NIKOS K. KARAMANOS, Ph. D., Professor
Scholar Profile

SHORT PRESENTATION / PROFILE

Nikos K. Karamanos is a Professor of Biochemistry in the University of Patras. He obtained his diploma (Chemistry) in 1984 and Ph.D. (Biochemistry) in 1988 from the University of Patras. He has carried out pre- and postdoctoral research work at Karolinska Institute (School of Medicine, Stockholm, Sweden). He is a member of the editorial boards / advisory editorial board and academic editor of several internationals peer-review journals.

He is a member of the board of the Hellenic Society of Biochemistry and Molecular Biology-HSBMB (President 2006-2007 & 2011, General Secretary 2004-2005, Vice-President 2008-2009, 2010-2011 & 2014-present), co-ordinator (2003-present) of the Hellenic Matrix Biology Section of HSBMB (former connective tissue and matrix biology research society and an expert in FP7 "Health" (2007-2009). He is the chairman of the FEBS Advanced Lecture Courses in *"Matrix Pathobiology, Signaling and Molecular Targets"* held in Patras (May 2007 and July 2009), Spetses 2011 and Kos 2013).

Dr. Karamanos is the editor of the International book edition: *Extracellular Matrix: Pathobiology & Signaling,* Walter DeGruyter, Berlin/Boston (2012). He is co-author of more than 230 original research and review publications in peer-review international journals. His work is cited more than 3900/4800 times and his H-index is 31/38 (scopus, wos/scholar google).

RESEARCH INTERESTS

Dr. Karamanos has extensive experience in the fields of Biochemistry, Biochemical Analysis & Matrix Pathobiology. His interests involve matrix pathobiology, cell signaling, molecular targeting, preclinical evaluation of drugs at cell level and cytotoxicity. More focus is given to proteoglycans, glycosaminoglycans, metalloproteinases and acidic glycoproteins and especially to their implication in tissue organization, pathogenesis and progression of various disorders, such as cancer and atherosclerosis. The signal transduction pathways (receptors and intracellular mediators) as well as the effects of growth factors and cytokines as regulatory mechanisms in matrix macromolecular expression are also studied. Dr. Karamanos has long-lasting expertise in the development of very sensitive bioanalytical methods and their application to identify macromolecular structure-activity relationship in physiological and pathological conditions as well as in pharmacokinetic studies.

DETAILED DATA

Present address: University of Patras, Department of Chemistry, Biochemistry, Biochemical Analysis & Matrix Biology Research Group, Laboratory of Biochemistry, Section of Organic Chemistry, Biochemistry and Natural Products, 261 10 Patras, Greece, Phone +30-2610-997915 (office), 997181 (lab.), Fax: +30-2610-997153
E-mail: N.K.Karamanos@upatras.gr

Education, degrees & scientific carrier

1984 & 1988	Diploma (Chemistry, grade A) and Ph.D. (Biochemistry, grade A), Department of Chemistry, University of Patras
1987-1999	Researcher and post-doc Research Fellow (annual periods, total 3-years) at Karolinska Institute, Dept. of Laboratory Medicine, School of Medicine, Stockholm, Sweden
1990-2002	Lecturer (1990), Assistant Professor (1993), Associate Professor (1999), Dept of Chemistry, University of Patras
2003-present	Professor of Biochemistry & Organic Biochemical Analysis, University of Patras

2004-present	Member of the administrative board of the Hellenic Society of Biochemistry & Molecular Biology (HSBMB) as President (2006-2007), General Secretary (2004-2005 & 2011), Vice-President (2008-2011 & 2014-present)
2003-present	Contact person in the European Matrix Biology Society (former Federation of European Connective Tissue Societies (FECTS) and coordinator of the Hellenic Matrix Biology section of HSBMB (former Hellenic Research Club for Connective Tissue and Matrix Biology)
2007-2009	European Union Expert, FP7, theme "Health"
2010-present	Collaborative Faculty Member of the Institute ICE-HT (Foundation of Research and Technology, FORTH), Patras, Greece
2007-2011	Head of the Department of Chemistry, University of Patras
2011	European Registered Toxicologist (ERT)
2012-present	Member of the Quality Assurance Unit of the University of Patras (MODIP)

Editorial Scientific Boards/Reviewer & Awards:

