

Curriculum vitae

Family name: Detsika

First name: Maria

Date of birth: 21-12-1978

email address: mdetsika@med.uoa.gr

Home address: 7 K. Varnali st, Pefki, Athens, Greece

Current position:

05/2017 to present: 1st Department of Critical Care Medicine & Pulmonary Services, GP Livanos and M Simou Laboratories, School of Medicine, (National and Kapodistrian University of Athens Evangelismos Hospital, Thorax foundation.

Previous positions:

10/2015-09/2016: Postdoctoral Research Fellow (Prof E.A Lianos). Division of Nephrology. (National and Kapodistrian University of Athens Aretaieio University Hospital). Thorax foundation.

2011-09/2015: Postdoctoral Research Associate (Prof E.A Lianos). 1st Department of Critical Care Medicine & Pulmonary Services, GP Livanos and M Simou Laboratories, School of Medicine, (National and Kapodistrian University of Athens Evangelismos Hospital), Thorax foundation.

2009-2011: Postdoctoral Research Associate. Department of Hygiene, Epidemiology and Medical Statistics. School of Medicine. National and Kapodistrian University of Athens. Athens, Greece.

2007 -2008: Postdoctoral Research Fellow in the Lung Cancer Signal Transduction Group of the Department of Oncology, Division of Surgery, Oncology, Reproductive Biology and Anaesthetics. Imperial College, London, UK.

Education:

2002-2006. PhD. Evolution of minority species of HIV harbouring drug resistance. Dept of Pharmacology and Therapeutics and Dept of Med. Micro and GUM. **University of Liverpool.** Liverpool, UK.

2001-2002. MRes (by research): Genetic variation amongst isolates of *Burkholderia cepacia*. Department of Med. Micro and GUM. **University of Liverpool.** Liverpool, UK

1997-2001: BSc Hon. Microbiology. Dept of Biological Sciences. **University of Liverpool.** Liverpool, UK.

Teaching activities (2017-2020).

Postgraduate Master's taught courses:

1) Molecular and Applied Physiology postgraduate Master's course. School of medicine, National and Kapodistrian University of Athens (<http://molecularandappliedphysiology.med.uoa.gr/>).

Lecture title: Physiology of the renal glomerulus.

2) "Neoplastic Disease in Humans: Research and Clinicopathologic Approach in the Context of Precision Medicine (Diagnosis and Targeted Treatment)" postgraduate Master's course. School of medicine, National and Kapodistrian University of Athens (<https://www.neoplasticdisease.gr/>).

Lecture Title: The role of complement cascade in cancer.

Teaching of training nephrologists:

Teaching training nephrologists in the Nephrology Clinic of Aretaieion University Hospital. School of Medicine National and Kapodistrian University of Athens. Lecture series on complement cascade, complement mediated renal diseases, complement mediated renal models of disease in rodents and their use for research studies in order to explore underlying mechanisms of complement mediated renal diseases.

- Extensive experience of laboratory training of postgraduate students and mentoring of MSc students (National and Kapodistrian University of Athens).
- Laboratory demonstrating in MSc and undergraduate course laboratory sessions (University of Liverpool, Imperial College London).

Funding:

- **Hellenic Cardiology Society, HCS.** Funding of Research Project.

Principal Investigator, (PI): M. G. Detsika

Project Title: Role of Resveratrol in defending coronary endothelium against Complement activation.

Duration: 01/01/2019-31/12/2019.

- **Amgen Pharmaceuticals**, Athens, Greece.

Funding of Research Project.

Project Title: Role of HO-1 in mediating anti-inflammatory effects of EPO in the kidney

Duration: 2015-2016.

Role: Co-Investigator

- **Research and Experimental Centre of ELPEN Pharmaceutical company**, Pikermi, Greece.

Project Title: Regulation of Glomerular DAF by Heme: Role of HO-1.

Scholarship grant to M. G. Detsika

Duration: 2012-2014.

