Alexios N. Matralis

OBJECTIVE

Design, Synthesis and Pharmacological Evaluation of Bioactive Molecules against the Pathogenesis of Human Diseases

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EXPERIENCE

April 2018 to date
Researcher • Bioinnovation Institute, Biomedical Sciences Research Center "Alexander Fleming" • Vari, Athens, Greece

October 2016 to January 2018
Senior Researcher • Drug Development Department against Neglected Tropical Diseases, GlaxoSmithKline • Madrid, Spain

September 2013– September 2016
Postdoctoral Research Fellow • Department of Chemistry, McGill University • Montreal, Canada

EDUCATION

January 2008– April 2013
PhD in Medicinal Chemistry • Department of Medicinal Chemistry, School of Pharmacy, University of Athens • Athens, Greece

November 2005– January 2008
MSc in Medicinal Chemistry • Department of Medicinal Chemistry, School of Pharmacy, University of Athens • Athens, Greece

November 2003– July 2005
MSc in Science and Technology of Polymers • Department of Chemical Engineering, University of Patras • Patra, Greece

October 1999– November 2003
BSc in Chemistry • Department of Chemistry, University of Patras • Patra, Greece

RESEARCH FUNDING

1) Hellenic Society of Atherosclerosis (2008-2011)
2) Group de Researche Axè sur la Structure des Protèines (GRASP), Canada (2014-2016)
3) "Stavros Niarchos" Foundation (2018-2021)
4) European Union and Greek national funds through the

Operational Program Competitiveness, Entrepreneurship and Innovation, under the call Research – Create – Innovate (Grant ID: T2EΔK-01076) (2020-2023)

5) Hellenic Foundation for Research and Innovation (Grant ID: HFRI 7337)

PUBLICATIOS

1) Water-soluble Stoichiometric Polyelectrolyte Complexes Based on Cationic Comb-Type Copolymers. Alexios Matralis, Maria Sotiropoulou, George Bokias and George Staikos. *Macromol. Chem. Phys.*, **2006**, *207*, 1018-1025 (onlinelibrary.wiley.com/doi/10.1002/macp.200600083/full).

2) Hypolipidemic and Antioxidant Properties of Novel Squalene Synthase Inhibitors. Alexios Matralis and Angeliki Kourounakis. *Clinical Pharmacology and Pharmacokinetics*, **2008**, *22*, 238-240.

3) Antioxidant Activity of Newly Synthesized 2,7-Diazaphenothiazines. Beata Morak-MIodawska, Krystian Pluta, Alexios N. Matralis and Angeliki P. Kourounakis. *Arch. Pharm. Chem. Life Sci.*, **2010**, *343*, 268-273 (onlinelibrary.wiley.com/doi/10.1002/ardp.200900253/abstract).

4) Design of More Potent Squalene Synthase Inhibitors with Multiple Activities. Angeliki P. Kourounakis, Alexios N. Matralis, Anastasios Nikitakis. *Bioorg. Med. Chem.*, **2010**, *18*, 7402-7412 (www.sciencedirect.com/science/article/pii/S0968089610008230).

5) Novel Benzoxazine and Benzothiazine Derivatives as Multifunctional Antihyperlipidemic Agents. Alexios N. Matralis, Maria G. Katselou, Anastasios Nikitakis and Angeliki P. Kourounakis. *J. Med. Chem.*, **2011**, *54*, 5583-5591 (pubs.acs.org/doi/abs/10.1021/jm200763k).

6) Squalene Synthase Inhibitors: An Update on the Search for New Antihyperlipidemic and Antiatherosclerotic Agents. Angeliki P. Kourounakis, Maria G. Katselou, Alexios N. Matralis, Eleni M. Ladopoulou and Eugenia Bavavea. *Curr. Med. Chem.*, **2011**, *18*, 4418-4439. (www.eurekaselect.com/75134/article).

7) New Multifunctional di-*tert*-butyl-phenol-octahydro(pyrido/benz)oxazine Derivatives with Antioxidant, Antihyperlipidemic and Antidiabetic Action. Eleni M. Ladopoulou, Alexios N. Matralis and Angeliki P. Kourounakis. *J. Med. Chem.*, **2013**, *56*, 3330-3338 (pubs.acs.org/doi/abs/10.1021/jm400101e?journalCode=jmcmar).

8) Design of Novel Potent Antihyperlipidemic Agents with Antioxidant/Anti-inflammatory Properties. Exploiting Phenothiazine's Strong Antioxidant Activity. Alexios N. Matralis and Angeliki P. Kourounakis. *J. Med. Chem.*, **2014**, *57*, 2568-2581. ***Highlighted by SciBX*** (March **2014**, vol. *7*, issue 11)

(pubs.acs.org/doi/abs/10.1021/jm401842e).