- Member of the editorial boards (Editorial Board member) of several peer-review journals. Among them: *The Journal of Biological Chemistry*, *FEBS Journal* (Advisory Editorial Board) *PLoS ONE* (academic editor), *Matrix Biology*, *Current Medicinal Chemistry*, *Biomedical Chromatography*, *Current Pharmaceutical Analysis*, *Current Chemical Biology*, *Chromatographia* (2004-2009), *Data Sets in Biology*, *Science Open*, and several other scientific journals.
- Reviewer in peer-review scientific journal (>35) in the areas of Biochemistry, Biochemical & Pharmaceutical Analysis, Cell Biology, Molecular Biology, Anticancer Agents, Oncology, Cancer, Matrix Biology, Cell signaling, Targeted Molecular Therapeutic Approaches, Extracellular Matrix, Drug Pharmacological Evaluation and Cancer.
- A number of awards has been conferred by various Scientific Societies, among them the Hellenic Society of Biochemical & Molecular Biology Society, Society for Microbiology and Biopathology, Pediatrics, Society for Anticancer Research, European associated Societies Comet and Leonardo Da Vinci, Neurological Society, Federation of European Connective Tissue Societies, etc.
- Several publications on pharmacological targeting of metalloproteinases, proteoglycans and glycosaminoglycans were among the top most-cited publications in FEBS J in 2013 and 2014 and approved as Key Scientific Articles from the Global Medical Discovery. According to BiomedExperts and Scholar websites (links are given below), Dr. Karamanos is among the top authors and most-cited in the areas: Matrix Biology, Glycosaminoglycans, Proteoglycans and Metalloproteinases.

Research interests

Scientific areas: Biochemistry, Biochemical Analysis and Matrix Pathobiology

Main topics**:** Matrix Biology, Cell Signaling, Functional Cell Properties, Pharmacological Targeting at Molecular and Cellular Levels, Biological Testing, Cell mimetic models for cancer metastasis, Structure Analysis of Carbohydrates and Evaluation of Cytotoxicity.

- Structure and functions of metalloproteinases (MMPs), cell bound and cell-secreted proteoglycans (PGs)/ glycosaminoglycans (GAGs) and acidic glyco- and sialoproteins in malignancy.
- Effects of growth factors and their receptors on gene expression and synthesis of MMPs and PGs
- Structure, function, immunological and biological properties of carbohydrates, proteoglycans and glycoproteins
- Carbohydrates and related compounds produced from pathogenic bacteria
- Evaluation of pharmacological agents at molecular and cellular levels (functional cell properties, receptors and intracellular pathways, gene expression and regulation)
- Health and Safety issues: toxicity evaluation at cell level

- Development, validation and biological applications of high-performance liquid chromatographic & capillary electrophoresis methods for fine biochemical and structural analysis of carbohydrates, proteoglycans and glycoproteins in biological samples (Cell cultures, tissues, biological matrices)
- Structure, analysis and interactions of important biological molecules (growth factors/peptides, amino acid derivatives)

Organization of workshops, meetings / conferences

Chairman of the FEBS advanced lecture courses on Matrix Pathobiology, Signaling and Molecular Targets (FEBS-MPST in 2007 website: www.chemistry.upatras.gr/febs-mpst2007, in 2009 website: www.febs-mpst2009.upatras.gr, in 2011 website www.febs-mpst2011.upatras.gr and in 2013 www.febs-mpst2013.upatras.gr.

Chairman of the 60th Conference of the Hellenic Society of Biochemistry and Molecular Biology, Athens, 2009.

S*cientific secretary* of FECTS-2000 International Conference and member of the Organizing/Scientific Committee in a number of Hellenic Conferences on matrix Biology/Connective tissue and Medicinal Chemistry as organizer or member of the committee.

Scientific Secretary and *International contact person* for the 33rd FEBS Congress and 11th IUBMB Conference, Athens, 2008.

Chairman of two European conferences (Euro Advanced HPLC course, 1992 and on Microseparation techniques 1998).