Role:PI

Awards: Regulation of Glomerular DAF by heme: Role of HO-1. **Maria G. Detsika***, P. Duann, E A. Lianos. **Award for Basic Research.** 38th Panhellenic Medical Congress. May 2011.

Publications as Author of Correspondence:

Regulation of Complement Activation by Heme Oxygenase-1 (HO-1) in Kidney Injury. **Detsika MG**, Lianos EA. *Antioxidants (Basel)*. 2021 Jan 6;10(1):60. doi: 10.3390/antiox10010060.

Generation of a novel decay accelerating factor (DAF) knock-out rat model using clustered regularly-interspaced short palindromic repeats, (CRISPR)/associated protein 9 (Cas9), genome editing. **Detsika MG**, Goudevenou K, Geurts AM, Gakiopoulou H, Grapsa E, Lianos EA. *Transgenic Res*. 2021 Jan 2. doi: 10.1007/s11248-020-00222-x.

Induction of decay accelerating factor and membrane cofactor protein by resveratrol attenuates complement deposition in human coronary artery endothelial cells. **Detsika MG**, Myrtsi ED, Koulocheri SD, Haroutounian SA, Lianos EA, Roussos C *Biochem Biophys Rep*. 2019;19:100652. Published 2019 May 27. doi:10.1016/j.bbrep.2019.100652

Heme Oxygenase 1 Up-Regulates Glomerular Decay Accelerating Factor Expression and Minimizes Complement Deposition and Injury. **Detsika MG**, Duann P, Atsaves V, Papalois A, Lianos EA. *Am J Pathol*. 2016 Nov;186(11):2833-2845. doi: 10.1016/j.ajpath.2016.07.009.

Effect of Heme Oxygenase-1 Deficiency on Glomerular Proteomics. **Detsika MG**, Lygirou V, Frantzis V, Zoidakis J, Atsaves V, Poulaki E, Gakiopoulou H, Vlahou A, Lianos EA. *Am J Nephrol*. 2016;43(6):441-50. doi: 10.1159/000446859.

Presence of an HO-1 expression threshold in renal glomeruli. **M. G. Detsika**, V. Atsaves, A. Papalois, E. A. Lianos. *Data in Brief*, Volume 5, December 2015, 921-925. doi: 10.1016/j.dib.2015.11.001.

HO-1 expression control in the rat glomerulus. **M. G. Detsika**. P. Duann. E. A. Lianos. *Biochem Biophys Res Commun*. 2015 May 8;460(3):786-92. doi: 10.1016/j.bbrc.2015.03.107. Citations: 4.

Publications as first author/co-author:

A novel ratio of CD8⁺:B-cells as a prognostic marker of coronavirus disease 2019 patient progression and outcome. **Maria G. Detsika**, Kleio Ampelakiotou, Eirini Grigoriou, Katherina Psarra, Edison Jahaj, Charis Roussos, Ioanna Dimopoulou, Stylianos E. Orfanos, Alexandra Tsirogianni, Anastasia Kotanidou. *Virology*, 2021, ISSN 0042-6822, <https://doi.org/10.1016/j.virol.2021.01.002>.

Vitamin D deficiency correlates with a reduced number of natural killer cells in intensive care unit (ICU) and non-ICU patients with COVID-19 pneumonia. Vassiliou AG, Jahaj E, Pratikaki M, Keskinidou C, **Detsika M**, Grigoriou E, Psarra K, Orfanos SE, Tsirogianni A, Dimopoulou I, Kotanidou A. *Hellenic J Cardiol*. 2020 Dec 9;S1109-9666(20)30284-0. doi: 10.1016/j.hjc.2020.11.011.

Podocyte-targeted Heme Oxygenase (HO)-1 overexpression exacerbates age-related pathology in the rat kidney. Poulaki E, **Detsika MG**, Fourtziola E, Lianos EA, Gakiopoulou H. *Sci Rep*. 2020 Mar 31;10(1):5719. doi: 10.1038/s41598-020-62016-9.

