

George Dinos Curriculum Vitae

George Dinos was born in the municipality of Ancient Olympia in 1957. He is married and has two children. He studied Chemistry (1974-1979) in the University of Athens. He was research assistant in the laboratory of Biochemistry, in the Medical School of University of Patras and received his PhD in 1995. He worked as a Research Fellow (1983-1997), Lecturer (1998-2004), Assistant Professor (2004-2010), and Associate Professor (2011-today) at the School of Medicine of the University of Patras. He has been a Visiting Scholar at the Max-Planck Institute of Molecular Genetics in Berlin for long periods between 2000-2003, and Visiting Research Fellow at Gene Center & Department of Chemistry and Biochemistry, of Ludwig-Maximilians University of Munich (2010). He has given a series of lectures in Academic and Research Centers of Europe.

His research interests are focused on the Biochemistry field, in particular on the structure and function of prokaryotic ribosome. In his interests are more precisely included: ribosomes assembly, ribosome function and structure, isolation and functions of subribosomal complexes, antibiotics mode of action, mechanism of antibiotic resistance, development of new antibiotics. He had developed the Kinetic Studies of Irreversible Inhibition of Enzymes Consumed in the Reaction they Catalyze. These kinetic studies, essential for the dissection of the macrolides mode of action, brought him very close to Kosan Bioscience, a Biotechnology Company with high expertise in the development of new antibiotics and anticancer agents. He had been for long time an external collaborator of Kosan Bioscience (now Bristol-Myers Squibb), with main objective the evaluation of new macrolide antibiotics, namely ketolides. He has published in international journals of high impact factor, and has presented his research in various international conferences and workshops. He is a reviewer in many international journals, and member of 3 scientific societies. His group includes one PhD student and two MSc.

Teaching

Under-Graduate teaching

1983-1995: Laboratory training of medical students in Chemistry and Biochemistry

1995-1998: Teaching medical students in Chemistry and Biochemistry; teaching students of Pharmacy in Clinical Chemistry

1998-today: Teaching medical students in Chemistry and Biochemistry.

Supervision of 7 undergraduate dissertations of students of the School of Natural Sciences

Post-Graduate teaching

1998-Today: Teaching of postgraduate students in,

Research Methodology,

Research Topics,

Molecular Basis of Transcription and Translation,

Clinical Biochemistry

Laboratory training in Analytical Clinical Methods

Supervision of one PhD student and two Master students

Collaboration with international research centers

- Max-Planck-Gesellschaft, MPI für Molekulare Genetik, Berlin, Germany (Prof. K.H.Nierhaus).
- Gene Center & Department of Chemistry and Biochemistry, Ludwig-Maximilians University of Munich, Munich, Germany (Dr. D.N. Wilson).
- University College London, SMB Dept., (Professor J Christodoulou)

Member of Scientific Societies

- Hellenic Society of Biochemistry & Molecular Biology
- Association of Greek Chemists
- American Society for Biochemistry and Molecular Biology

List of Conference Presentations

1. Dinos, G., Synetos, D., & Coutsogeorgopoulos C. (1992) "The Sparsomycin Ribosomal Complex: Determination of Kinetic Constants Related to a Proposed Rearrangement" 9th Balcan Biochemical and Biophysical Days, May 21-23, 1992, Thessaloniki, Greece, abstract 81.
2. Dinos, G., Synetos, D., & Coutsogeorgopoulos C. (1993) "Kinetics of Inhibition of Peptide Bond Formation by Spiramycin" 22nd Meeting of the Federation of European Biochemical Societies, July 4-9, Stockholm, Sweden, Symposium 9, abstract 42.
3. Dinos G. (1997) "On the Irreversible Inhibition of Puromycin Reaction by Spiramycin and Hydroxylamine" 11th Balcan Biochemical and Biophysical Days, May 15-17, 1997, Thessaloniki, Greece, abstract 437.
4. Dinos, G. (2001) Testing a hypothesis according to which the peptidyl-transferase activity is regulated by the functional state of the ribosome" 7th Workshop on "Experimental strategies for Ribosomal Research" Schloss Ringberg, Germany, 16-20 April 2001 (invited speaker).
5. Dinos G. (2003) "New Aspects of the mode of action for the antibiotics Edeine and Pactamycin" 8th Lab-Workshop on Experimental strategies for Ribosomal Research, Schloss Ringberg, Germany, 17-21 November 2003 (invited speaker).
6. Szafranski W, Dinos G, Wilson D, Teraoka Y, Fucini P, Kalpaxis D and Nierhaus K. (2004) "Dissecting the ribosomal inhibition mechanisms of edeine and pactamycin: the universally conserved residues G693 and C795 regulate P-site tRNA binding" 29th Meeting of the Federation of European Biochemical Societies, June 26-1 July, Warsaw, Poland, abstract P2.3-09.
7. Dinos G (2006) "In vitro studies on the interaction between new 16-membered 9-O-arylalkyloxime macrolides with functional ribosomes" 9th Workshop on Experimental Strategies for Ribosomal Research, Patras-Psathopyrgos, Greece, 20-25 March 2006.
8. Petropoulos AD, Kouvella E, Karahalios P, Dinos G and Kalpaxis DL. (2008) Insights into the mode of the azithromycin interaction with Escherichia coli ribosomes. 33rd FEBS Congress on "Biochemistry of Cell Regulation", Athens, Greece, June 28-July 3.

