

THOMAS MAVROMOUSTAKOS
Capodistrian University of Athens
Associate Professor of Chemistry Department

Date of birth: 18/6/1960

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Family status: Married with four children

EDUCATION

B.Sc. 1985 Chemistry, University of Athens, Greece.

M.Sc. 1988 Medicinal Chemistry, University of Connecticut

Ph.D. 1990, Medicinal Chemistry, University of Connecticut.

B.Sc. 2007 Theology School, University of Athens, Greece.

EMPLOYMENT

1985-1987. Teaching Assistant in School of Pharmacy for introductory and advanced level courses.

1988-October 1990. Research Assistant in School of Pharmacy.

October 1990-June 1991 Postdoctoral Fellow in School of Pharmacy.

June 1991-September 2004 Researcher director at Laboratory of Molecular Analysis (LMA) at the Institute of Organic and Pharmaceutical Chemistry (IOPC) of National Hellenic Research Foundation (NHRF). Use Molecular Modeling to study the conformational analysis of antihypertensive drugs, cannabinoids, steroids, and other bioactive molecules. Perform NMR experiments both in solution and in solid state to study the conformation analysis of biologically active molecules and drug:membranes interactions. Use DSC as a complementary tool to study the thermal changes in membrane bilayers after the incorporation of drugs. Use the modern high technology infrastructure of the institute to collaborate and solve some of the research problems facing professors at Greek Universities. Such problems include structure determination of zeolithes, inorganic complexes and soil materials.

September 2004-beginning of January 2005 Visiting associate professor at the University of Cyprus (Chemistry Department). Teaching of Organic Chemistry laboratory and Medicinal Chemistry.

January 2005 Director of Laboratory of Molecular Analysis (LMA) at IOPC.

January of 2007-May of 2007 Visiting associate professor at the University of Cyprus (Chemistry Department). Teaching of Organic Chemistry laboratory and Medicinal Chemistry.

September 2007 Associate Professor at Chemistry Department of Athens

AWARDS

1. Fellowship sponsored by Royal Society for two monthly stayment in Great Britain. During my residence at the University of York I was trained in Molecular Graphics at Prof. Rod Hubbard's laboratory.
2. Award for the 3rd best presented poster in the Third International Conference on Applications of Magnetic Resonance in Food Science, Nantes, September 16-18, 1996.
3. Award by the Academy of Athens (29 December 1998) for the best research activity in 1998 related to hypertension.
4. Award of a Fulbright Scholarship for the Summer of 1999.
5. Award for the 3rd best presented poster in the Conference of Patras entitled Medicinal Chemistry Design and Development of Drugs in Medicinal Chemistry (1-3, 2001).
6. Award for the 3rd best presented poster in the Conference of Patras entitled Medicinal Chemistry Design and Development of Drugs in Medicinal Chemistry (7-9, 2002).
7. In October of 2000, a committee consisting of Prof. E.C. Constable, Prof. G.W. Gray, Prof. M.W. Gray, Prof. P.A. Schubiger και Dr. N. Ragousi, characterized the research activity of Medicinal Chemistry as an excellent ("the work done in this group is excellent") and also the research referred to the adulteration of olive oil ("the work of the group on virgin olive oil adulteration is worthy of note"). LMA is involved in both activities.
8. Reference of my research activity on peptidomimetism by the company Synergix Ltd in the software of «Molecular Conceptor». A chapter is written on the synthesis of Bioactive Molecules with G. Cohen of the same company and the product is now commercially available.
9. Scholarship by Royal society and COST D22 to perform binding experiments of antihypertensive molecules in AT₁ and AT₂ receptors as well as cell cultures.
10. Selected to teach at the University of Cyprus courses of Organic and Medicinal Chemistry.

11. The article "Conformation and Bioactivity, Design and Development of Novel Antihypertensive Molecules" is published in the Journal of "Current and Medicinal Chemistry (IF 4.483)" and was selected one of the best articles. This article after being modified was published in the "Frontiers in Medicinal Chemistry (volume 2)".

12. Invitation by Prof. A.M. Dopico to write a chapter in the book "Methods in Membrane Lipids" by Humana Press. The book has been circulated in 2007 and the chapter I have written appears with no. 39 entitled "The Use of Differential Scanning Calorimetry to Study Drug-Membrane Interactions".

13. Honored as a second degree Universal Title in Theology (3.2.2008).

14. Selected as evaluator from the Scientific Committee of National Programs of Slovenia during the phases A and B (2007-2008).