- Phenotypic characterization of a novel HO-1 depletion model in the rat. Atsaves V, **Detsika MG**, Poulaki E, Gakiopoulou H, Lianos EA. *Transgenic Res.* 2017 Feb;26(1):51-64. doi: 10.1007/s11248-016-9986-9.
- Glomerular Epithelial Cells-Targeted Heme Oxygenase-1 Over Expression in the Rat: Attenuation of Proteinuria in Secondary But Not Primary Injury. Atsaves V, Makri P, **Detsika MG**, Tsirogianni A, Lianos EA. *Nephron.* 2016;133(4):270-8. doi: 10.1159/000445755.
- High prevalence of the UGT1A1*28 variant in HIV-infected individuals in Greece. Panagopoulos P, Paraskevis D, Katsarolis I, Sypsa V, **Detsika M**, Protopapas K, Antoniadou A, Papadopoulos A, Petrikkos G, Hatzakis A. *Int J STD AIDS.* 2014 Oct;25(12):860-5. doi: 10.1177/0956462414523259.
- microRNAs and HIV: a complex and promising relationship. **M. G. Detsika**, A. Psaris, D. Paraskevis and A. Hatzakis. *AIDS Rev.* 2012 Jul-Sep;14(3):188-94. Citations: 12
- Appearance of a single amino acid insertion at position 33 (L33L-L) in HIV-1 protease under a LPV-containing regimen, associated with reduced protease inhibitor susceptibility. E. Magiorkinis, D. Paraskevis, **M. G. Detsika**, L. Lu, G. Magiorkinis, M. Lazanas, S. Imbrechts, K. Van Laethem, A-M Vandamme, T. Pilot-Matias, A. Molla, R. Camacho A. Hatzakis. *AIDS Res. Hum. Retroviruses.* 2011 Nov;27(11):1223-9. doi: 10.1089/AID.2010.0275.
- Comparative evaluation of the performance of the Abbott RealTime HIV assay for measurement of HIV-1 plasma viral load on genetically diverse clinical samples. A. Katsoulidou, C. Rokka, C. Issari, C. Haida, K. Tzannis, V. Sypsa, **M. Detsika**, D. Paraskevis and A. Hatzakis. *Virology.* 2011 Jan 11;8:10. doi: 10.1186/1743-422X-8-10. Citations: 16
- Review of the 8th European HIV Drug Resistance Workshop. **M. G. Detsika** and D. Paraskevis. (2010) *AIDS Hellenic Archives.*
- Magiorkinis E, **Detsika M**, Hatzakis A, Paraskevis D Monitoring HIV drug resistance in treatment-naïve: molecular indicators, epidemiology and clinical implications. *HIV Ther.* 2009;3:369-390. Citations:1.
- Detsika MG**, Chandler B, Khoo SH, Winstanley C, Cane P, Back DJ, Owen A. (Oct 2007). Detection and quantification of minority HIV isolates harbouring the D30N mutation by real-time PCR amplification. *J. Antimicrob. Chemoth.* 60:881-884. Citations:7
- Ippokratis Messaritakis, **Maria Detsika**, Maria Koliou, Stavros Sifakis, Y. Tselentis, Maria Antoniou (2008). Genotypes of *Toxoplasma gondii* from Crete and Cyprus characterized directly from biological material using polymerase chain reaction and restriction fragment length polymorphism. *Am J Trop Med Hyg.* 2008 Aug;79(2):205-9. Citations: 21
- Chandler B, **Detsika M**, Owen A, Evans S, Hartkoorn RC, Cane PA, Back DJ, Khoo SH. Effect of transporter modulation on the emergence of nelfinavir resistance in vitro. *Antivir Ther.* 2007;12(5):831-4. Citations: 7.
- Chandler B, **Detsika M**, Khoo SH, Williams J, Back DJ, Owen A. Factors impacting the expression of membrane-bound proteins in lymphocytes from HIV-positive subjects. *J Antimicrob Chemother.* 2007 Sep;60(3):685-9. Citations: 17.
- Detsika, M.G.**, Corkill, J. E., Magalhães, Glendinning, K. J., Hart, C. A. and C. Winstanley. (2003). Molecular typing of, and distribution of genetic markers among, *Burkholderia cepacia* complex isolates from Brazil. *J. Clin. Microbiol.* 41:4148-4153. Citations: 27.
- Parsons, Y. N., Banasko, R., **Detsika, M.G.**, Duangsonk K., Rainbow L., Hart, C. A. and Winstanley, C. (2003). Suppression-subtractive hybridisation reveals variations in gene distribution amongst the *Burkholderia cepacia* complex, including the presence in some strains of a genomic island containing putative polysaccharide production genes. *Arch. Microbiol.* 179:214-223. Citations: 25.
- Winstanley, C., **Detsika, M.G.**, Glendinning, K.J., Parsons, Y.N. and Hart C.A. (2001) Flagellin gene PCR-RFLP analysis of a panel of strains from the *Burkholderia cepacia* complex. *J. Med. Microbiol.* 50:728-731. Citations: 15.

