Curriculum Vitae

IOANNIS PETRAKIS

HERAKLION 2025

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1. Personal details, academic qualifications, and doctoral thesis.

FULL NAME Ioannis Petrakis, son of Georgios

DATE OF BIRTH 08/05/1984

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EDUCATION

Graduate of the 2nd General Unified Lyceum of Heraklion, Crete. Admitted to the Medical School of the University of Crete after passing the Panhellenic Examinations (Admission Rank^{9th}). During my studies, I participated in a student exchange program with Boston University (August 2005, Center of Advanced Biomedical Research, Cardiovascular Institute, Dept. Of Medicine, Professor Vasilis Zannis, Department of Molecular Genetics). Graduated with a VERY GOOD grade (7.86 - Graduation Rank 5(th)).

DOCTORAL THESIS

Doctoral Thesis entitled: **"Mechanisms of Renal Damage in Familial Amyloid Polyneuropathy"** University of Crete, Medical School. The doctoral thesis began in 2009 and was completed and defended in 2014 with a grade of "Excellent."

SPECIALIZATION IN NEPHROLOGY

Acquisition of a specialty title in Nephrology - Pathology after successful examinations in 2019 in the Federal Republic of Germany in the federal state of SAARLAND.

2. Participation in medical associations and scientific societies

Heraklion Medical Association

Saarland Medical Association

Society for the Study of Hereditary Nephrological Diseases of Crete

- Elected as vice-president in 2023 – KIDS Crete

Hellenic Nephrology Society

- Member of the Education Committee of the Hellenic Nephrology Society (since 2023).

International Society of Nephrology

European Renal Association

American Society of Nephrology

3. Work Experience

I. **Mediterranean Dialysis Holiday Center, Heraklion, Crete, 2009-2012.** As part of this collaboration, I began recording all patients who were monitored at the regular nephrology outpatient clinic and realized the burden of morbidity and mortality that patients with advanced chronic kidney disease bear. Having gained experience in basic research during my student years in Professor V. Zannis at Boston University, I further developed my research skills through my participation in the research nephrology laboratory at the University of Crete. I learned to independently create experimental animal models of type I diabetes mellitus by administering streptokinase, experimental animal models of membranous nephropathy by administering anti-Fx1, and to handle experimental animals in collaboration with veterinarian K. Kouroniotis (FORTH). As part of my doctoral thesis, I was able to develop techniques for the successful embryo transfer of deep-frozen fertilized eggs to surrogate mouse mothers. I am able to independently isolate genetic material from a variety of tissues, including peripheral blood leukocytes, and isolate proteins for proteomic analysis. In addition, I can independently perform immunohistochemical studies, immunofluorescence studies, and immunoelectron microscopy studies. I can process animal tissues and perform ultra-thin sections in either paraffin or rapidly frozen kidney tissue ( ). With regard to immunohistochemistry/immunofluorescence in the renal parenchyma, I have the expertise to perform all types (e.g. direct, indirect), eliminate paratopic tissue interactions, and reveal antigenic epitopes of differential cellular localization by chemical or enzymatic means. In addition, I

can label primary or secondary antibodies with different chromophores/fluorescent molecules to enhance the local signal. Similarly, in renal parenchyma under deep freezing conditions (-210 ° C), I can perform indirect and direct immunostaining studies for the ultramicroscopic localization of antigenic epitopes using an electron microscope. I have learned to isolate glomeruli from mouse or rat kidneys using magnetic beads or differential diameter filters. At the same time, I am able to design primers and control them using polymerase chain reaction or real-time polymerase chain reaction. A special feature of my research skills is the performance and design of Western blotting and the performance of ELISA under differential detection conditions.

II. **I was an internal medicine resident at the Internal Medicine Clinic of the University General Hospital of Heraklion, Crete, under the supervision of Professor Georgios Samonis for 24 months from March 27, 2012, to March 26, 2014.** In this position, I was trained in general internal medicine with an emphasis on infectious diseases.