Brief Description of My Research Activities

- Design of novel drugs against various diseases (i.e. hypertension and inflammation)

To achieve this aim I use the following physical chemical methodologies:

- a. Solid State Nuclear Magnetic Resonance in order to study the dynamic changes it causes the antihypertensive drug in the lipid bilayers. In addition the orientation of drugs in lipid bilayers is sought using deuterium NMR in collaboration with synthetic chemists who deuterate specific sites of drugs.
- b. High Resolution Nuclear Magnetic Resonance in deuterated solvents or environments that simulate the active site of action.
- c. Conformational Analysis Using NMR ROE data in combination with computational analysis and molecular modeling to complement the experimental results.
- d. Differential Scanning Calorimetry to study the thermal changes that causes the presence of pharmaceutical compounds with model membranes.
- e. X-ray diffraction where the topography of drugs is sought in lipid bilayers. The X-ray diffraction experiments are run in Graz of Austria under the guidance of Prof. P. Laggner.
- f. Raman Spectroscopy to study the interactions of bioactive compounds with lipid bilayers. In particular, the *trans:gauche* ratio is estimated at the different mesomorphic states of lipid bilayers.
- g. 3D-QSAR studies. CoMFA and CoMSIA softwares are applied to reveal the stereoelectronic requirements for a drug to exert biological activity. 3D-QSAR studies is a valuable tool in the rational design.
- h. Simulation of NMR spectra in liquid and solid state with the collaboration of theoretical physical chemists.
- k. Docking studies of antihypertensive drugs with AT1 receptor.

- Authenticity aspects of beverages and foods

- a. Study of geographical origin and adulteration of virgin olive oil by other cheaper oils using high resolution ^{13}C -NMR of olefinic region. In addition it is studied the adulteration of refined oil by refined hazelnut oil.
- b. Study of authenticity of Cypriot beverage zivania with the combination of different physical chemical methods in collaboration with the University of Cyprus (^1H -NMR and Raman Spectroscopies, ICP, Gas Chromatography, Refractometry, Statistical Analysis to facilitate the analysis of the output data etc).

VISITS AND SPECIALISATION AFTER PH.D STUDIES

1. Specialisation in the Computational Analysis and Molecular Modeling at Prof. Rod Hubbard's laboratory (York University, Summer of 1992).
2. Invited visit to Prof. Peter's Laggner laboratory in order to perform small and wide angle x-ray diffraction experiments. The results from this visit are published in the *Biochim. Biophys. Acta* (Summer of 1996).
3. Modern Experimental techniques using NMR spectrometer of AMX 500 MHz and use of modern software to process the experimental data (University of Connecticut, Summer of 1999).
4. Biological experiments related to the binding of novel AT1 antagonists at AT1 and AT2 receptors as well as cell cultures (University of Leeds, Summer of 2004).
5. Visits in the Synchrotron facilities of Trieste, Italy to perform x-ray experiments (Summers 2007,2009).

FUNDING-WORKSHOPS

1. Coordinator of a funded research project by the European Community entitled "Molecular Characterization of Virgin Olive Oil" (148.000 ECU).
2. Participation in the funded research project by the European Community entitled Development and Assessment of Methods for the Detection of Adulteration of Olive Oil with Hazelnut Oil GROWTH (MEDEO 2001).
3. Co-organization of a workshop with Maria Zervou held in Athens on November 22, 1996 about the "Use of Isotope Analyses Applications in Food and Beverage Authentication. Detection of Adulteration." In this workshop six speakers from France, German and England informed the audience about the new techniques in the analyses and detection of adulteration of foods and beverages. The audience consisted of seventy scientists from Greece and Cyprus working in Food and Beverage Industry, Governmental Organizations related to Food and Beverage Control and Greek Universities.
3. Participation as a co-ordinator or participant in 25 funded research projects by the General Secretary of Greece and European Community.

4. Organization of a partners participating in the MEDEO program which is referred to Development of Novel Methods to Detect Adulteration of Olive Oil by Hazelnut Oil (November 2001).
5. Participation in COST D22 and COST D26 programs. Acquire SMT mission.
6. Participation as a co-ordinator in a research project funded by the Institute of Promotion of Research in Cyprus entitled “New Approaches to face Psoriasis” and bilateral collaborations between Cyprus with Slovenia and Romania.
7. Co-organisation with S. Mavromoustakos in Cyprus an one day scientific conference to honour D. Poulter (3.11.2008).
9. Elected since 2007 a President of the new established Center of Applied Research and Technology of Nicosia, Cyprus.

GREEK PATENTS

1. T. Mavromoustakos, G. Bonas, M. Zervou, E. Theodoropoulou. A new method to detect Adulteration of Virgin Olive Oil (**No 1002879**).
2. T. Mavromoustakos, G. Kokotos, P. Minakaki. Novel Antihypertensive Drugs (**No 1004905**).

