



Costas Demetzos

Professor, Pharmaceutical Nanotechnology

Director in the Laboratory of Pharmaceutical Technology, Faculty of Pharmacy, National and Kapodistrian University of Athens

President of Hellenic Pharmaceutical Society (HPS)

Member of the Executive Committee of European Federation of Pharmaceutical Sciences (EUFEPS) 2014-today

Education

1983 Diploma (M. Pharm.), Faculty of Pharmacy, Graduated Pharmacist, University of Athens, Greece

1985 License of Pharmaceutical profession, Ministry of Health, Athens, Greece.

1990 Ph.D., University of Athens

5/1991-7/1991, 6/1993-7/1993

Postdoctoral training, Laboratory of Pharmacognosy and Natural Products Chemistry, University Rene Descartes, Paris, France. (*Training on spectroscopic methods and on the synthesis of natural products*).

1994-1995

- Postdoctoral training, Stanford University, Palo Alto, California, USA (*synthesis and mechanism of action of Natural Products with Anticancer activity*).
- Postdoctoral, University of California, San Francisco U.S.A. Department of Cellular and Molecular Pharmacology, Cancer Research Institute (*Pharmaceutical Nanotechnology, Drug Delivery Systems*).

13/5/96 - 13/6/96

Laboratory of Chromatographic Analysis. Pharmaceutical Industry BIORYL S.A, Athens, Greece Training in Gas Chromatography

2003 Training on Advanced Program Thermal Analysis Seminars for DSC (Differential Scanning Calorimetry), and for TGA (Thermogravimetric Analysis) in METTLER-TOLEDO (Switzerland, Zurich, September 2003).

Scientific and teaching work

Since 1991, his scientific and teaching work is related to Chemistry of Natural products and Pharmaceutical Nanotechnology while he studies many chemical categories of pharmaceutical compounds, emphasizing in anticancer agents. The innovation of his research, apart from being in numerous publications and announcements in international scientific journals and conferences, has led to awards of international and national patents in Greece and in many European countries, USA, Australia, having as main objects the nanotechnological drug delivery systems and nanodevices. His research work has international recognition and there are more than **3000** cross references related to his research (h index 28). The total number of publications in international journals is greater than **195**, while the total number of announcements in Greek and international conferences

is greater than 250. Being a scientific director he participates in national and European research programs. He has concluded many scientific collaborations internationally and within the Greek scientific community. His participation in the European COST programs helped in the mobility of his students and his lab members to Europe. Prof. Costas Demetzos is well known for his research activity in the field of Pharmaceutical Nanotechnology and for this reason he has been and still is invited for lectures and speeches in international scientific conferences, while he collaborates with a great number of scientists in European level, in the field of Nanotechnology. He teaches in the Faculty of Pharmacy of the University of Athens since 1991, initially Chemistry of Natural products and following in 2002 he teaches his main subject, Pharmaceutical Nanotechnology and Pharmaceutical Physics in undergraduate and postgraduate level. He is the author of related University notes, textbooks and monographs. He was responsible for dozens of PhD students and their theses, Master's Diplomas and Undergraduate Dissertations. Also, he has been invited to teach Pharmaceutical Nanotechnology in other Greek Universities. It must be mentioned that he participates as a member of Organizing Committees but also as a president of International and European scientific Conferences, while being an evaluator in many committees like the Greek Ministry of Health, the Qualification Recognition Board in Cyprus, the Greek National Scholarships Foundation, the Greek Drug Administration Office, etc. He is the chairman of the Hellenic Pharmaceutical Society (HPS), from 2008 until today and he represents the Greek Pharmaceutical Science in Europe, through the European Federation for Pharmaceutical Sciences (EUFEPS). He is also an elected member of the ExCo of EUFEPS (Network Coordinator).

Books

- G.Papaioanou, **Costas Demetzos**, M. Vlachou *Pharmaceutical Technology I. Principles in Physical Pharmacy and Nanotechnology*. 400 pages, Ed. Parisianos, 2007, Athens
- **Costas Demetzos**, H. Skaltsa, A. Tsantili, *Pharmaceutical Law*, University of Athens, University notes, Athens, 125 pages, 2008
- **Costas Demetzos**, Scientific Custody of the Greek edition of the handbook "Physical Pharmacy" A.T.Floerence and D. Attwood, Ed. Parisianos, 2014, Athens
- **Costas Demetzos**, Scientific Custody of the Greek edition of the handbook "Chemical Thermodynamics. At a Glance", H.D.B. Jenkins. Ed. Parisianos, 2015, Athens
- **Costas Demetzos**, Scientific Custody of the Greek edition of the handbook "Pharmaceutics. Drug Delivery and Targeting." Y. Periee and T. Rades, Ed. Parisianos, 2015, Athens

Monographs

- **Costas Demetzos** : Doctorate Monograph: 'Chemical Constituents of *Cistus incanus* subsp. *Creticus* (L.) Heywood. Isolation structure identification and Synthesis of a new Flavonoid of *Kalanchoe proliferate* , R. Hamet', Athens, 1990.
- **Costas Demetzos**: Postdoctoral Monograph: *Stealth liposomal Vinca alkaloids (vinorelbine and vinblastine) and in vitro released studies by buffer and rat plasma*. Cancer Research Institute, Dept. of Cellular and Molecular Pharmacology University of California, San Francisco (UCSF), California U.S.A 1995
- **Costas Demetzos**: *Physical, Chromatographic and Spectroscopic methods of Analysis of Natural Products*. University of Athens, Athens, 105 pages, 2001.