III. **Resident in internal medicine, Nephrology and renal transplantation at the University Medical Center Homburg Saarland under the supervision of Professor Danilo Fliser from October 13, 2014, to January 8, 2019.** The services provided were classified in salary category Ä1 of the Collective Agreement for University Doctors (TV-Ärzte) and were performed on a full-time basis. During this time, I gained extensive knowledge of key areas of internal medicine. Specifically, in the emergency department (October 2015-November 2015, June 2016-July 2016, 12.2016-03.2017 - 8

months), the Haematology-Oncology and Rheumatology Clinic (08.2016-11.2016 - 4 months) and the Internal Medicine Intensive Care Unit (Internistische Intensiv Medizin – 09.2017-02.2018-6 months). Among other things, I acquired the ability to successfully perform ultrasounds of the upper/lower abdomen, retroperitoneal space, and organs of the urogenital system (>500 examinations). In addition, I specialized in performing real-time ultrasonography (Doppler/Duplex sonography - >300 examinations) on all the vessels of the body, as well as assessing kidney grafts perioperatively or in situ using this function. Through my training in the emergency department and intensive care unit, I learned to independently apply resuscitation protocols, implant central venous catheters and arterial lines, intubation, and the basic principles of mechanical ventilation. In the Hematology-Oncology-Rheumatology clinic, I was trained in the basic principles of administering chemotherapy/immunotherapy, the principles of palliative medicine, and the diagnostic approaches to hematological and rheumatological diseases. In terms of pure nephrology training, I was trained in the various forms of renal replacement therapy. In addition to performing and prescribing hemodialysis and peritoneal dialysis, I received extensive training in kidney transplantation from both cadaveric and living donors. Specifically, I was trained in the administration of immunosuppressive therapy and the complications of kidney transplantation, both in the early post-transplant phase and in the years following transplantation. In addition, I was trained in the care of patients undergoing ABO-incompatible

renal transplantation. I received extensive training in various therapeutic removal techniques (plasmapheresis, immunoadsorption, and hemodialysis with high cut-off membranes) for the treatment of neurological (e.g., demyelinating polyneuropathy, inflammatory polyneuropathy) and hematological diseases (TTP). As a reference center, I was trained in performing renal biopsies on both endogenous and transplanted kidneys and in administering treatment for a variety of systemic/ autoimmune diseases with renal involvement, such as atypical hemolytic uremic syndrome and various forms of thrombotic microangiopathy.

IV. **Nephrologist (Facharzt) at the Nephrology Clinic of the University Medical Center Homburg, Saarland, under the direction of Professor Danilo Fliser from January 9, 2019, to January 31, 2019.** The services were provided in accordance with the German Collective Agreement for University Doctors ( ) in salary category Ä2 and were performed on a full-time basis.

V. **Senior Physician (Oberarzt) in the Nephrology Clinic of the University Medical Center Homburg, Saarland, under the direction of Professor Danilo Fliser from February 1, 2019, to January 31, 2021.** The services were provided under salary category Ä3 of the Collective Labor Agreement and were performed on a full-time basis. At this point, I took on the supervision of fellow trainees in the inpatient treatment of patients with chronic kidney disease and transplant patients. I also developed my ability to administer continuous veno-venous hemofiltration therapy to critically ill patients who were being treated in high-care/intensive care units. An

integral part of my daily clinical practice was performing kidney biopsies (on transplant and non-transplant patients) and implanting central venous catheters for dialysis. Treatment was administered to patients suffering from glomerular diseases such as vasculitis with renal involvement, SEL nephritis, membranous glomerulonephritis, minimal change disease, focal segmental glomerulosclerosis, and thrombotic microangiopathy was part of my duties. A separate part of my work involved the organisation and supervision of acute transplantation through the European transplant network Eurotransplant, as well as the immediate perioperative and postoperative care of patients with kidney transplants. Alongside my clinical work, translational clinical research held a special place. I was involved in research on the prognosis of chronic kidney disease progression. I was involved in research efforts to clarify the role of DKK3, a biomarker of tubular cell dysfunction. At the same time, I participated in research on the interaction between the cardiovascular system and chronic kidney disease. The resulting publications have been published in prestigious journals and have received worldwide attention. At the same time, I was responsible for training students as part of their clinical practice.