PUBLISHED BOOKS (Greek language)

1. T. Mavromoustakos, J.M. Matsoukas. Nuclear Magnetic Resonance.
 - Design of Pharmaceutical Molecules.
 - Applications in Medicine, Food and Beverage Chemistry January 1999.
3. T. Mavromoustakos, A. Kolocouris, C. Papakonstantinou, P. Sinigalias, C. Lappas. Two textbooks in Chemistry for the third class of high school . They are published in August of 1998 and are distributed in all high schools of Greece.
4. T. Mavromoustakos, A. Kolocouris, C. Papakonstantinou, P. Sinigalias, C. Lappas. A Chemistry laboratory guide for the third class of high school . They are published in August of 1998 and are distributed in all high schools of Greece.
5. T. Mavromoustakos, A. Kolocouris, C. Papakonstantinou, P. Sinigalias, C. Lappas. Two books containing solutions of the exercises in the textbooks. They are published in August of 1998 and are distributed in all high schools of Greece.
6. T. Mavromoustakos. Use of the NMR in the study of pharmaceutical substances, zeolithes, polymers and archaeological findings. January 2001.
7. T. Mavromoustakos, J. Matsoukas. NMR spectroscopy . Application in Medicine, Pharmaceutical Chemistry, Biochemistry and Food and Beverage Chemistry (2006).

8. T. Mavromoustakos and P. Zoumpoulakis.. Molecular Modeling. Applications in Organic and Pharmaceutical Chemistry (pages 307) ISBN 978-960-89486-5- (2008).

Editor

1. Bioactive Peptides in Drug Discovery and Design: Medical Aspects. This book was published by IOS press in January of 1999 as the 22nd volume of a series of books entitled «Biomedical and Health Research». Eds. J. Matsoukas, T. Mavromoustakos.

2. Review of Clinical Pharmacology and Pharmacokinetics vol. 11, 1997. An issue dedicated in Peptides and Biomedical Research. Eds. J. Matsoukas, T. Mavromoustakos

3 Bioactive Peptides in Drug Discovery and Design: Medical Aspects. This book is in press 2002 in as the 55th volume of a series of books entitled «Biomedical and Health Research». Eds. J. Matsoukas, T. Mavromoustakos.

4. Guest Editor in Current Reviews in Medicinal Chemistry and more particularly in the issue dedicated to hypertension («Modern Aspects in the Design and Discovery of Novel Antihypertensive Drugs, 2004»). The contributors of this issue included well known scientists of Greece, Europe and USA.

Graduate Students acquired Ph.D or Msc that performed the experimental work under my supervision

1. E. Theodoropoulou, Ph.D. (1994-1997) 2. E. Matsouka, Ph.D. (2000-2001) 3. I. Daliani, Ph.D. (1998-2002) 4. M. Zervou Ph.D. (1998-2002) 5. I. Kyrikou, Msc (1999-2001) 6. I. Kyrikou, Ph.D. (2001-2004) 6. A. Zoga, Ph.D (2000-2004) 7. P. Zoumpoulakis, Ph.D. (2000-2005) 8. E. Mantzourani, Ph.D (2002-2007) 9. A. Kapou, Msc. (1999-2001) 10. A. Kapou, Ph.D. (2002-2007) 12. K. Pelekoukias, Msc (2001-2002) 13. M. Smyrniotakis, Msc (2002-2003) 14. G. Mouselimi, Msc (2003-2004) 15. I. Touris, Msc (2003-2004) 16. S. Gega, Msc (2003-2005) 17. E. Chalkefs (2004-2006) 18. V. Mouchlis, Msc (2005-2007) 19. A. Politi, (2006-2009) 20. S. Durdagi (2006-2009). 21. A. Politi (Ph.D) (2006-2009) 22. C. Potamitis (Ph.D) (2006-2009)

Undergraduate Students that finished their diploma work under my supervision :
Gili, A., Vasiliki, V., Argyriou, G., Gianni, M., Stougiannou, E., Vasiliou, V., Vatougia, G., E. Kritsi,

Activity in Education

1. Participation in different educational programs for teaching graduate students various aspects of Medicinal Chemistry and NMR spectroscopy (EPEAEK programs).

- a. University of Patras, 1999 (Co-ordinator Prof. J. Matsoukas. Medicinal Chemistry, Drug Discovery and Design.)
- b. University of Athens (Co-ordinator Prof. N. Xatdjichristidis, Polymer Science).
- c. University of Ioannina, 2002-2003 (Co-ordinator Prof. N. Xatjihiliadis. Bioinorganic Chemistry).
- d. University of Athens 2003-2005 (Co-ordinator Prof. G. Kokotos, Organic Synthesis and Application in the Industry).

Teaching at the University of Cyprus at Chemistry Department of undergraduate courses.

- Laboratory of Organic Chemistry (553).
- Introduction in the Medicinal Chemistry (472)

Teaching at the University of Athens

- Organic Chemistry (Undergraduate Course)
- NMR spectroscopy and Molecular Modeling (Graduate Course)
- Organic Chemistry for Physicists

Seminars to high school teachers

- Seminars on the Modern Organic Chemistry and applications (May 1998).
- Guidelines on the philosophy of the written chemistry books for the high school students.
- Learning Chemdraw and Power Point (November 2008)

Seminar for the scientists working in the Cyprus industry for food and beverages.

- Applications of Nuclear Magnetic Resonance as an aid to solve existing problems in industry.

