



Professor George Kollias

George Kollias is a biologist, Member of the [Academy of Athens](#), Professor of Experimental Physiology at the Medical School of the University of Athens and Director of the Immunology Division at the Biomedical Sciences Research Center "[Alexander Fleming](#)", where he served as President and Scientific director from 2002-2010.

Dr. Kollias has pioneered genetic approaches to study the function of cytokine signaling in animal models of human diseases, with specific focus on Tumor Necrosis Factor (TNF). His lab is renowned for proof of principle preclinical studies that led to the development of anti-TNF therapies for rheumatoid arthritis and for advancing knowledge on molecular and cellular mechanisms driving chronic inflammation and autoimmunity (e.g. Rheumatoid Arthritis, Inflammatory Bowel Disease and Multiple Sclerosis). Dr. Kollias has published over [160 primary research articles](#) in peer-reviewed journals and more than 40 reviews and commentaries (>26.000 citations, h-index 72 Source: [Google Scholar](#)). His laboratory is supported by several competitive grants from the European Commission and national sources, as well as by the pharmaceutical industry. He was recently awarded an Advanced Grant from the European Research Council ([ERC](#)) to study the role of mesenchymal cells in intestinal tissue homeostasis and pathophysiology.

Dr. Kollias has led several efforts for the development of biomedical infrastructures of scientific and technological excellence at a national and European level that have contributed decisively to the support of a new generation of Greek scientists. Animal models developed in his lab have been distributed to numerous academic and industrial laboratories around the world (over 200 MTAs in the last ten years). In 2005 he founded the first CRO-biotech spin-off of BSRC Fleming, [Biomedcode Hellas SA](#).

Since 2000 Dr. Kollias is an elected member of the European Molecular Biology Organization ([EMBO](#)). He served as the National Representative of Greece at ESFRI (2010-2012) and as member of the [ESFRI](#) strategic working group on Health and Food from 2011 to date. Dr. Kollias served as Chair of the ERC Starting grants Review panel for Immunity and Infection (2012 and 2013). He was elected President of the Council of the Directors of the Greek Research Centers (2009-2010) and member of the National Council on Research and Technology of the Ministry of Development (2001-2003 and 2005-2009). Dr. Kollias is Member of the Biosciences Steering Group of the European Academies Science Advisory Panel ([EASAC](#)) since 2014. In 2014, he was awarded the [Carol-Nachman Award](#) for Rheumatology and in 2015 he received the first [Galien Scientific Research Award](#) at the Prix Galien Greece.

PERSONAL DATA

Date and Place of Birth: 9 November 1958, Athens-Greece
Nationality: Greek
Address: Μικράς Ασίας 75, 11527 – Γουδή, Αθήνα
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Marital status: Married, 2 Children

EDUCATION

1987 **Ph.D. in Molecular Biology**, University of Athens, Greece
1980 **Biology Degree**, University of Athens, Greece

HONORARY POSITIONS

Since 2013 **Elected Member of the Academy of Athens**
Since 2012 **Honorary Member of the Greek Rheumatology Society & Professional Association for Rheumatologists**

PROFESSIONAL APPOINTMENTS

2012 - present **Professor of Physiology**, Medical School, University of Athens, Greece
2010 - present **Director, Division of Immunology**, BSRC Fleming, Athens, Greece
2002 - 2010 **President and Scientific Director**, BSRC Fleming, Athens, Greece
2000 - 2002 **Director** of the Institute of Immunology, BSRC Fleming, Athens, Greece
1989 - 2002 **Research Scientist**, Group Leader, Hellenic Pasteur Institute, Athens, Greece
1987 - 1989 On a compulsory military service – Greek Air force
1985 - 1987 **EMBO postdoctoral fellow**, National Institute for Medical Research, Laboratory of Gene Structure and Expression, Mill Hill, London, UK
1981 - 1984 **PhD Student**, National Hellenic Research Foundation, Athens, Greece

PROFESSIONAL EXPERTISE

- Molecular Biomedicine / Molecular Genetics / Molecular Physiology / Cell biology
- Molecular and cellular mechanisms of disease pathogenesis
- Transgenic Animal Models of Chronic Human Diseases (Rheumatoid Arthritis, Sepsis, Multiple Sclerosis, Inflammatory Bowel Disease)
- Biology of Cytokines (with emphasis on Tumor Necrosis Factor - TNF)
- Mechanisms of gene regulation, expression and biological function