9) Multi-targeted Drug Design Approaches for Multifactorial Diseases: from Neurodegenerative to Cardiovascular Applications. Maria Katselou, Alexios N. Matralis and Angeliki P. Kourounakis. *Curr. Med. Chem.*, **2014**, *21*, 2743-2787 (www.eurekaselect.com/120679/article).

10) Human Isoprenoid Synthase Enzymes as Therapeutic Targets. Jaeok Park, Alexios N. Matralis, Albert M. Berghuis and Youla S. Tsantrizos. *Frontiers in Chemistry*, **2014**, *2*, 1-21 (journal.frontiersin.org/article/10.3389/fchem.2014.00050/full).

11) Evaluation of two Novel Antioxidants with Differential Effects on Curcumin-induced Apoptosis in C2 Skeletal Myoblasts; Involvement of JNKs. Maria Peleli, Ioanna-Katerina Aggeli, Alexios N. Matralis,[#] Angeliki P. Kourounakis, Isidoros Beis and Catherine Gaitanaki. *Bioorg. Med. Chem.*, **2015**, *23*, 390-400 ([#] second author due to equal contribution of the first two authors), (www.sciencedirect.com/science/article/pii/S0968089614009043?via%3Dihub).

12) Antihyperlipidemic Morpholine Derivatives with Antioxidant Activity: An Investigation of the Aromatic Substitution. Eleni M. Ladopoulou, Alexios N. Matralis, Anastasios Nikitakis and Angeliki P. Kourounakis. *Bioorg. Med. Chem.*, **2015**, *23*, 7015-7023 (www.sciencedirect.com/science/article/pii/S0968089615300602).

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14) Balancing Antioxidant, Hypolipidemic and Anti-inflammatory Activity in a Single Agent: The Example of 2-Hydroxy-2-Substituted Morpholine, 1,4-Benzoxazine and 1,4-Benzothiazine Derivatives as a Potential Therapeutic Approach against Atherosclerosis. Alexios N. Matralis, Eugenia-Ismini Bavavea, Sandra Incerpi, Jens Z. Pedersen and Angeliki P. Kourounakis. *Curr. Med. Chem.*, **2017**, *24*, 1214-1227 (www.eurekaselect.com/144805/article).

15) Pharmacophore Mapping of Thienopyrimidine-Based Monophosphonate (ThP-MP) Inhibitors of the Human Farnesyl Pyrophosphate Synthase. Jaeok Park, Chun Y. Leung, Alexios N. Matralis,[#] Cyrus Lacbay, Michail Tsakos, Guillermo Fernandez De Troconiz, Albert Berghuis and Youla S. Tsantrizos. *J. Med. Chem.*, **2017**, *60*, 2119-2134 ([#] second author due to equal contribution of the first two authors), (pubs.acs.org/doi/abs/10.1021/acs.jmedchem.6b01888).

16) Developing Potential Agents against Atherosclerosis: Design, Synthesis and Pharmacological Evaluation of Novel Dual Inhibitors of Oxidative Stress and Squalene Synthase Activity. Maria Katselou, Alexios N. Matralis and Angeliki P. Kourounakis. *Eur. J. Med. Chem.*, **2017**, *138*, 748-760 (www.sciencedirect.com/science/article/pii/S0223523417304890).

17) Molecular Tools that Block Maturation of the Nuclear Lamin A and Decelerate Cancer Cell Migration. Alexios N. Matralis, Dimitrios Xanthopoulos, Geneviève Huot, Stéphane Lopes-Paciencia, Charles Cole, Hugo de Vries, Gerardo Ferbeyre and Youla S. Tsantrizos. *Bioorg. Med. Chem.*, **2018**, *26*, 5547-5554 (www.sciencedirect.com/science/article/pii/S0968089618315049).

18) Development and Therapeutic Potential of Autotaxin Small Molecule Inhibitors. From Bench to Advanced Clinical Trials. Alexios N. Matralis,* Antreas Afantitis and Vassilis Aidinis.* In Press, *Med. Res. Rev.*, **2018** (* corresponding authors), (https://doi.org/10.1002/med.21551).

19) Optimization of the Pharmacological Profile of Bifunctional Antihyperlipidemic/Antioxidant Morpholine Derivatives by Focusing on the Squalene Synthase Inhibitory Activity. Alexios N. Matralis and Angeliki P. Kourounakis. *Med. Chem. Lett.*, **2019**, *10*, 98-104 (https://pubs.acs.org/doi/10.1021/acsmedchemlett.8b00469).