Participation

- Member of Research Committee for two Ph.D. students of Cyprus University and several students of Greek Universities. I am also participating as one of the majors advisors of the student S. Durdagi who will get Ph.D diploma from Frei University.

LIST OF PUBLICATIONS

• **PUBLICATION IN JOURNALS**

1. C.J. Van der Schyf, T. **Mavromoustakos**, A. Makriyannis: The conformation of (-)-8 α - and (-)-8 α -hydroxy- Δ^9 -tetrahydrocannabinols and their interactions with model membranes. **Life Sci.** 42: 2231-2239 (1988).

2. **T. Mavromoustakos**, D.P. Yang, A. Charalambous, L.G. Herbet, A. Makriyannis: Study of the topography of cannabinoids using x-ray diffraction. **BBA M BIO** 1024:336-344 (1990).
3. **T. Mavromoustakos**, D.P. Yang, W. Broderick, D. Fournier, L.G. Herbet, A. Makriyannis: Small Angle X-Ray Diffraction Studies on the Topography of cannabinoids in Synaptic Plasma Membranes. **Pharmacol. Biochem. Be.** 40, 547-552 (1991).
4. D.W. Chester, V. Skita, H.S. Young, **T. Mavromoustakos**, P. Shrittmatter: Bilayer structure and physical dynamics of the cytochrome b₅ dimyristoylphosphatidylcholine interaction. **Biophys. J.** 61, 1224-1243 (1992).
5. D.P. Yang, **T. Mavromoustakos**, K. Beshah, A. Makriyannis: Amphipathic interactions of cannabinoids with membranes. A comparison of cannabinoids with membranes. A comparison between Δ^8 -THC and its O-methyl analog using differential scanning calorimetry, X-ray diffraction and solid state ²H-NMR. **BBA M BIO** 1103, 25-36 (1992).
6. D.P. Yang, **T. Mavromoustakos**, A. Makriyannis: Small Angle X-Ray Diffraction Studies of Δ^8 -tetrahydrocannabinol and its O-Methyl Analog in Membranes. **Life Sci** 53, 117-122 (1993).
7. P. Martel, A. Makriyannis, **T. Mavromoustakos**, K. Kelly and K.R. Jeffrey: Topography of tetrahydrocannabinol in model membranes using neutron diffraction. **BBA M BIO** 1151, 51-58 (1993).
8. J. Matsoukas, J. Hondrelis, M. Keramida, **T. Mavromoustakos**, A. Makriyannis R. Yamdagni, Q. Wu, G. Moore: Role of the NH₂-terminal Domain of ANG II and [Sar¹] ANG II on Conformation and Activity: NMR Evidence for Aromatic Ring Clustering and Peptide Backbone Folding Compared to [Des^{1,2,3}] ANG II **J. Biol. Chem.** 269, 5303-5312 (1994).
9. **T. Mavromoustakos**, De-Ping Yang, A. Makriyannis. Topography of Alphaxalone and Δ^{16} -alphaxalone in Membrane Bilayers containing cholesterol **BBA M BIO** 1194(1), 69-74 (1994).
10. **T. Mavromoustakos**, De-Ping Yang, E. Theodoropoulou, A. Makriyannis. Studies of the Conformational Properties of the Cannabinmimetic Aminoalkylindole

Pravadoline Using NMR and Molecular Modeling. **Eur. J. Med. Chem** 30(3), 227-234 (1995).

11. **T. Mavromoustakos**, D.P. Yang, A. Makriyannis: Small angle x-ray diffraction and differential scanning calorimetric studies on O-methyl(-)- Δ^8 -Tetrahydrocannabinol and its 5' iodinated derivative in membrane bilayers **BBA M BIO** 1237, 183-188 (1995).

12. **T. Mavromoustakos**, D.P. Yang, A. Makriyannis: Effects of the anesthetic steroids alphaxalone and its inactive analog Δ^{16} -analog on the thermotropic properties of membrane bilayers. A model for membrane perturbation. **BBA M BIO** 1239(2), 257-264 (1995).

13. J. M. Matsoukas, G. Agelis, A. Wahhab, J. Hondrelis, D. Panagiotopoulos, R. Yamdagni, Q. Wu, **T. Mavromoustakos**, H.L.S. Maia, R. Ganter, G.J. Moore. Differences in backbone structure between angiotensin II agonists and type I antagonists. **J. Med. Chem.** 38(23), 4660-4669 (1995).

14. **T. Mavromoustakos**, E. Theodoropoulou, D. Papahatjis, T. Kourouli, De-Ping Yang, M. Trumbore, A. Makriyannis: Studies on the thermotropic effects of cannabinoids on phosphatidylcholine bilayers using differential scanning calorimetry and small angle X-ray diffraction. **BBA M BIO** 1281(2), 235-244 (1996).

15. A. Ioannou, A. Dimirkou, **T. Mavromoustakos**. Isotherms of phosphate sorption by hematite and bentonite-hematite (b-h) system **Commun. Soil Sci. Plant Anal.** 27(5-8), 1901-1924 (1996).