Scientific Meetings Presentations:

Oral Presentations:

Immune phenotype analysis of COVID-19 patients. **M.G. Detsika***, K. Ampelakiotou, E. Grigoriou, K. Psarra, V. Kitsiou, E. Jahaj, H. Giatra, C. Roussos, I. Dimopoulou, S. E. Orfanos, M. Pagoni, A. Tsirogianni, Anastasia Kotanidou. 31st Panhellenic Congress of Hematology. October, 2020. Athens, Greece.

Regulation of glomerular DAF by HO-1. **M. G. Detsika***, P. Duann, E A. Lianos. American Society for Nephrology (ASN) Kidney week, October (2013), Atlanta, USA.

Heme Oxygenase-1 depletion: Structural/ functional consequences in the rat kidney. Hariklia Gakiopoulou*, V. Atsaves, **M. Detsika**, E. Poulaki, ^[1]_[SEP]E. A. Lianos. 26th European Congress of Pathology 30 August – 3 September, (2014), London, UK.

Regulation of Glomerular DAF by Heme: Role of HO-1. **Maria G. Detsika***, P. Duann, E A. Lianos. 17th Panhellenic Nephrology Conference, Kilini, Greece, (2012).

Selected Poster Presentations (Conferences and Scientific Meetings).

A novel transgenic rat model of DAF depletion by CRISPR/ associated protein 9 (Cas9) genome editing. Maria G. Detsika, H. Gakiopoulou, E. Grapsa, Elias A. Lianos. American Society of Nephrology (ASN) Kidney Week Reimagined, October 2020. Online participation.

Metalloporphyrins (MPs) induce functionally active glomerular DAF: Role of HO-1. Maria G. Detsika*, P. Duann, E A. Lianos. XXV International Complement workshop, Sep 14-18, Rio de Janeiro, Brazil, 2014. XXV International Complement workshop, Sep 14-18, Rio de Janeiro, Brazil, 2014.

Metalloporphyrins (MPs) induce glomerular DAF expression: Role of HO-1. Maria G. Detsika*, P. Duann, E A. Lianos. 51st Congress of European Renal Association- European Dialysis Transplant Association (ERA-EDTA). Amsterdam, Holland. 31 May-3 June 2014.

Mechanism of glomerular HO-1 regulation. Maria G. Detsika*, P. Duann, E A. Lianos. 50th Congress of European Renal Association- European Dialysis Transplant Association (ERA-EDTA). Istanbul, Turkey. 18-21 May 2013.

Regulation of Glomerular DAF by Heme: Role of HO-1. Maria G. Detsika*, P. Duann, E A. Lianos. Accepted for poster presentation, American Society for Nephrology (ASN) Kidney week, October (2012), San Diego, USA, United States.

High prevalence of the UGT1A1*28 variant in HIV-infected individuals in Greece. Panagopoulos P., D Paraskevis, V Sypsa, M Detsika, K Protopapas, V Sakka, G Poulakou, A Papadopoulos, G Petrikkos, A Hatzakis. Tenth International Congress on Drug Therapy in HIV Infection, Glasgow, UK. 7-11 November (2010).