Member of the Organizing and/or scientific Committees for several National & International scientific conferences

Quest editor / Editor:

1. *International Book Edition:* Extracellular Matrix: Pathobiology and Signaling (Nikos Karamanos *Editor)*, ISBN 978-3-11-025876-9 (2012) , *Walter DeGruyter, Berlin/Boston*

2. *Special Issue* (N. Karamanos, guest editor): Matrix-mediated cell behavior and properties, Biochimica et Biophysica Acta-General Subject (2014) in press

3. *MiniReview Series* (N. Karamanos and A. Passi, coordinators): Novel insights into matrix pathobiology regulatory mechanisms in health and disease, FEBS J, scheduled for 2014

4. *Special Isuue* (N. Karamanos and R. Linhardt, coordinators): Proteoglycans signaling, targeting and therapeutics, FEBS J (2013) 280 (10), 2119–2534

5. *MiniReview Series* (V. Hascall and N. Karamanos, coordinators): Regulatory roles of hyaluronan in health and disease, FEBS J, Vol. 278(9) (2011)

6. *MiniReview Series* (H. Nagase and N. Karamanos, coordinators): Metalloproteinases in Health and Disease: challenges and the future prospects, FEBS J, Vol. 278(1) (2011)

7. *MiniReview Series* (R. Iozzo and N. Karamanos, coordinators): Proteoglycans in Health and Disease: emerging concepts and future directions, FEBS J, Vol. 277 (2010)

8. *Special issue:* Matrix Pathobiology, Signaling and Molecular Targets, Conn. Tissue Res. (2008) Vol. 49, issues 2 & 3.

9. *Special issue:* Solid phase assays for molecules with biopharmaceutical importance, J. Pharm. Biomed. Analysis, Elsevier, Vol. 34 (2004).

10. *Special issue:* CE of carbohydrates (Analysis of carbohydrate macromolecules by capillary electrophoresis: glycoproteins, proteogycans/glycosaminoglycans and glycolipids), Biomedical Chromatography, Wiley Interscience, Vol. 16 (2002).

Teaching experience-Trainees

Undergraduate teaching: Lectures in Biochemistry, Clinical Chemistry, Molecular Cell Biology and Chemistry of Organic Natural Products.

Graduate teaching: Courses Masters & Ph.D.: Lectures on Advanced Biochemistry I and II, Molecular Biology & Molecular Biotechnology, Clinical Biochemistry, Analytical Biochemistry (HPLC, HPCE, SFC), Immunochemical Assays (ELISA, RIA) and on Isolation and characterization of proteins, enzymes & glycoconjugates
Trainees: Supervisor for 13 Ph.D. and 24 M.Sc. awarded studies, 5 PhD and 5 MSc under progress

Publications/books

- More than 230 original research and reviews publications in international peer-review journals.
- 35 Publications as chapters in book series and full proceeding
- 1 international book with 54 chapters and 7 thematic sections, DeGruyter, 2012
- 3 books on biomolecules structure-function and enzyme immunoassays
- More than 250 abstracts in proceedings of International and Hellenic scientific conferences
- More than 70 invited and plenary lectures in International meetings/conferences (including FECTS-2004 Italy, FEBS-2010 Sweden, Gordon Research Conference on Proteoglycans-2012 USA, International Proteoglycans' conference 2013), Hellenic scientific conferences and International Research Institutes and Universities (including University of Reims-France, Munster- and Leipzig-Germany, Varese-Italy, Uppsala-Sweden)
- > 3900 / 4800 βιβλιογραφικές αναφορές (Scopus, WoS/Scholar Google)
- H-index = 31 / 38 (Scopus, WoS / Scholar)

Collaborations and Research Networks

Collaboration at International level with Karolinska Institute, School of Medicine, Sweden and the University of Insubria, School of Medicine, Varese-Italy. Several other collaborations in Europe, USA, Japan and Brazil have been established. At National level with School of Medicine and Pharmacy (Univ. of Patras), Institute of Biology "Demokritos" and Dept of Pharmacy (Univ. of Athens), School of Medicine (Univ. of Crete), Dept of Chemistry, Lab of Biochemistry (Thessaloniki), University Hospital (Patras, Larissa, Thessaloniki and Athens).
Coordinator of the University of Patras Research Network: *Biotargeting - Biomedical and Biotechnological Applications Research Network*. It covers a broad spectrum of continuously evolving research in biomedicine and biotechnology. This network focuses on two basic axes of overlapping activities and as a result of this collaboration of the research groups and researchers from 3 Schools (Natural Sciences, Health Sciences and Engineering) and 6 Departments (Chemistry, Chemical Engineering, Medicine, Pharmacy, Material Science and Mechanical Engineering & Aeronautics) of the University of Patras (www.biotargeting.upatras.gr).

