyberg and V. Brantl, Fyris-Tryck AB, Uppsala, Sweden, p.p. 65-75.

47. Loukas S., Panetsos F., Merkouris E., **Zioudrou C.**, (1990). Purification of a 58kda protein from rat brain which binds selectively  $\delta$ -opioid agonists. In "New Leads in Opioid Research" (Eda), J.W. van Ree, H. Mudler, V.M. Wiegant and T.B. Wimersma Greidanus, Excerpta Medica, p.p. 173-175.
48. Angelopoulos E., Maillis A., Andreou A., Koutsoukos A., Loukas S. and **Zioudrou C.** (1990). Effects of iontophoretically applied  $\alpha$ -casein exorphins on CA1 hippocampal field potentials in vivo. In Progress in Clinical and Biological Research Vol. 328. The International Narcotic Research Conference (INRC 1989) Eds R. Quirion et al pp. 339-342.
49. Maillis A., Angelopoulos E., Koutsoukos A., Andreou A., Stephanis C., **Zioudrou C.** and Loukas S. (1990). Central Synaptic activities of  $\alpha$ -casein exorphins in " $\beta$ -Casomorphins and related Peptides". Eds. F. Nyberg and V. Brantl, Fyris-Tryck A.B., Sweden, p.p. 123-132.
50. Angelopoulos E., Maillis A., Koutsoukos A., Andreou A., Stephanis C., Loukas S. and **Zioudrou C.** (1990). N. N-Diallyl-Tyr-Gly-Tyr-LeuOH specifically antagonized in vivo the excitation induced on CA1 hippocampal field potentials by delta-opioid agonist in "New Leads in Opioid Research", Eds. J. M. van Ree, A.H. Muldre, V. M. wiegant and T.B. van Wimwrsma Greidanus. Excerpta Medica Amsterdam, p.p. 224-225.
51. Maillis A., Angelopoulos E., Koutsoukos A., Andreou A., Stephanis C., **Zioudrou C.** and Loukas S. (1990). Food derived peptides. Effects on Central Neuronal Activity in Psychiatry : *A word Perspective* Vol. 2, Eds. Stephanis et al. Elsevier Science Pub. p.p. 665-672.
52. Maillis A., Angelopoulos E., Andreou A., Koutsoukos A., Stephanis C., Loukas S. and **Zioudrou C.** (1990). Modification of the evoked hippocampal field potentials by the local microapplication of  $\alpha$ -casein exorphius in *Psychiatry Worlds Perspective* Vol. 2, Eds. Stefanis et al, Elsevier, Science Publs. pp. 673-676.
53. Georgoussi Z. and **Zioudrou C.** (1991). A specific  $\delta$ -opioid antagonist inhibits low Km GTPase activity in rat brain membranes. *Naunyn-Schmiedeberg's Archives of Pharmacology*, Suppl. 334, p. 154.

54. Papazafiri P., Dragatsis I., **Zioudrou C.** and Gerozissis K. (1992). Regulation of the Release of GnRH and LH by opioid peptides in vitro in ***Recent Advances in cellular and Molecular Biology***, Vol. 3, Wergmann R.J. and Wergmann M.A. (Editors) Peters Press, Belgium, pp. 163-174.
55. Georgoussi Z. and **Zioudrou C.** (1993). Effects of  $\delta$ -opioid antagonists on the functional coupling between opioid receptors and G-proteins in rat brain membranes, ***Biochem. Pharmacol.***, **45**, 2405-2410.
56. Gerozissis K., Dragatsis I. and **Zioudrou C.** (1993). The  $\delta$ -opioid signal transduction on the gonadotropin releasing hormone release is eicosanoid dependent, ***Brain Research***, **626**, 219-224.
57. Panetsos, F. Mercouris M., Loukas S. and **Zioudrou C.** (1991). Opioid receptors I. Isolation of a 58 Kda opioid binding glycoprotein from rat brain membranes. ***Hellenic Biochemical Society Newsletter (HBBS)***, 33:56-58.
58. Loukas S., Mercouris M. and **Zioudrou C.** (1991). Opioid Receptors II. Purification of an Opioid Binding Protein using a Sepharose-6-Aminoaxolone Matrix. ***HBBS*** 33:59-61.
59. Loukas S., Mercouris M., Panetsos F. and **Zioudrou C.** (1994). Purification to homogeneity of an active opioid receptor from rat brain membranes by affinity chromatography. ***Proc. Natl. Acad. Sci., USA*** **91**, 4574-4578.
60. **Zioudrou C.** *Food derived psychoactive peptides*. In *Diet and Mental Disorders*. Ed. Prof. V. Corfield, in press. Chapman and Hall Ltd. London (invited review article, in press).
61. Georgoussi Z., Milligan G., and **Zioudrou C.** (1994). Immunoprecipitation of solubilized opioid receptor-Go protein complexes using specific GTP-binding protein antisera. ***Regulatory Peptides***, **54**, 105-106.
62. Dragatsis I., Papazafiri P., **Zioudrou C.** and Gerozissis K. (1995). Opioids modify the release of LH at the pituitary level: in vitro studies with entire rat pituitaries. ***Journal of Endocrinology***, **145**, 263-270.
63. Georgoussi Z., Milligan G. and **Zioudrou C.** (1995) Immunoprecipitation of opioid receptor-Go-protein complexes using specific GTP-binding-protein antisera. ***Biochem. J.***, **306**, 71-75.
64. Angelopoulos E., Koutsoukos E., Maillis A., **Zioudrou C.** and Stephanis C. (1995) Acute tolerance and dependence to the excitatory effects of opioids in rat hippocampus. ***J. Neuroscience Research*** **40**, 72-78.