MAJOR DISCOVERIES

- (As a postdoc) – introduced transgenesis in the lab of Frank Grosveld, NIMR, Mill Hill, London and discovered Locus Control Regions for the β -globin gene locus. (*Grosveld et. al., Cell, 1987*)
- Original *in vivo* proof of principle studies on deregulated TNF production being causal to the development of chronic polyarthritis in a transgenic animal model and that anti-TNF treatment prevents development of disease. These studies provided the preclinical rational that drove the development of anti-TNF therapies for Rheumatoid Arthritis (*Keffer et. al., EMBO J, 1991*)
- First description of physiological functions of TNF in host defense and the structure and function of secondary lymphoid organs (*Pasparakis et.al., J Exp Med, 1996 - Citations: 924*). Further mechanistic insights into the differential functions of transmembrane and soluble TNF in pathophysiology. (*Alexopoulou et. al., Eur J Immunol, 1997*)
- First genetic evidence on the physiology and post-transcriptional role of AU-rich elements (AREs) in the regulation of TNF expression, and introduction of new animal models with combined Crohn's-like IBD and chronic inflammatory polyarthritis (*Kontoyiannis et al., Immunity, 1999; Kontoyiannis et al., EMBO J. 2001; Kontoyiannis et al., J. Exp. Med, 2002*)
- First mechanistic evidence on multi-layered roles for TNF and receptors in EAE and original formulation of the hypothesis that anti-TNFR1 therapies will be advantageous and safer to current anti-TNF treatments, particularly for organ-specific autoimmune diseases such as MS. (*Kassiotis et. al., J Exp Med, 2001*)
- Introduction of a novel concept for receptor shedding as a mechanism to set up thresholds of cytokine function to balance resistance and susceptibility to disease (*Xanthoulea et al., J. Exp. Med. 2004*)
- Establishment of follicular dendritic cell-specific pathways in the regulation of humoral B cell responses and autoimmunity (*Victoratos et al., Immunity 2006; Victoratos et al., Immunity, 2009*)
- Introduction of a novel mechanistic concept for TNF function in gut and joint pathologies: Demonstration that mesenchymal cells are common pathogenic targets of TNF sufficient to drive chronic inflammatory joint and gut pathologies (*Armaka et al., J. Exp. Med., 2008*)
- Evidence that intestinal epithelial and mesenchymal cells can form a cellular axis of TNF function in the gut that is sufficient to cause the full spectrum of pathology seen in relevant human diseases including spondyloarthropathies (*Roulis et al., PNAS, 2011*)
- Novel hypothesis that dysregulations at the mesenchymal cell compartment may be causal to chronic inflammatory and tumorigenic pathologies (*Koliaraki et al., J. Clin. Invest., 2012*)
- Uncovering the cellular basis of systemic TNF toxicity laying the ground for safe and effective TNF-based antitumor treatment strategies (*Van Hauwermeiren et al., J Clin Invest, 2013*)