Research Project

Coordination and participation in a number of National (15) and International (5) research projects.

Publications

For a more detailed list of publication in peer review journals see useful links given below:
***List of Publications and metrics*:**

- www.publicationslist.org/n.k.karamanos
- http://scholar.google.com/citations?hl=en&user=bv88CVYAAAAJ&pagesize=100&view_op=list_works&cstart=20
- www.researcherid.com/rid/A-3616-2008
- www.biomedexperts.com/Profile.bme/1642792/Nikos_Karamanos
- www.researchgate.net/profile/Nikos_Karamanos/

***Publications in Medline*:** www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed&cmd=historysearch&querykey=1

Recent Representative publications

- Cross-talk between estradiol receptor and EGFR/IGF-IR signaling pathways in estrogen-responsive breast cancers: Focus on the role and impact of proteoglycans
  S. Skandalis, N. Afratis, G. Smirlaki, D. Nikitovic, A. Theocharis, G. Tzanakakis, N. K. Karamanos
  Matrix biology (2013) *in press.*
- Glycosaminoglycans: from "cellular glue" to novel therapeutical agents.
  Karamanos NK, Tzanakakis GN.
  Curr Opin Pharmacol. 2012 Apr; 12(2):220-2.
- The biology of small leucine-rich proteoglycans in bone pathophysiology.
  Nikitovic D, Aggelidakis J, Young MF, Iozzo RV, Karamanos NK, Tzanakakis GN.
  J Biol Chem. 2012 Oct 5;287(41):33926-33
- Expression of matrix macromolecules and functional properties of breast cancer cells are modulated by the bisphosphonate zoledronic acid.
  Dedes PG, Gialeli Ch, Tsonis AI, Kanakis I, Theocharis AD, Kletsas D, Tzanakakis GN, Karamanos NK.
  Biochim Biophys Acta. 2012 Dec;1820(12):1926-39.
- Expression of matrix macromolecules and functional properties of EGF-responsive colon cancer cells are inhibited by panitumumab.
  Gialeli C, Theocharis AD, Kletsas D, Tzanakakis GN, Karamanos NK.
  Invest New Drugs. 2012 Sep 6
- Insights into targeting colon cancer cell fate at the level of proteoglycans / glycosaminoglycans.
  Nikitovic D, Chatzinikolaou G, Tsiaoussis J, Tsatsakis A, Karamanos NK, Tzanakakis GN.
  Curr Med Chem. 2012;19(25):4247-58.
- Targeting the tumor proteasome as a mechanism to control the synthesis and bioactivity of matrix macromolecules.
  Skandalis SS, Aletras AJ, Gialeli C, Theocharis AD, Afratis N, Tzanakakis GN, Karamanos NK.
  Curr Mol Med. 2012 Sep;12(8):1068-82.
- Glycosaminoglycans: key players in cancer cell biology and treatment.
  Afratis N, Gialeli C, Nikitovic D, Tsegenidis T, Karousou E, Theocharis AD, Pavão MS, Tzanakakis GN, Karamanos NK.
  FEBS J. 2012 Apr;279(7):1177-97.
- Role of Receptor for Hyaluronic Acid-mediated Motility (RHAMM) in Low Molecular Weight Hyaluronan (LMWHA)-mediated Fibrosarcoma Cell Adhesion.
  Kouvidi K, Berdiaki A, Nikitovic D, Katonis P, Afratis N, Hascall VC, Karamanos NK, Tzanakakis GN.
  J Biol Chem. 286(44) (2011) 38509-38520.
- Proteoglycans in health and disease: novel roles for proteoglycans in malignancy and their pharmacological targeting.
  A.D. Theocharis, S.S .Skandalis, G.N. Tzanakakis and N.K. Karamanos.
  FEBS J. 277 (2010) 3904-23
- Strategies to target epidermal growth factor receptor in solid tumors: critical evaluation of the biological importance of therapeutic monoclonal antibodies.
  Ch. Gialeli, D. Kletsas, D. Mavroudis, H.P. Kalofonos, G.N. Tzanakakis, N.K. Karamanos.
  Current Med Chem 16 (9) (2009) 3797-3808.
- The impact of zoledronic acid therapy in survival of lung cancer patients with bone metastasis.
  K. Zarogoulidis, E. Boutsikou, P. Zaropoulidis, E. Eleftheriadou, T. Kontakiotis, G.N. Tzanakakis, J. Kanakis, N. K. Karamanos.
  *Int J Cancer*125 (1) (2009) 705-709.