VI. **Consultant of Nephrology at the Nephrology Clinic of the University General Hospital of Heraklion, Crete, under the direction of Assistant Professor of Nephrology Konstantinos Stylianou from March 1, 2022, to December 1, 2024.2024.** In this position, I am responsible for the nephrological care of patients undergoing acute and chronic

dialysis at the artificial kidney unit at the University General Hospital of Heraklion. I perform interdisciplinary assessments of patients with acute or chronic kidney disease in other departments of the hospital. At the same time, I supervise therapeutic removal (plasmapheresis and immunoadsorption) in patients suffering from neurological diseases, patients with thrombotic microangiopathy, patients with severe forms of vasculitis ( ) with active pulmonary hemorrhage, and patients with autoimmune diseases. A separate part of my clinical practice is the introduction of treatment for diseases that depend on complement activation, such as atypical uremic hemolytic syndrome, vasculitis, C3 glomerulonephritis with newer complement inhibitors in the therapeutic arsenal of the nephrology department. Having extensive experience in ultrasound diagnostics, I have ensured that ultrasound examination is adopted as part of the clinical examination of vascular accesses and as a tool for assessing fluid volume and cardiac function in patients with stage 5 chronic kidney disease undergoing hemodialysis. My clinical practice goal is to fully digitize our patients' dialysis data. At the same time, I provide training in the above subjects to fellow residents who are entering the training cycle on dialysis, acute kidney disease, and therapeutic removal. An integral part of this is the development of an outpatient clinic for the monitoring and treatment of chronic kidney disease. On average, I monitor approximately 120 patient cases per month in the regular nephrology clinic, covering a wide range of medical conditions related to nephrology care. At the same time, in close collaboration with the director of the nephrology clinic,

Assistant Professor Stylianos, we are planning to upgrade the nephrology research laboratory by repairing/ modernizing the existing equipment and purchasing new equipment so that we can focus on translational research into hereditary diseases involving the kidneys. I actively participate in the courses conducted by the nephrology clinic and in the training of medical students at the University of Crete. In addition, I am a permanent member of the education committee of the Hellenic Society of Nephrology. I was a member of the organizing committee of the 24th Panhellenic Nephrology Conference. I have participated as a guest speaker in multiple conferences and workshops both in Greece and abroad. I am a reviewer for many international journals such as the International Journal of Molecular Sciences (IF 5.6) and Cells (IF 6). I am an editor for the publishing house Hindawi-Wiley, as well as for Frontiers. I was selected as a trusted reviewer for the International Journal of Molecular Sciences for the year 2023.

VII. **Assistant Professor of Nephrology, Medical School, University of Crete, with parallel clinical work at the Nephrology Clinic of the University General Hospital of Heraklion, Crete, under the direction of Associate Professor of Nephrology Konstantinos Stylianou from 01.12.2024 to the present.** Continuation and expansion of the clinical activities mentioned in part VI. with an emphasis on establishing translational research and developing a personalized therapeutic and diagnostic approach in nephrology. His research interests include finding biomarkers for the progression of renal function, the effect of complement

on renal function, and the role of the immune system in the progression of renal function.

4. Postgraduate education (until 02/2024)

I. Seminars

i. American Society of Nephrology Renal Week 2009, San Diego California, Oct. 27th – 28th In Depth Nephrology Course, Glomerulonephritis

ii. American Society of Nephrology, Renal Week 2014, Philadelphia, Pennsylvania, Diagnosis and Management of Disorders of Acid-Base Fluid and Electrolyte, Nov 11th -12th

iii. 26th Scientific and Nursing Symposium of the Saar-Pfalz-Mosel Nephrology Working Group, June 20, 2015

iv. Nephro Update Europe 2017, Vienna, October 5–8, 2017.

v. ISN World Congress of Nephrology, Feb 24-27, 2022, Kuala Lumpur Malaysia, Acid-Base and Electrolytes Course - A chance to Revisit.

vi. UpToDate Online Medical Information Platform 2019-2024: >500 CME Continuing Medical Education Credits.