20) Development of Chemical Entities Endowed with Potent Fast-killing Properties against *Plasmodium falciparum* Malaria Parasites. Alexios N. Matralis,* Adnan Malik, Maria Penzo, Inmaculada Moreno, Maria J. Almela, Isabel Camino, Begnino Crespo, Anas Saadeddin, Sonja Ghidelli-Disse, Lurdes Rueda, Félix Calderón, Simon A. Osborne, Gerald Drewes, Markus Böesche, Elena Fernández-Álvaro, José Ignacio Martín Hernando, David A. Baker.* *J. Med. Chem.*, 2019, *62*, 9217-9235 (* corresponding authors), (https://pubs.acs.org/doi/10.1021/acs.jmedchem.9b01099).

21) Structure-Based Discovery of Novel Chemical Classes of Autotaxin Inhibitors. Christiana Magkrioti, Eleanna Kaffe, Elli-Anna Stylianaki, Camelia Sidahmet, Georgia Melagraki, Antreas Afantitis, Alexios N. Matralis,* Vassilis Aidinis.* *Int. J. Mol. Sci.*, **2020**, *21*, 7002-7018 (* corresponding authors), (https://www.mdpi.com/1422-0067/21/19/7002/xml).

22) Targeting Malaria Parasite cGMP Signalling to Develop New Drugs. David A. Baker, Alexios N. Matralis, Simon A. Osborne, Jonathan M. Large, Maria Penzo. *Front. Microbiol.*, **2020**, *11*, article 602803, (https://www.frontiersin.org/articles/10.3389/fmicb.2020.602803/full).

23) Commonalities between ARDS, Pulmonary Fibrosis and COVID-19: The Potential of Autotaxin as a Therapeutic Target. Konstantinos Ntatsoulis, Theodoros Karampitsakos, Eliza Tsitoura, Elli-Anna Stylianaki, Alexios N. Matralis, Argyrios Tzouvelekis, Katerina Antoniou, Vassilis Aidinis. *Front. Immunol.*, **2021**, *12*, article 687397, (https://www.frontiersin.org/articles/10.3389/fimmu.2021.687397/full).

24) Synthesis and Evaluation of Structurally Diverse C-2-Substituted Thienopyrimidine-Based Inhibitors of the Human Geranylgeranyl Pyrophosphate Synthase. Hiu-Fang Lee, Cyrus M. Lacbay, Rebecca Boutin, Alexios N. Matralis, Jaeok Park, Daniel D. Waller, Tian Lai Guan, Michael Sebag and Youla S. Tsantrizos. *J. Med. Chem.*, **2022**, *65*, 2471-2496, (https://pubs.acs.org/doi/10.1021/acs.jmedchem.1c01913).

25) “Hit” to lead optimization and chemoinformatic studies for a new series of Autotaxin inhibitors. Elli-Anna Stylianaki, Christiana Magkrioti, Eleni M. Ladopoulou, Konstantinos D. Papavasileiou, Panagiotis Lagarias, Georgia Melagraki, Martina Samiotaki, George Panayotou, Skarlatos G. Dedos, Antreas Afantitis, Vassilis Aidinis,* Alexios N. Matralis.* (*corresponding authors), *Eur. J. Med. Chem.*, **2022**, *249*, article 115130, (https://www.sciencedirect.com/science/article/pii/S0223523423000454).

26) Repurposing the antipsychotic drug Amisulpride for targeting synovial fibroblast activation in arthritis. Dimitra Papadopoulou, Fani Roumelioti, Christos Tzaferis, Panagiotis Chouvardas, Anna-Kathrine Pedersen, Filippos Charalampous, Eleni Christodoulou-Vafeiadou, Lydia Ntari, Niki Karagianni, Maria C. Denis, Jesper V. Olsen, Alexios N. Matralis and George Kollias. *JCI Insight*, **2023**, *8*, article e165024 (https://insight.jci.org/articles/view/165024).

27) Effect of a new Squalene Synthase inhibitor on an ApoE-/- mouse model of atherosclerosis. Alexios N. Matralis,* Loukas Kaklamanis, Despina Perrea, Angeliki Kourounakis.* (*corresponding authors), *Bioorg. Med. Chem.*, **2023**, *90*, article 117378 (https://www.sciencedirect.com/science/article/pii/S0968089623002262).

PATENTS

1) Thieno[3,4-c]pyrazol-3-yl acetamides as novel Autotaxin inhibitors. Vassilios Aidinis and Alexios Matralis. Patent No: WO2022/003377 A1.

2) Anti-inflammatory Carboxamide Derivatives. George Kollias, Niki Karagianni, Maria Denis, Alexios N. Matralis, Dimitra Papadopoulou, Eleni Karkoulia. Patent No: WO2022/189636 A1.