16. M. Koufaki, T. Calogeropoulou, **T. Mavromoustakos**, E. Theodoropoulou, A. Tsotinis, A. Makriyannis. Synthesis of ^2H -Labelled Alkoxyethyl Phosphodiester AZT Derivatives for Solid-State ^2H -NMR Studies. **J. Heterocyclic Chem.** 33, 619-622 (1996).

17. J.M. Matsoukas, D. Panagiotopoulos, M. Keramida, **T. Mavromoustakos**, R. Yamdagni, Q. Wu, G.J. Moore, M. Saifeddine, M. D. Hollenberg: Synthesis and Contractile Activities of Cyclic Thrombin Receptor Derived Peptide Analogues with a Phe-Leu-Leu-Arg Motif: Importance of the Phe /Arg Relative Conformation and the Primary Amino Group for Activity. **J. Med. Chem.** 39, 18, 3585-3591 (1996).

18. **T. Mavromoustakos**, E. Theodoropoulou, De-Ping Yang, Sonyyan Lin, M. Koufaki, A. Makriyannis. The conformational properties of the Antineoplastic Ether Lipid 1-thiohexadecyl-2-O-methyl-*rac*-glycero-3-phosphocholine **Chem. Phys. Lipids** 84, 1, 21-34 (1996).

19. **T. Mavromoustakos**, D.P. Yang, A. Makriyannis. Topography and thermotropic properties of cannabinoids in brain sphingomyelin bilayer **Life Sci.** 59, 23, 1969-1979 (1996).
20. **T. Mavromoustakos**, E. Theodoropoulou, C. Dimitriou, J. Matsoukas, D. Panagiotopoulos, A. Makriyannis. Interactions of Angiotensin II with Membranes using a combination of Differential Scanning Calorimetry and ³¹P-NMR spectroscopy **LIPS** 3(4), 175-180 (1996).
21. E. Theodoropoulou, **T. Mavromoustakos**, D. Panagiotopoulos, J. Matsoukas, J. Smith. Superimposition of potent non-peptide AT₁ receptor antagonists with angiotensin II. **LIPS** 3, 209-216 (1996).
22. D. Panagiotopoulos, J. Matsoukas, K. Alexopoulos, A. Zebeki, **T. Mavromoustakos**, M. Saifeddine, M. Hollenberg. Synthesis and activities of cyclic thrombin-receptor-derived peptide analogues of the Ser₄₂-Phe-Leu-Leu-Arg₄₆ motif sequence containing D-Phe and/or D-Arg. **LIPS** 3, 233-240 (1996).
23. A. Vyza, E. Tsitsa, E. Theodoropoulou, **T. Mavromoustakos**. Complexation of new active antibacterial adamantan derivatives with β-CD:Preparation and characterization of complexes. Study of the thermotropic properties of pure and complex form with dipalmitoyl phosphatidylcholine bilayers. **JOU INC PHE MOL**, 25 337-340 (1996).
24. J. Matsoukas, M.D. Hollenberg, **T. Mavromoustakos**, D. Panagiotopoulos, K. Alexopoulos, R. Yamdagni, Q. Wu, G.J. Moore. Conformational Analysis of the Thrombin Receptor Agonist Peptides SFLLR and SFLLR-NH₂ by NMR: Evidence for a Cyclic Bioactive Conformation. **J. Protein Chem.** 16, 2, 113-131 (1997).
25. **T. Mavromoustakos**, E. Theodoropoulou, De-Ping Yang. The use of high-resolution solid-state NMR spectroscopy and differential scanning calorimetry to study interactions of anaesthetic steroids with membrane. **BBA M BIO** 1328(1), 65-73 (1997).
26. J.M. Matsoukas, M. Keramida, D. Panagiotopoulos, **T. Mavromoustakos**, HLS Maia, G. Bigam, D. Pati, H. Hoang, H.H Habibi, G.J. Moore. Structure elucidation and conformational analysis of gonadotropin releasing hormone and its novel synthetic analogue [Tyr(OMe)⁵, D-Lys⁶, Aze⁹NHET]GnRH: The importance of aromatic clustering in the receptor binding activity. **Eur J. Med. Chem.** 32(12), 927-940 (1997).