II. Greek Conferences (Until 02/2024)

i. 16th Panhellenic Nephrology Conference (June 2-5, 2010, Kos)

ii. 17th Panhellenic Nephrology Conference (May 10-13, 2012, Kyllini)

iii. *2nd Nephrology Meeting, Heraklion, Crete, June 7-8, 2013*
iv. *Scientific Workshop: Rare Diseases & Orphan Drugs in Everyday Clinical Practice, Heraklion, May 7, 2014*
v. *18th Panhellenic Nephrology Conference (May 10-13, 2014, Alexandroupolis)*
vi. *22nd Panhellenic Nephrology Congress (May 13-16, 2021, Thessaloniki)*
vii. *23rd Panhellenic Nephrology Conference (June 1-5, 2022, Thessaloniki)*
viii. *24th Panhellenic Nephrology Conference (May 17-20, 2023, Heraklion, Crete)*
ix. *13th Panhellenic Congress of Interventional Radiology (May 26-28, 2023, Heraklion, Crete)*
x. *Chronic Kidney Disease, Latest Data on Diagnosis, Prevention, and Treatment, September 8-9, 2023, Ioannina*
xi. *15th Annual Continuing Education Seminar on Fluids, Electrolytes & Acid-Base Balance, September 22-23, 2023, Komotini.*

III. International Conferences (Until 02/2024)

i. *VIIth International Symposium on Familial Amyloid Polyneuropathy and 1st International Workshop on Hereditary Amyloidosis, September 2-5, 2008, London*
ii. *American Society of Nephrology, Renal Week, San Diego, California, November 2009*
iii. *XII International Symposium on Amyloidosis, April 18-21, 2010, Rome, Italy*
iv. *VIIIth International Symposium on Familial Polyneuropathy, November 20-22, 2011, Kumamoto, Japan.*

v. *American Society of Nephrology, Renal Week 2014 (Philadelphia, PA, USA)*

vi. *Biomarkers of the cardiorenal axis, January 18-19, 2018 (Würzburg, Germany)*

vii. *^{57th}ERA-EDTA Congress of Nephrology 2020 (Milan, Italy)*

viii. *^{21st}World Congress of Nephrology 2021 (Montreal, Canada)*

ix. *^{22nd}World Congress of Nephrology, Kuala Lumpur, Malaysia, 2022*

x. *^{23rd}World Congress of Nephrology, Vietnam, 2023*

xi. *^{60th}ERA Congress, Milan, Italy, June 15-18, 2023*

xii. *IX. Hellenic Society of Nephrology Meeting and Seminar combined with 18th Bantao Congress, October 19-22, 2023 Thessaloniki, Greece.*

5. Writing (Until 02/2024)

I. Authoring of chapter: Aquaporins,^{10th} cycle of continuing medical education seminars Alkyonides Nephrology Days, February 12-14, 2009

II. ^{15th}Seminar, Electrolyte and Acid-Base Balance Disorders. September 22-23, 2023, Komotini. Authored chapter: Diabetic ketoacidosis (pathophysiology, clinical picture, treatment).

6. Educational work

I. Participation in the training of students during **their clinical practice** at the Saarland University Hospital, Homburg, Germany, in 2016, 2018, and 2019.

II. **Clinical training in Pathology**: includes 3 hours of daily teaching and clinical tutorials in the clinic, outpatient clinics, hemodialysis and peritoneal dialysis units, and on-call duty for the academic years 2022, 2023, and the current year 2024. Mr. Petrakis always takes on a group of students throughout the semester.