- Estradiol-estrogen receptor: a key interplay of the expression of syndecan-2 and metalloproteinase-9 in breast cancer cells.
  O.Ch. Kousidou, A. Berdiaki, D. Kletsas, A. Zafiropoulos, A. D. Theocharis, G.N. Tzanakakis and N. K. Karamanos
  Mol. Oncology 2 (3) (2008) 223-232.
- Imatinib mesulate inhibits proliferation and exerts an antifibrotic effect in human breast stroma fibroblast.
  V. Gioni, T. Karampinas, G. Voutsinas, A. E. Roussidis, S. Papadopoulos, N. K. Karamanos and D. Kletsas.
  Mol. Cancer Res, 6 (5) (2008) 706-714.
- Chondroitin sulfate and heparan sulfate-containing proteoglycans are both partners and targets of basic fibroblast growth factor-mediated proliferation in human metastatic melanoma cell lines.
  D. Nikitovic, M. Assouti, M. Sifaki, P. Katonis, K. Krasagakis, N. K. Karamanos, G. N. Tzanakakis.
  *Int. J. Biochem Cell Biol.,*40 (1) (2008) 72-83.
- Imatinib inhibits colorectal cancer cell growth and suppresses stromal-induced growth stimulation, MT1-MMP expression and pro-M-MP2 activation.
  X. N. Stahtea, A. E. Roussidis, I. Kanakis, G. N. Tzanakakis, G. Chalkiadakis, D. Mavroudis, D. Kletsas and N. K. Karamanos.
  Int. J. Cancer 121 (12) (2007) 2808-2814.
- Capillary electrophoresis for the quality control of chondroitin sulfates in raw materials and formulations.
  C. J. Malavaki, A. P. Asimakopoulou, F. N. Lamari, A. D. Theocharis, G. N. Tzanakakis and N. K. Karamanos.
  Anal Biochem,374 (2007) 213-220.
- Design, synthesis and evaluation of the antiproliferative activity of a series of novel fused xanthenone aminoderivatives in human breast cancer cells.
  V. Giannouli, I. K. Kostakis, N. Pouli, P. Marakos, O. Ch. Kousidou, G. N. Tzanakakis and N. K. Karamanos.
  J. Med. Chem., 50 (7) (2007) 1716-1719.
- The importance of c-Kit and PDGF receptors as potential targets for molecular therapy in breast cancer.
  A. Roussidis, A. D. Theocharis, G. N. Tzanakakis and N. K. Karamanos.
  Current. Med. Chem., 14 (7) (2007) 735-743.
- Serglycin constitutively secreted by myeloma plasma cells is a potent inhibitor of bone mineralization in vitro.
  A. D. Theocharis, C. Seidel, M. Borset, K. Dobra, V. Baykov, V. Labropoulou, I. Kanakis, E. Dalas, N. K. Karamanos, A. Sundan, A. Hjerpe.
  J. Biol. Chem., 281 (2006) 35116-35128.

Useful links

***Departmental & Personal website*:** www.chem.upatras.gr/faculty/karamanos
***Research Network*:** *www.biotargeting.upatras.gr*
Advanced Lecture Courses:
www.febs-mpst2013.upatras.gr, www.febs-mpst2011.upatras.gr, www.febs-mpst2009.upatras.gr, www.chemistry.upatras.gr/febs-mpst2007,

Editorial Board Member/Journal sites:

- www.jbc.org
- www.plosone.org/static/edboard.action

- www.bentham.org/cmc
- http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1099-0801
- http://www.journals.elsevier.com/matrix-biology
- www.bentham.org/cpa
- www.bentham.org/ccb

Scientific Societies/ administrative board member: www.eebmb.gr