27. **T. Mavromoustakos**, M. Zervou, E. Theodoropoulou, D. Panagiotopoulos, G. Bonas, M. Day, A. Helmis. ^{13}C NMR Analysis of the Triacylglycerol Composition of Greek Virgin Olive Oils **Magn. Reson. Chem.** 35, S3-S7 (1997).
28. **T. Mavromoustakos**, I.K. Stamos, Ch. Kamoutsis, E. Theodoropoulou, M. Zervou, E. Humpfer. Nuclear Magnetic Resonance Spectral Analysis and Conformational Properties of 11-Benzoyl-9,9a,10,11-tetrahydro-4H-indolo[4,4-ab] carbazole **J. Pharmaceut. Biomed.** 16(5) 723-732 (1998).
29. **T. Mavromoustakos**, M. Zervou, D. Panagiotopoulos, E. Theodoropoulou, J. Matsoukas, D. Karussis. Structure Elucidation and Conformational Properties of the Immunomodulator Linomide **J. Pharmaceut. Biomed.** 16(5) 741-751 (1998).
30. **T. Mavromoustakos**, A. Papadopoulos, E. Theodoropoulou, C. Dimitriou, E.A. Byza. Thermal Properties of Adamantanol Derivatives and Their β -Cyclodextrin Complexes in Phosphatidylcholine Bilayers. **Life Sci.** 62(20), 1901-1910 (1998).
31. Alexopoulos, J. Matsoukas, T. Tselios, P. Roumelioti, **T. Mavromoustakos**, K. Holada. A comparative SAR study of Thrombin receptor derived non peptide mimetics. Importance of phenyl/guanidino Proximity for activity **Amino Acids** 15, 211-220 (1998).
32. **T. Mavromoustakos**, E. Theodoropoulou. A combined use of ^{13}C -cross polarization/magic angle spinning, ^{13}C - magic angle spinning and ^{31}P -nuclear magnetic spectroscopy with Differential Scanning Calorimetry to study cannabinoid-membrane interactions. **Chem. Phys. Lipids** 92(1), 37-52 (1998).
33. **T. Mavromoustakos**, E. Theodoropoulou, M. Zervou, T. Kourouli, D. Papahatjis. Structure Elucidation and Conformational Properties of synthetic Cannabinoids 2-[6a,7,10,10a-tetrahydro-6,6,9-trimethyl-1-hydroxy-6H-dibenzo [b,d]pyranyl]-2-hexyl-1,3-dithiolane and its methylated analog. **J. Pharmaceut. Biomed.** 18(6), 947-956, (1999).
34. K. Alexopoulos, P. Fatseas, E. Melissari, D. Vlahakos, J. Smith, **T. Mavromoustakos**, M. Saifeddine, G. Moore, M. Hollenberg, J. Matsoukas. Design and Synthesis of Thrombin Receptor-derived Nonpeptide Mimetics Utilizing a Piperazine Scaffold. **Bioorg. & Med. Chemistry** 7(6), 1033-1041 (1999).
35. **T. Mavromoustakos**, A. Kolocouris, M. Zervou, P. Roumelioti, J. Matsoukas, R. Weisemann. An effort to understand the molecular basis of hypertension through the study of conformational analysis of losartan and sarmesin using a combination of

Nuclear Magnetic Resonance spectroscopy and theoretical calculations **J. Med. Chem.** 42(10) 1714-1722 (1999).

36. T. Tselios, L. Probert, I. Daliani, E. Matsoukas, A. Troganis, I.P. Gerothanasis, **T. Mavromoustakos**, G.J. Moore, J.M. Matsoukas. Design and Synthesis of a Potent Cyclic Analogue of the Myelin Basic Protein Epitope MBP₇₂₋₈₅: Importance of the Ala⁸¹ Carboxyl Group and of a Cyclic Conformation for Induction of Experimental Allergic Encephalomyelitis **J. Med. Chem.** 42,7, 1170-1177 (1999).

37. **T. Mavromoustakos**, I. Daliani. Effects of Cannabinoids in membrane bilayers containing cholesterol. **BBA M BIO.** 1420, 252-265 (1999).

38. A. Kolocouris, D. Tataridis, G. Fytas, **T. Mavromoustakos**, G.B. Foscolos, N. Kolocouris, E.D. Clercq. Synthesis of 2-(2-adamantyl)piperidines and structure anti-influenza virus A activity relationship study using a combination of NMR spectroscopy and molecular modeling. **Bioorg. & Med. Chem. Lett.**, 9(24), 3465-3470 (1999).

39. J.M. Matsoukas, L. Poleyva, J. Ancas, **T. Mavromoustakos**, A. Kolocouris, P. Roumelioti, D.V. Vlahakos, R. Yamdagni, Q. Wu, G.J. Moore. The Design and Synthesis of a Potent Angiotensin II Cyclic Analogue Confirms the Ring Cluster Receptor Conformation of the Hormone Angiotensin II **Bioorg. & Med. Chem. Lett.**, 8(1), 1-10 (2000).

40. A. Troganis, I.P. Gerothanasis, Z. Athanassiou, **T. Mavromoustakos**, G.E. Hawkes, C. Sakarellos. Thermodynamic Origin of Cis/Trans Isomers of a Proline-Containing β -turn Model Dipeptide in Aqueous Solution: A Combined Variable Temperature ¹H-NMR, Two Dimensional ¹H, ¹H Gradient Enhanced Nuclear Overhauser Effect Spectroscopy (NOESY), One Dimensional Steady-State Intermolecular ¹³C, ¹H-NOE and Molecular Dynamics Study. **Biopolymers** 53, 72-83 (2000).