SELECTED PUBLICATIONS

1. Van Hauwermeiren F, Armaka M, Karagianni N, Kranidioti K, Vandenbroucke RE, Loges S, Van Roy M, Staelens J, Puimège L, Palagani A, Berghe WV, Victoratos P, Carmeliet P, Libert C, Kollias G. (2013) Safe TNF-based antitumor therapy following p55TNFR reduction in intestinal epithelium. **J Clin Invest.** 123(6):2590-603
2. Koliarakis V, Roulis M, Kollias G. (2012) Tpl2 regulates intestinal myofibroblast HGF release to suppresses colitis-associated tumorigenesis. **J. Clin. Invest.** 122(11):4231–4242.
3. Roulis M, Armaka M, Manoloukos M, Apostolakis M and Kollias G. (2011) Intestinal epithelial cells as producers but not targets of chronic TNF suffice to cause murine Crohn-like pathology. **Proc. Natl. Acad. Sci. USA** 29, 108:5396-401.
4. Tzima S, Victoratos P, Kranidioti K, Alexiou M and Kollias G. (2009) Myeloid heme oxygenase-1 regulates innate immunity and autoimmunity by modulating IFN- β production. **J Exp Med** 206:1167-1179.
5. Victoratos P, Kollias G. (2009) Induction of Autoantibody-Mediated Spontaneous Arthritis Critically Depends on Follicular Dendritic Cells. **Immunity.** 30:130-42.
6. Armaka M, Apostolaki M, Jacques P, Kontoyiannis DL, Elewaut D and Kollias G. (2008) Mesenchymal cell targeting by TNF as a common pathogenic principle in chronic inflammatory joint and intestinal diseases. **J Exp Med** 205:331-7.
7. Victoratos P, Lagnel J, Tzima S, Alimzhanov MB, Rajewsky K, Pasparakis M, Kollias G. (2006) FDC-specific functions of p55TNFR and IKK2 in the development of FDC networks and of antibody responses. **Immunity** 24:65-77.
8. Xanthoulea S, Pasparakis M, Kousteni S, Brakebusch C, Wallach D, Bauer J, Lassmann H, Kollias G. (2004) Tumor necrosis factor (TNF) receptor shedding controls thresholds of innate immune activation that balance opposing TNF functions in infectious and inflammatory diseases. **J Exp Med.** 200:367-76.
9. Kontoyiannis D, Boulougouris G, Manoloukos M, Armaka M, Apostolaki M, Pizzaro T, Kotlyarov A, Forster I, Flavell R, Gaestel M, Tsichlis P, Cominelli F. and Kollias G. (2002) Genetic dissection of the cellular pathways and signaling mechanisms in modeled tumor necrosis factor-induced Crohn's-like inflammatory bowel disease. **J. Exp. Med.** 196:1563-74.
10. Kassiotis G. and Kollias G. (2001) Uncoupling the proinflammatory from the immunosuppressive properties of tumor necrosis factor (TNF) at the p55 TNF receptor level: implications for pathogenesis and therapy of autoimmune demyelination. **J Exp Med.** 193:427-434.
11. Kontoyiannis D., Kotlyarov S., Carballo E., Alexopoulou L., Blackshear PJ., Gaestel M., Davis R., Flavell R. and Kollias G. (2001) Interleukin-10 targets p38 MAPK to modulate ARE-dependent TNF mRNA translation and limit intestinal pathology. **EMBO J.** 20:3760-70
12. Kontoyiannis D., Pasparakis M., Pizzaro Th., Cominelli F. and Kollias G. (1999) Impaired on/off regulation of TNF biosynthesis in mice lacking TNF AU-rich elements: implications for joint and gut-associated immunopathologies. **Immunity** 10:387-398
13. Douni, E. and Kollias, G. (1998) A critical role of the Tumor Necrosis Factor Receptor (p75 TNF-R) in organ inflammation independent of TNF, Lymphotoxin α , or the p55TNF-R. **J. Exp. Med.** 188:1343-1352
14. Pasparakis M., Alexopoulou L., Grell M., Pfizenmaier K., Bluethmann H. and Kollias G. (1997) Peyer's patch organogenesis is intact yet formation of B lymphocyte follicles is defective in peripheral lymphoid organs of mice deficient for tumour necrosis factor and its 55kDa receptor. **Proc. Natl. Acad. Sci. USA** 94:6319-6323.
15. Alexopoulou L., Pasparakis M. and Kollias G. (1997) A murine transmembrane Tumour Necrosis Factor (TNF) transgene induces arthritis by cooperative p55/p75 tumour necrosis factor receptor signalling. **Eur. J. Immunol.** 27:2588-2592
16. Pasparakis M., Alexopoulou L., Episkopou V. and Kollias G. (1996). Immune and inflammatory responses in TNF α deficient mice: a critical requirement for TNF α in the formation of primary B cell follicles, follicular dendritic cell networks and germinal centres and in the maturation of the humoral immune response. **J. Exp. Med.** 184:1397-1411
17. Keffer J., Probert L., Georgopoulos S., Cazlaris H., Kaslaris E., Kioussis D. and Kollias G. (1991) Transgenic mice expressing human tumour necrosis factor: a predictive genetic model of arthritis. **EMBO J.** 10:4025-4031
18. Grosveld F., Blom van Assendelft G., Greaves D. and Kollias G. (1987) Position independent, high level expression of the human β -globin gene in transgenic mice. **Cell** 51:975-985