Resistance levels in patients failing first line PI or NNRTI combination therapy in Greece. D. Paraskevis, M. Detsika, G. Magiorkinis, E. Magiorkinis, A. Zavitsanou, M. Lazanas, M. Chini, V. Papparizos, A. Kourkounti, A. Antoniadou, A. Papadopoulos, G. Poulakou, H. G. Chryssos, Sabatakou, G. Daikos, M. Psychogiou, P. Gargalianos, G. Xylomenos, T. Kordossis, A. Skoutelis, A. Hatzakis. (2010). 8th European HIV Drug Resistance Workshop, Sorrento, Italy.

Resistance levels in antiretroviral-experienced patients previously failing a boosted PI or an NNRTI therapy in an observational clinical setting. M. Detsika*, D. Paraskevis, G. Magiorkinis, E. Magiorkinis, M. Lazanas, M. Chini, V. Papparizos, A. Kourkounti, P. Gargalianos, G. Xylomenos, A. Antoniadou, A. Papadopoulos, P. Panagopoulos, H. Sabatakou, G. Chryssos, G. Daikos, M. Psychogiou, A. Skoutelis, T. Kordossis, M. Theodoridou, A. Hatzakis. (2010). 8th European HIV Drug Resistance Workshop, Sorrento, Italy.

Prevalence of HIV drug resistance and transmission patterns in naïve individuals in Greece during 2002-2008. D Paraskevis, E. Magiorkinis, M. G. Detsika, M. Lazanas, M. Chini, N. Magafas, V. Papparizos, A. Antoniadou, A. Papadopoulos, P. Panagopoulos, G. Poulakou, G. Chryssos, H. Sambatakou, M. Psychogiou, G. Petrikkos, P. Gargalianos, G. Chilomenos, G. Panos, S. Drimis, T. Kordossis, M. Theodoridou, A. Hatzakis. (2009). 12th European AIDS Conference/EACS. Cologne, Germany.

ATM plays a role in the IFN- γ response. Maria G. Detsika*, Diane Watling, Ana Costa-Pereira. 'BACR/RSM Cell Signalling and novel cancer therapeutics' 2007 conference. London, UK

Correlation between P-glycoprotein and CXCR4 on PBMC and CD4+ cells isolated from HIV+ individuals. B. Chandler, S. Khoo, M. Detsika, T. Walsh, J. Williams, D. Back and A.Owen. 12th Conference on Retroviruses and Opportunistic Infections (CROI, 2005) Boston, Massachusetts. USA.

Evolution of HIV-1, under PI drug pressure, in the presence and absence of a P-gp inhibitor. Maria G. Detsika*, B. Chandler, A. Owen, C. Winstanley, S. H. Khoo and D. J. Back. 3rd European HIV Drug Resistance Workshop. (2005) Athens, Greece.

Detection of minority strains of HIV harbouring drug resistance. Maria G. Detsika*, C. Winstanley, A. Owen, S. H. Khoo, D. J. Back and C. A. Hart. 44th Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC, 2004) Washington DC, USA.

Reviewer: Member of the reviewer board of the **Antioxidants** journal (MDPI).

Professional Memberships

2014-present: Member of the **International Complement Society. (ICS).**

2019-present: Member of the **Hellenic Society of Immunology (HELSIM).**

Research Interests/Personal statement

Dr Detsika has a strong interest in Immunology and manipulation of immunological responses in order to control disease progression. Her training in Immunology began during her PhD on human immunodeficiency virus (HIV) during which she assessed viral responses to antiretroviral therapies and used pharmacological compounds in order to modulate viral resistance mechanisms and achieve sustained therapeutic effects. During her PhD she obtained a strong background on molecular biology techniques as well as cellular biology methods and optimized molecular biology techniques for detection of viral variants. She attained knowledge on use of pharmacological compounds (protease inhibitors) for *in-vitro* studies, handling (culture and maintenance) of viral isolates as well as in-depth understanding of viral immune responses. Following her PhD, she held a postdoctoral position at Imperial College, London, in the Department of Oncology where she focused on JAK-STAT cell signalling pathways and their role on the ataxia telangiectasia mutated (ATM) pathway in response to IFN-gamma. She obtained major experience on defining the role of signalling molecules of both pathways in modulating responses to immunological stimuli and assessing the effects of transcriptional regulation of these molecules on control of the immunological response.