41. P. Roumelioti, T. Tselios, K. Alexopoulos, **T. Mavromoustakos**, A. Kolocouris, G.J. Moore, J.M. Matsoukas. Structural comparison between type I and type II antagonists: possible implications in the drug design of AT-1 antagonists **Bioorg. & Med. Chem. Lett.**, 10(8), (2000) 755-758.

42. **T. Mavromoustakos**, M. Zervou, G. Bonas, A. Kolocouris, P.Petrakis. A Novel Analytical Method to Detect Adulteration of Virgin Olive Oil by Other Oils. **J Am Oil Chem Soc** 77(4) 405-411 (2000).

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168. (invited speaker) T. Mavromoustakos. Invited by Prof. P. Laggner from Institute of Biophysical Research (IBR) of Graz Austria to give a lecture. The lecture was given in 14.1.2008 and was entitled "The Molecular Basis of Interdigitation".

169. S. Durdagi, P.G. Zoumpoulakis, H. Reis, M.G. Papadopoulos, C. Koukoulitsa, D.P. Papahatjis, T. Mavromoustakos. Molecular Docking and Molecular Dynamics Simulations of the potent Δ^8 -THC analogue AMG3. 13th Hellenic Symposium of Medicinal Chemistry. 14-15 March, Athens, 2008, Greece.

170. A. Politi, S. Durdagi, E. Papavasiliopoulou, P. Moutevelis-Minakakis, G. Kokotos, T. Mavromoustakos. 3D QSAR CoMFA/CoMSIA studies on renin inhibitors. 3th Hellenic Symposium of Medicinal Chemistry. 14-15 March, Athens, 2008, Greece.

171. C. Potamitis, M. Zervou, J.M. Hayes, P. Zoumpoulakis, D. Argyropoulos, S. Golic Grdadolnik, T. Mavromoustakos. Antihypertensive drug valsartan: Conformational analysis, thermodynamic properties and docking studies using NMR spectroscopy and *in silico* methods. 3th Hellenic Symposium of Medicinal Chemistry. 14-15 March, Athens, 2008, Greece.

172. S. Durdagi, H. Reis, M. Papadopoulos, C. Koukoulitsa, T. Mavromoustakos Synergetic Use of 3D QSAR, Molecular Docking and Molecular Dynamics Simulations for the Conformational Analyses of Drugs. 9th International Conference Medicinal Chemistry. Drug Discovery and Design. March 26-28, 2008, Patras, Greece.

173. A. Politi, M. Zervou, P. Zoumpoulakis, A. Zoga, P. Moutevelis-Minakakis, G. Kokotos, T. Mavromoustakos, E.K. Iliodromitis, D.Th.Kremastinos. Hypertension Study in Anaesthetized Rabbits: A New Protocol for AT₁ Antagonists Screening. 9th International Conference Medicinal Chemistry. Drug Discovery and Design. March 26-28, 2008, Patras, Greece.

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175. (invited speaker) T. Mavromoustakos. Membrane Interdigitation and Its Role in Drug Function. The Cyprus Conference CNC on New Methods in Drug Research May 11-16, 2008, Limassol, Cyprus (page 17).
176. S. Durdagi, M. G. Papadopoulos, D. P. Papahatjis, T. Mavromoustakos. Molecular Docking and Molecular Dynamics Simulations on the Improvement of 3D QSAR Results of Novel Δ^8 -THC Analogues. The Cyprus Conference CNC on New Methods in Drug Research May 11-16, 2008, Limassol, Cyprus (page 26).
177. C. Petrou, S. Mavromoustakos, E. Kokkalou, V. Roussis, E. Christofi, G. Efthimiou, C. Potamitis, S. Durdagi, T. Mavromoustakos. Isolation of psoralens from the *Ficus sycomorus* juice. A novel approach against psoriasis. The Cyprus Conference CNC on New Methods in Drug Research May 11-16, 2008, Limassol, Cyprus (page 28).
178. V. Mouchlis, T. Mavromoustakos, G. Kokotos. Application of Docking to study the binding affinity between human nonpancreatic phospholipase A2 (IIA) and bioactive analogues of its inhibitor FPL67047XX. The Cyprus Conference CNC on New Methods in Drug Research May 11-16, 2008, Limassol, Cyprus (page 29).
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180. A. Politi, M. Zervou, P. Zoumpoulakis, A. Zoga, P. Moutevelis-Minakakis, G. Kokotos, E.K. Iliodromitis, D.Th. Kremastinos, T. Mavromoustakos. Hypertension study in anaesthetized rabbits: A new protocol for AT₁ antagonists screening. The Cyprus Conference CNC on New Methods in Drug Research May 11-16, 2008, Limassol, Cyprus (page 31).
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182. T. Mavromoustakos, P.M. Minakakis, G. Kokotos, E. Papavasiliopoulou, C. Potamitis, C. Photakis, K. Viras, C. Koukoulitsa, E. Kalatzis, S. Durdagi. Peptide Mimetics and Their Interdigitation with Lipid Bilayers. Page 31. 60 Hellenic Forum on Bioactive Peptides, 18-20 May 2008, Conference and Cultural Center of the University page 31.
183. E. Papavasiliopoulou, J. Vranas, P.M. Minakakis, G. Michas, M. Papakonstantinou, A. Politi, T. Mavromoustakos, G. Kokotos. Synthesis of new 2-pyrrolidinones. 60 Hellenic Forum on Bioactive Peptides, 18-20 May 2008, Conference and Cultural Center of the University page 46.