9. Dinos G, Kouvela E, and Kalpaxis DL (2008) Antimicrobial activity and mode of action of a new ketolide K-1325 linked with an aryl-alkyl-side chain at the C-13 of the lactone ring. 13th Annual Meeting of the RNA Society, Berlin July 28-Aug 3, Abst 623.
10. Dinos G (2009) "A distinct mode of interaction of a novel ketolide antibiotic that displays enhanced antimicrobial activity" 10th International Workshop "Experimental Strategies for Ribosome Research", Ringberg Castle of the Max Planck Society 19th April - 22nd April 2009, (invited speaker).
11. Krokidis M, Kostopoulou O, Stavropoulou M, Kalpaxis D, and Dinos G. (2010) Dissecting the ribosomal inhibition mechanism of a new ketolide carrying an aryl-alkyl group at C13 of its lactone ring. Ribosomes 2010, May 3-7, Orvieto, Italy.
12. Kostopoulou O, Petropoulos A, Kouvela E, Dinos G and Kalpaxis D, and. (2010) Insight into the interaction of telithromycin with E.coli Ribosomes. Ribosomes 2010, May 3-7, Orvieto, Italy.
13. Krokidis M, Stavropoulou M, Marquez V, Wilson DN, Kalpaxis D and Dinos G, "Mode of action of new fluoroketolides, strong inhibitors of protein synthesis", 36th FEBS CONGRESS, June 25-30 2011, Torino, Italy, P09.14

List of publications

1. Dinos G., Synetos, D., & Coutsogeorgopoulos C (1993) "Interaction between the Antibiotic Spiramycin and a Ribosomal Complex Active in Peptide Bond Formation" *Biochemistry* 32, 10638-10647.
2. Dinos G. & Coutsogeorgopoulos C. (1997) "Kinetic Study of Irreversible Inhibition of an Enzyme Consumed in the Reaction it Catalyses. Application to the Inhibition of the Puromycin Reaction by Spiramycin and Hydroxylamine" *Journal of Enzyme Inhibition*, 12 (2), 79-99.
3. Dinos G. & Kalpaxis D* (1997) "Heat and Ionic Limitations do not Change the Inhibition Pattern of Ribosomal Peptidyltransferase by Aminohexosyl-cytosine nucleoside Antibiotics" *Pharmazie*, 52 (11), 875-877.
4. Dinos G. & Kalpaxis D. (2000) "Studies on the Interaction Between a Ribosomal Complex Active in Peptide Bond Formation and the Macrolide Antibiotics Tylosin and Erythromycin" *Biochemistry*, 39, 11621-11628.
5. Dinos G., Michelinaki, M., & Kalpaxis D. (2001) "Insights into the Mechanism of Azithromycin Interaction with an *Escherichia coli* Functional Ribosomal Complex", *Mol. Pharmacol.* 59, 1441-5.
6. Dinos G., Connell S., Nierhaus K and Kalpaxis D (2003) "Erythromycin, roxithromycin and clarithromycin: Use of slow-binding kinetics to compare their in vitro interaction with a ribosomal complex active in peptide bond formation" *Mol. Pharmacol.* 63, 617-623.
7. Connell S, Trieber CA, Dinos G., Einfeldt E, Taylor D and Nierhaus K. (2003) "Mechanism of Tet(O)-mediated tetracycline resistance" *EMBO J.* 22, 945-963.
8. Xaplanteri M, Andreou A, Dinos G., and Kalpaxis D. (2003) "Effect of polyamines on the inhibition of peptidyltransferase by antibiotics: revisiting the mechanism of chloramphenicol action" *Nucl. Acids. Res.* 31: 5074-5083
9. Dinos G., Wilson D, Teraoka Y, Fucini P, Kalpaxis D and Nierhaus K. (2004) "Dissecting the inhibition mechanisms of edeine and pactamycin: Antagonistic interplay on the ribosome between these translational inhibitors" *Mol Cell* 13: 113-124.