Upon her return to Greece she returned to the field of HIV research as a postdoctoral research associate in the Department of Hygiene, Epidemiology and Medical Statistics of the National and Kapodistrian University of Athens where she was mainly involved in epidemiological studies on HIV resistance by means of computational analysis. Although, this was relevant to her previous field of expertise, her passion and drive for basic research on immunological responses to disease initiating antigens lead her to her position in Research Centre of Intensive and Emergency Thoracic Medicine, 1st Department of Critical Care Medicine & Pulmonary Services Laboratories, Evangelismos Hospital, School of Medicine, National and Kapodistrian University of Athens, Thorax Foundation. In 2011 she joined Dr E.A. Lianos's team 'Pathobiology of kidney secondary to immune-mediated mechanisms' in Thorax Foundation where she developed a keen interest in mechanisms controlling complement activation in the course of antibody-mediated complement-dependent inflammatory injury.

During the last eight years she has achieved a strong background and understanding of complement and has focused on complement mediated kidney injury, specifically on C3 glomerulopathy, a new clinical entity, in need of novel therapeutic approaches. Specifically, her goal initially, was to determine the relationship between a well-known cytoprotective enzyme, heme oxygenase (HO)-1 and the complement controller protein, decay accelerating factor (DAF), in the kidney glomerulus. HO-1

is an antioxidant enzyme which degrades heme into anti-apoptotic and antioxidant products, such as carbon monoxide (CO), biliverdin and bilirubin. HO-1 has been previously shown to be activated in models of complement mediated glomerular injury *in-vivo* and its role remains undetermined in various complement mediated renal pathological conditions including C3 glomerulopathy as well as hemolytic conditions which involve high heme concentrations. Dr Detsika established the role of HO-1 as a physiological regulator of glomerular DAF and demonstrated that activation of DAF, through HO-1 overexpression, minimizes complement mediated glomerular injury in a rat model of complement mediated glomerulonephritis (Detsika et.al Am J Pathol, 2016). She also tested naturally occurring, as well as synthetic, compounds, Metalloporphyrins, which are inducers or inhibitors of HO-1 enzyme for glomerular DAF induction and determined their ability to minimize complement activation and C3 deposition *in-vitro* (Detsika et.al. Am J Pathol, 2016). In order to achieve this she used *in-vivo* models of glomerular injury on wild type and transgenic rats as well as *in-vitro* models of complement activation in glomeruli suspensions. Furthermore, during her position she characterized glomerular HO-1 expression as well as the effect of HO-1 absence on the glomerular proteomic profile thus obtaining experience on proteomic analysis (Detsika et.al. Am J Nephrol, 2016). She was in charge of maintaining two transgenic rat colonies, a HO-1 depleted rat colony (heterozygous, *hmx1*^{+/-}), which were successfully bred in order to obtain HO-1 knock out (*hmx1*^{-/-}) animals (Atsaves et.al. Transgenic Res. 2017) and a colony of rats with HO-1 overexpression targeted to glomerular epithelial cells (GEC^{HO-1}). Dr Detsika later observed the relationship of HO-1 and DAF in human coronary artery endothelial cells under a different stimulant (resveratrol) thus confirming the the role of HO-1 as a physiological regulator of DAF in another system (Detsika et. al., Biochem Biophys Rep. 2019).

Her main research interest currently lies in unravelling possible mechanistic pathways in which complement participates and via which it may influence/cause diseases both complement mediated such as complement mediated nephropathies and other diseases in which complement is known to play a role (sepsis). Furthermore, she is currently pre-occupied in assessing a possible involvement of complement in the newly identified COVID-19 disease.