184. E. Papavassilopoulou, P. M. Minakakis, T. Mavromoustakos, A. Politi, G. Kokotos. Design and Synthesis of a Novel Potential Renin Inhibitor. 6^o Hellenic Forum on Bioactive Peptides, 18-20 May 2008, Conference and Cultural Center of the University page 50.
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186. T. Mavromoustakos. 2 one hour talks given on a Workshop on Structure Based Drug Discovery June 4 (Athens, 2-6 June 2008, Institute of Organic and Pharmaceutical Chemistry, National Hellenic Research Foundation). Titles of the talks: a. A concerted approach using NMR spectroscopy and Theoretical Calculations to study the Conformational Properties of a Potent Cannabinoid Analogue AMG-3. b. The Contribution of NMR Spectroscopy and other Biophysical Methodologies to study the Molecular Basis of Interdigitation. Natural Products, International Conference, Atheneum Intercontinental 3-8 August 2008, Athens, Greece.
187. Mavromoustakos, T., Petrou, C., Kokkalou, E., Roussis, V., Christofi, V., Efthimiou, G., Potamitis, C., Durdagi, S., Mavromoustakos, S. Ficus sycomorous sap: a psoralene source with potential for the treatment of psoriasis. 202. Koukoulitsa C., Tsantili-Kakoulidou A., T. Mavromoustakos, Chinou I. Natural coumarins and PLS analysis for antibacterial activity using VolSurf descriptors. Natural Products, International Conference, Atheneum Intercontinental 3-8 August 2008, Athens, Greece.
188. Mavromoustakos T., Durdagi, S., Papahadjis, D., Papadopoulos, M.G. X-ray diffraction studies combined with molecular dynamics calculations to study the effects of cannabinoids in lipid bilayers and CB receptor active site. Hellenic Crystallographic Association 4th conference dedicated to the memory of Dr. N. Oikonomakos. 26-27 September 2008, Athens, Greece. Abstract book page 23.
189. (invited speaker) Mavromoustakos T. Durdagi, S., Reis, H., Koukoulitsa, C., Papadopoulos, M. A Concerted Approach Using Physical Chemical Methodologies, Computational Chemistry and 3D QSAR Studies Aiming to Develop Novel Analgesic Cannabinoid Analogs. P-124. Ehrlich II, 2nd World Conference on Magic Bullets. Celebrating the 100th Anniversary of the Nobel Prize Awarded to Paul Ehrlich. Nurnberg, Germany October 3-5, 2008.
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192. C. Koukoulitsa, A. Tsantili-Koukoulidou, T. Mavromoustakos. Quantitative Structure Retention Relationships for IAM Chromatographic Indices using VolSurf Approach. Comparison with Octanol-Water Distribution Coefficients. $\log P_{2009}$. PhysChem and ADMET Profiling in Drug Research. The 4th LogP Symposium. February 8-11, 2009, ETH Zurich, Switzerland.

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194. C. Potamitis, M. Zervou, T. Tselios, J. Matsoukas, K. Viras, T. Mavromoustakos. Study of Myelin Basic Protein Peptide analogues interactions with lipid bilayers using DSC, Raman and Solid State ^{13}C and ^{31}P NMR Spectroscopy. 10th Conference with International Participation in Medicinal Chemistry, Drug Discovery and Design, March 18-20, Patras, Greece, 2009 (abstract proceedings page 90).

195. M. Smyrniotakis, P. Zoumpoulakis, T. Mavromoustakos. Conformational Studies of AT_1 Antagonists in Micelle and Liposomal Environment. 10th Conference with International Participation in Medicinal Chemistry, Drug Discovery and Design, March 18-20, Patras, Greece, 2009 (abstract proceedings page 93).

196. C. Fotakis, D. Christodouleas, M. Zervou, N.P. Benetis, K. Viras, T. Mavromoustakos. Development of a CP-31 NMR broadline simulation methodology for studying the interactions of antihypertensive AT_1 antagonist losartan with phospholipid bilayers. 10th Conference with International Participation in Medicinal Chemistry, Drug Discovery and Design, March 18-20, Patras, Greece, 2009 (abstract proceedings page 101).

HIGH SCHOOL EDUCATION AND ARTICLES OF GENERAL INTEREST

Author of various articles in Greek language, related to education as well as of general interest (i.e. thermodynamics and entropy, the use of analogs in quantum chemistry, olive oil health and tradition etc).

THEOLOGY ARTICLES Author of many articles in theology published in Greek and Cypriot journals.