III. **Pathology A:** pre-clinical training for third-year students with a 4-hour program 3 times a week for the entire semester, for the academic years 2022, 2023, and the current year 2024. Mr. Petrakis takes on all student groups throughout the semester.

IV. **Pathophysiology B:** The program includes 8 two-hour courses and requires at least 12 hours of preparation for each. Specifically, he taught 4 of the 8 courses: Hyponatremia, Hypernatremia, Hyperkalemia, Hypokalemia

V. **Fluid, Electrolyte, and Acid-Base Balance Disorders and Basic Principles of Treatment**. Elective course with 8 lectures, each lasting 2 hours. Course coordinator: Stylianos Konstantinos, Teaching: Ioannis Petrakis (4 of the lectures).

VI. **Methods of Renal Replacement Therapy, Hemodialysis, Peritoneal Dialysis, Kidney Transplantation.** Elective course with 8 lectures, each lasting 2 hours. Course coordinator: Stylianou Konstantinos, Teaching: Ioannis Petrakis (4 of the lectures).

VII. Participation in clinical, pathological, and laboratory meetings in the field of Pathology.

VIII. Participation in teaching the postgraduate program on the hereditary and molecular basis of diseases at the Medical School of the University of Crete, Methodologies for the

Modern Treatment of Renal Insufficiency, School of Medicine, Democritus University of Thrace 2025

IX. Participation in the summer school on amyloidosis as an instructor, organized by the Neurology Clinic, Department of Medicine, University of Crete 2024, 2025

7. Speeches at conferences, round tables, and advisory committees

I. ***American Society of Nephrology, Kidney Week 2014, Nov. 11-16. Philadelphia, Pennsylvania****, Basic and clinical science symposia: Amyloidosis and the Kidney: Novel Discoveries and Therapies: Animal Models and Cell Culture Systems* ***Invited speaker of the American Society of Nephrology at its annual conference to present a speech on animal models and cell models for the study of the molecular pathophysiology of various forms of amyloidosis.***

II. ***7th Annual Scientific Event of the Nephrology Department of Papageorgiou General Hospital, Thessaloniki, December 9-11, 2022, Electra Palace, Thessaloniki.*** *Guest speaker at the " " thematic section entitled:* ***Chronic interstitial nephritis*** *and topic:* ***Laboratory and histopathological findings, Treatment.***

III. **13th Panhellenic Conference on Interventional Radiology, Heraklion, Crete, May 26-28, 2023.** *Invited speaker at the session on:* ***Interventional Radiology in Hemodialysis Patients. Vascular Access. Title of presentation****:* ***The needs of the nephrologist in hemodialysis patients.***

IV. **24th Panhellenic Nephrology Conference,** ***Heraklion, Crete, May 17-20, 2023.*** *Guest speaker at the Round Table,* ***Glomerulonephritis****, on the topic:* ***Kidney Damage from Newer Drugs.***

V. **24th Panhellenic Nephrology Conference, *Heraklion, Crete, May 17-20, 2023.*** *Invited speaker at the Round Table Debate – Peritoneal Dialysis, on the topic: Continuous Ambulatory PD is superior to Automated PD and should be preferred.*

VI. **Chronic Kidney Disease. Latest Data on Diagnosis, Prevention, and Treatment, Ioannina, September 8-9, 2023, Guest speaker at** the Round Table entitled **Integration of Predictive Models in the Management of CKD**, with the topic of the speech being **Newer Biomarkers in the Prognosis of CKD.**

VII. **15thAnnual Continuing Education Seminar on Fluids, Electrolytes & Acid-Base Balance Komotini, September 22-23, 2023** Round table: **Electrolyte and Acid-Base Balance Disorders,** with the topic: Diabetic Ketoacidosis (pathophysiology, clinical picture, treatment).

VIII. **9thTwo-day conference on Angiitis, Athens, September 22-23, 2023,** Guest speaker at the round table: **Difficult-to-treat vasculitides: What are the options today?** on the topic **of Life-threatening GPA/MPA.** Online presentation.