- **Costas Demetzos** *Pharmaceutical Technology (Physical Pharmacy)*, University notes, Athens, 130 pages, 2003
- **Costas Demetzos**, Monograph on '*Pharmaceutical Nanotechnology: Basic principles and Practical Applications*', 400 pages, Ed. Parisianou 2015, Athens, Textbook in National Universities

International books - Monographs

- **Costas Demetzos** Monograph on '*Pharmaceutical Nanotechnology: Fundamental and Practical Applications*', Springer 2016, in press

AWARDS

- **Best Poster Presentation:** Preparation, development and in vitro release evaluation of amphotericin B-loaded amphiphilic block copolymer vectors. N. Pippa, M. Mariaki, S. Pispas, **C. Demetzos**, Convention of the Hellenic Society of Biomaterials. 7th -8th November 2014, B.&M. Theocharakis Foundation for the Fine Arts and Music, Athens, Greece
- **Best Oral Presentation:** The metastable phases as modulators of functionality in chimeric liposomes. **C. Demetzos**, N. Pippa, S. Pispas, Therma Congress, 2014, 26th -28th September 2014, Larisa, Greece
- **Best Poster Presentation:** Physicochemical characterization of liposomal systems and fractal analysis of their morphology. N. Pippa, S. Pispas, **C. Demetzos**, 1st Congress of Pharmaceutical Sciences, 27th -30th April 2013. Athens, Greece
- **Honorary** distinction for the contribution as a whole to the pharmaceutical science and to education as a Professor of Pharmaceutical Sciences. This distinction took place during the activities of the 11th PanCretan Pharmaceutical Congress, Chania, 2013. **Honorary** award for the contribution to the science of biomaterials' nanotechnology and for the exquisite book "*Pharmaceutical nanotechnology. Basic principles and practical applications*", Ed. Parisianou S.A, 2014, from the Hellenic Society of Biomaterials (HSB) during the 10th Biomaterial Congress in Athens 2015.
- **Best Poster Presentation:** 'Physicochemical characterization of advanced liposomal systems :The role of thermoresponsive polymers'M. Chountoulesi, A. Kirili, N. Pippa, A. Meristoudi, S. Pispas, **C. Demetzos**, 17th Congress of Pharmaceutical Sciences, (PanHellenic Pharmaceutical Society, PEF) October, 2015, Athens, Greece
- **Member** of the Executive Committee (ExCo) of National Medicines Agency (2010-2013)
- **Editor-in-chief** of "*Archeia Pharmakeftikis*", Official Journal of the Hellenic Pharmaceutical Society (HPS).
- **Member of the Editorial board** of the Journal of '*Pharmakeftiki*' . International edition of the Hellenic Pharmaceutical Journal
- **Guest Editor** of *Journal of Thermal Analysis and Calorimetry* in the special issue of "The Application of Thermal Analysis in Pharmaceutical Sciences"
- **Special Reference** of the scientific journal of "Who is publishing in my domain" journal (WiPiMD) for the publication of the review paper entitled: "Differential

Scanning Calorimetry (DSC): a tool to study the thermal behavior of lipid bilayers and liposomal stability. **C. Demetzos**, J. Liposome Res.; 2008; 18(3):159-73.

- **Member** of the Management Committee of COST Action “Dendrimers in biomedical applications”
- **Editor** of the Greek Edition of Journal of Medical Association (JAMA) (2004-2006)