- (Rated "Must Read" by F1000, <http://www.f1000biology.com/article/id/1018199>).
10. Petropoulos A, Xaplanteri M, Dinos G, Wilson D, and Kalpaxis D. (2004) "Polyamines affect diversely the antibiotic potency: insight gained from kinetic studies of the blasticidin S and spiramycin interactions with functional ribosomes" *J Biol Chem.* 279(25): 26518-25.
 11. Kalpaxis D, Theos C, Xaplanteri M, Dinos G, Catsiki A and Leotsinidis M (2004) "Biomonitoring of Gulf of Patras, N Peloponnesus, Greece. Application of a biomarker suite including evaluation of translation efficiency in *Mytilus galloprovincialis* cells" *Environ Res.* 94(2):211-20.
 12. Xaplanteri M, Petropoulos A, Dinos G and Kalpaxis D (2005) "Localization of spermine binding sites in 23S rRNA by photoaffinity labeling: parsing the spermine contribution to ribosomal 50S subunit functions" *Nucl. Acids Res.* 33: 2792-805.
 13. Dinos G, Kalpaxis DL, Wilson DN, and Nierhaus K (2005) "Deacylated tRNA is released from the E site upon A site occupation but before GTP is hydrolysed by EF-Tu". *Nucleic Acids Res.*, 33, 5291-5296.
 14. Karahalios P, Kalpaxis D, Fu H, Katz L, Wilson D and Dinos G (2006) "On the mechanism of action of 9-O-arylalkyloxime derivatives of 6-O-mycaminosyltylonolide, a new class of 16-membered macrolide antibiotics", *Mol. Pharmacol.* 70:1271-1280.
 15. Kouvela E, Gerbanas G, Xaplanteri M, Petropoulos A, Dinos G and Kalpaxis D (2007) Changes in the conformation of 5S rRNA cause alterations in principal functions of the ribosomal nanomachine. *Nucleic Acids Res.* 35(15): 5108–5119.
 16. Petropoulos A, Kouvela E, Dinos G, and Kalpaxis D (2008) Stepwise Binding of Tylosin and Erythromycin to *Escherichia coli* Ribosomes, Characterized by Kinetic and Footprinting Analysis. *J Biol Chem* 283(8):4756-65.
 17. Petropoulos AD, Kouvela EC, Starosta AL, Wilson DN, Dinos GP, Kalpaxis D (2008) Time-resolved binding of azithromycin to *Escherichia coli* ribosomes. *J Mol Biol.* 385:1179-1192.
 18. Kouvela EC, Kalpaxis DL, Wilson DN, Dinos G. (2009) A distinct mode of interaction of a novel ketolide antibiotic that displays enhanced antimicrobial activity. *Antimicrob Agents Chemother.* 53:1411-1419.
 19. Krokidis MG, Kostopoulou ON, Kalpaxis DL, and Dinos GP*. (2011) Dissecting the ribosomal inhibition mechanism of a new ketolide carrying an aryl-alkyl group at C-13 of its lactone-ring. *Int J Antimicrob Agents*, 35:235-9.
 20. Kostopoulou O, Petropoulos AD, Dinos GP, Choli-Papadopoulou T, and Dimitrios L. Kalpaxis (2012) Investigating the entire course of telithromycin binding to *Escherichia coli* ribosomes *Nucleic Acids Res.*, 33, 5291-5296.
 21. Mamos P, Krokidis M, Papadas A, Karahalios P, Starosta A, Wilson D, Kalpaxis D and Dinos G (2013) On the use of the antibiotic chloramphenicol to target polypeptide chain mimics to the ribosomal exit tunnel, *Biochimie*, 95:1765-72.
 22. Krokidis M, Márquez V, Wilson DN, Kalpaxis D, and Dinos G, (2013) Insights into the mode of action of novel fluoroketolides, potent inhibitors of bacterial protein synthesis, *Antimicrob. Agents Chemother*, in press.

Invited Talks

1. Dinos G. (2003) "New Aspects of the mode of action for the antibiotics Edein and Pactamycin" 8th Lab-Workshop on *Experimental strategies for Ribosomal Research*, Schloss Ringberg, Germany, 17-21 November 2003.
2. Dinos G (2006) "In vitro studies on the interaction between new 16-membered 9-O-arylalkyloxime macrolides with functional ribosomes" 9th Workshop on *Experimental Sstrategies for Ribosomal Research*, Patras-Psathopyrgos, Greece, 20-25 March 2006.
3. Dinos G. (2009)"A distinct mode of interaction of a novel ketolide antibiotic that displays enhanced antimicrobial activity" 10th International Workshop "Experimental Strategies for Ribosome Research", Ringberg Castle of the Max Planck Society 19th April - 22nd April 2009.

Other Activities

Reviewer in many international journals, European National Grant applications, member of 3 scientific societies. Mean I.F.: 5,48; *h* index 12.

Coorganizer of the 9th International Workshop on "Experimental Strategies for Ribosomal Research" Patras-Psathopyrgos, 20-25 March 2006.

Coorganizer of the 25th tRNA conference, September 2014, Kylini Greece

List of Research Projects (Last 10 Years)

- "Potency and mode of action of new ketolides" (2003-2004) 50.000,00 Euros Kosan Bioscience Inc., Principal Investigator
- "Development on new aptamers interfering with ribosome assembly" (2009-2011) 30.000,00 Euros, Programme "Karatheodori", University of Patras, Principal Investigator,
- "Combining functional and crystallographic studies of new ketolides", 10.000,00 €, IKYDA 2010, Bilateral Programme of Collaboration Greece-Germany, Principal Investigator of the Greek Research Group, 2010-2012