65. Dragatsis I., **Zioudrou C.** and Gerozissis K. (1995). Specific delta-opioid antagonists exert an agonist-independent inhibitory effect similar to the agonist on the release of GnRH in vitro. Accepted in ***Cellular and Molecular Neurobiology***, **15**, 389-400.
66. Nicolaou N., Loukas S. and **Zioudrou C.** P<sup>1</sup> and P<sup>2</sup> Purinergic receptors in smooth muscles of mouse and rat vas deferens and guinea-pig ileum: Evidence for direct action of adenosine-5'-triphosphate (in preparation).
67. Kleanthous M. and **Zioudrou C.** Effects of GTP and bivalent cations on the binding of adenosine derivatives to adenosine receptors (in preparation).
68. Tsopanoglou N.E., **Zioudrou C.**, Tsilibari E.C. and Charonis A. (1995). Putrecine, a novel inhibitor of glycosylation induced cross-links in laminin. ***Microcirculation***, **2**, 000 (accepted, in press).
69. Georgoussi Z., Mercouris M., Dragatsis I., Konidakis G., Milligan G. and **Zioudrou C.** Two sites of the third intracellular loop of the  $\delta$ -opioid receptor are critical in the functional coupling of the receptor to G-proteins (in preparation).

## TEACHING BOOKS

1. *Synthetic Methods in Biochemistry*. C. Zioudrou (1961). Laboratory Manual, Yale University, Dept of Biochemistry.
2. *Physics and Chemistry for the 5th and the 6th grade of Elementary Schools* (in Greek, four books, two for the pupils and two Teaching Manual (1975). Sponsored by the Ministry of Education.  
Φυσική και Χημεία για την Πέμπτη Τάξη του Δημοτικού. Φυσική και Χημεία για την Έκτη Τάξη του Δημοτικού. Αντίστοιχα Βιβλία για το Δάσκαλο. Συγγραφείς Ομάδα Εργασίας, Οργανισμός Εκδόσεως Σχολικών Βιβλίων του Υπουργείου Παιδείας.
3. *Theory and Practice of Nuclear Magnetic Resonance : Basic principles in Clinical Practice* by R. Edelman, *Discussions in Neurosciences Vol I* (1984). Translated in Greek by C. Zioudrou and P. Assimacopoulos for use by the Medical Students (1988).  
Θεωρία και Πρακτική της μεθόδου απεικόνισης Πυρηνικού Μαγνητικού Συντονισμού : Βασικές αρχές στην Κλινική Διάγνωση. Εκδόσεις Ι. Ασπμακόπουλου Τ. Μοσχοβίτη.
4. *Biological Sciences : A molecular approach*. Freeman and Co. (1987). Translated in Greek by C. Zioudrou and E. Sideris for use by the students of Secondary Education and Technical Schools (1990). Sponsored by the "Evgenidion Foundation".  
Η Βιολογική Επιστήμη : Μοριακή Προσέγγιση (Εκδόσεις Ευγενίδειο Ίδρυμα).

## RECENT PRESENTATIONS (ABSTRACTS)

1. Loukas S., Panetsos F., Merkouris M. and **Zioudrou C.** Purification and isolation of an active opioid binding protein using antagonists-affinity matrices. International Narcotics Research Conference 1992 (INRC '92 June 23-27 Colorado, Keystone).
2. Dragatsis I., Loukas S., Merkouris M. and **Zioudrou C.** Polyclonal antibodies to opioid receptors. International Summer School on "New Development in Lipid-Protein Interactions and Receptors Function" NATO/FEBS (August 16-27, 1992, Spetses, Greece).
3. Gerozissis K., Dragatsis I., Papazafiri P. and **Zioudrou C.** Modification par certains opioïdes de la section de la LH directement au niveau hypophysaire. Importance de la présence du lobe postérointermédiaire. Annales d'Endocrinologie (1992) t. 53. Presented to the XXst Congress of the SNE, Nancy, France.
4. Gerozissis K., Papazafiri P., Dragatsis I. and **Zioudrou C.** Opioids modify the release of LH at the Pituitary level in the presence of the neurointermediate lobe. 9th Balkan Biochemical Biophysical Days, May 21-23, 1992, Thessaloniki, p.180.
5. Angelopoulos E., Koutsoukos E., Maillis A., Stephanis C. and **Zioudrou C.** Blockage of the acute tolerance to the opioid agonist DSLET by an NMDA antagonist IBRO Workshop on "Mechanisms of Neuronal Plasticity", Octobre 8-11 (1992), Patras, p. 26.
6. Angelopoulos E., Koutsoukos E., Maillis A., Stephanis C. and **Zioudrou C.** Long-lasting Excitation induced by opioid in CA1 area of hippocampus. International Narcotics Research Conference (INRC 1992), June, 23-27, 1992, Keystone, Colorado.
7. Gerozissis K., Dragatsis I. and **Zioudrou C.** Arachidinic acid metabolism is implicated in delta opioid action on GnRH, 1st Int. Congress on Hormones, Brain and Neuropsychopharmacology, September 1993, Rhodes, (Greece).

8. Angelopoulos, E., Koutsoukos, E., Maillis, A., Stephanis, C. and Zioudrou C. Acute tolerance and dependence to the excitatory effects of opioids in the rat hippocampus. International Narcotic Research Conference (INRC 1993) p. 133 p. 96. Skoved, Sweden July 10 - 15 1993.
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#### TEACHING BOOKS

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2. *Physics and Chemistry for the 5th and the 6th grade of Elementary Schools* (in Greek, four books, two for the pupils and two Teaching Manual (1975). Sponsored by the Ministry of Education.  
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