Selected Publications

1. On the ubiquitous presence of fractals and fractal concept in Pharmaceutical Sciences : A Review N. Pippa, A. Docometzidis, **C. Demetzos**, P. Macheras , *Int. Journal of Pharmaceutics* 2013, 456, 340-352.
2. The physicochemical/thermodynamic balance of advanced drug liposomal delivery systems, N.Pippa, K. Gardikis, S. Pispas, **C.Demetzoz**, 2014, 116(1): 99-105, *Journal of Thermal Analysis and Calorimetry*.
3. PEO-b-PCL grafted DPPC liposomes: physicochemical characterization and stability studies of novel bio-inspired advanced Drug Delivery nano Systems (aDDnSs), N. Pippa, E. Deli, E. Mentzali, S. Pispas, **C. Demetzoz** 2014,14, 1-6, *Journal of Nanoscience Nanotechnology*.
4. The fractal analysis as a complementary approach to predict the stability of Drug Delivery nano Systems (DDnSs) in aqueous and biological media: a regulatory proposal or a dream? , **C. Demetzoz** and N. Pippa, *Int. Journal of Pharm.*, 2014, 473(1-2):213-218.
5. Advanced nanocarriers for an antitumor peptide., N. Pippa, S. Pispas, **C. Demetzoz**, G. Sivolapenko, *J. Nanoparticles Res.* 2013, 15(11),2062.
6. The imaging and the fractal metrology of chimeric liposomal Drug Delivery nano Systems. The role of macromolecular architecture of polymeric guest. N. Pippa, S. Pispas, **C. Demetzoz**, *Journal of Liposome Res.*, 2014, 24(3):223-229.
7. The interplay between the rate of release from polymer grafted liposomes and their fractal morphology. N. Pippa, A. Dokoumedjidis, S. Pispas, **C. Demetzoz**, *Int. Journal of Pharmaceutics*, 2014, 465, 63-69
8. The scientific excellence in Greece as the missing piece of the economical implementation puzzle, commentary response, **C. Demetzoz**, *Science* <http://comments.science.mag.org/content/10.1126/science.336.6084.978>
9. Mixed biocompatible block copolymer/ lipid nanostructures as drug nanocarriers: advantages and pharmaceutical perspectives. N. Pippa, S. Pispas, **C. Demetzoz** In: Handbook of Pharmaceutical Polymers: Biomedical/ Pharmaceutical Polymeric Materials: Science and Technology. Wiley-SCRIVENER. In press 2016.
10. Preparation, development and in vitro release evaluation of amphotericin B-loaded amphiphilic block copolymer vectors. N. Pippa, M. Mariaki, S.Pispas, **C. Demetzoz**, *Int. Journal of Pharmaceutics*, 2014, 2014, 473, 80-86.
11. Liposomal forms of anticancer agents beyond anthracyclines: Present and Future perspectives. A. Papachristos, N. Pippa, K. Ioannidis, G. Sivolapenko, **C. Demetzoz**, *Journal of Liposome Research*, 2015, 25(2):166-73
12. The metastable phases as modulators of biophysical behavior of liposomal membranes: The role of biomolecular sculpture of polymeric guest. N. Pippa, S. Pispas, **C. Demetzoz**, *Journal of Thermal Analysis and Calorimetry*, 2015, 120:937-945.

13. Bioinspired chimeric drug delivery nanosystems (Chi-DDnSs): their fractal hologram and regulatory aspects. N. Pippa, S. Pispas, **C. Demetzos**, *Advances in Experimental Medicine and Biology*, Chapter 23, In: *Advances in Experimental Medicine and Biology*, Springer International Publishing Switzerland 2015.
14. Temperature-dependent drug release from DPPC:C12H25-PNIPAM-COOH liposomes: control of the drug loading / release by modulation of the nanocarriers' components. N. Pippa, A. Meristoudi, S. Pispas, **C. Demetzos**, *International Journal of Pharmaceutics*, 2015, 485(1-2):374-382
15. Fractal geometry as a new approach for proving nanosimilarity: a reflection note. **C. Demetzos**, N. Pippa, *International Journal of Pharmaceutics*, 2015, 483(1-2):1-5.
16. Biophysics and thermodynamics: The scientific building blocks of bio-inspired Drug Delivery nano Systems. **C. Demetzos**, *AAPS Pharm. Science Techn.*, 2015, 16(3):491-5
17. Insulin/Poly(ethylene glycol)-*block*-poly(L-lysine) Complexes: Physicochemical Properties and Protein Encapsulation. N. Pippa, R. Kalinova, I. Dimitrov, S. Pispas, **C. Demetzos**, *J. Phys. Chem. B.*, 119(22):6813-9, 2015
18. Complexation of cationic-neutral block polyelectrolyte with insulin and in vitro release studies. N. Pippa, M. Karayianni, S. Pispas, **C. Demetzos**, *Int. Journal of Pharm.* 2015, 491(1-2):136-43.
19. A dual stimuli-responsive polymer into phospholipid membranes: a thermotropic approach. I. Kolman, N. Pippa, A. Meristoudi, S. Pispas, **C. Demetzos**, *Journal of Thermal Analysis and Calorimetry* 123: 2257-2271, 2016
20. Cerasomes as innovative excipients in cosmetic product ' Pregnaderm extreme hydration body cream', N. Pippa, G. Mountrichas, I. Tseti, **C. Demetzos**, *Advanced Science, Engineering and Medicine*, 2016, 8(1):26-30.
21. Efficacy of the new heparan sulfate mimetic dressing in the healing and foot and lower- extremity ulcerations in diabetes: A case series. N. Papanas, **C. Demetzos**, N. Pippa, E. Maltezos, N. Tentolouris, *Int. J. Low Extrem. Wounds.*, 15 (1) 63-67, 2016.