IX. **Hellenic Society of Nephrology Meeting and Seminar combined with18thBantao Congress, October 19-22, 2023, Thessaloniki, Greece.** Invited speaker at the **CKD TOPICS II** round table**,** on the topic of **New biomarkers in CKD**

X. **1st Multidisciplinary Medical Conference of the Heraklion Medical Association – SIMA 23, November 3-5, 2023 Heraklion, Crete.** Invited commentator at the clinical tutorial**: Fluid and Electrolyte Balance.**

XI. **Astra Zeneca Scientific Partner Event Athens 18.11.2023 The role of complement in Rare Diseases: Present and**

future perspectives– Guest speaker**: The role of complement inhibition as a treatment option in aHUS: the naïve patient.**

XII. **Astra Zeneca scientific corporate event Latest data on the modern management of hyperkalemia through clinical practice.** Guest speaker **Online participation 06/03/2024**

XIII. **25th Panhellenic Nephrology Conference, June 19-21, 2024, Athens.** Guest speaker at the Round Table **on Glomerulonephritis** with the topic **C3 glomerulonephritis.**

8. ***Publications in Greek journals***

I. E. Lioudaki, K. Stylianou, **I. Petrakis**, E. Ganotakis, E. Dafnis. Detection of podocyte injury markers in urine for the early diagnosis of diabetic nephropathy (Preliminary results). Hellenic Nephrology 26(2), 2014

9. ***Publications in international journals***

(40 publications, 980 citations, h-index=15, i10-index=19, Google Scholar 09/2025, https://scholar.google.gr/citations?hl=el&user=Aad4HF4AAAAJ)

1) Perakis KE, Stylianou KG, Kyriazis JP, Mavroeidi VN, Katsipi IG, Vardaki EA, **Petrakis IG**, Stratigis S, Kroustalakis NG, Alegakis AK, Daphnis EK. Long-term complication rates and survival of peritoneal dialysis catheters: the role of percutaneous versus surgical placement**. SEMIN DIAL**. 2009 Sep-Oct; 22(5):569-75. doi: 10.1111/j.1525-139X.2009.00621.x. Epub 2009 Sep 11. PMID: 19747179 **IF 1.6, Citations (02/2024): 53**

2) **Petrakis I**, Stylianou K, Mavroeidi V, Vardaki E, Stratigis S, Stratakis S, Xylouri I, Perakis C, Petraki C, Nakopoulou, Daphnis E. Biopsy-proven resolution of renal light-chain deposition disease after autologous stem cell transplantation. **NEPHROL DIAL TRANSPLANT** 2010 Jun;25(6):2020-3. doi: 10.1093/ndt/gfq023. Epub 2010 Feb 3. PMID: 20133281. **IF 6.1, Citations (02/2024): 18**
3) **I.G. Petrakis,** V.N Mavroeidi, S.I. Stratakis, K.E. Petrakis, E.A. Vardaki, K.G. Stylianou, and E.K. Daphnis. Intermittent peritoneal Dialysis: a disregarded therapy for disadvantaged patients. **CLINICAL NEPHROLOGY,** Vol 74, pp. S170-S171, 2009. **IF 1.24, Citations (02/2024): 1**
4) Stylianou K, Stratakis S, Mavroeidi V, **Petrakis I**, Xydakis D, Vardaki E, Stratigis S, Perakis K, Katsarou T, Kanellou P, Xylouri I, Petraki C, Alexandrakis M, Daphnis E. Membranous nephropathy and lupus-like syndrome after hematopoietic cell transplantation: a case report. J **MED CASE REP.** 2010 Sep 10;4:303. doi: 10.1186/1752-1947-4-303. PMID: 20831803; PMCID: PMC2944192. **IF 1 , Citations (02/2024): 8**
5) Stylianou K, **Petrakis I**, Mavroeidi V, Stratakis S, Vardaki E, Perakis K, Stratigis S, Passam A, Papadogiorgaki E, Giannakakis K, Nakopoulou L, Daphnis E. The PI3K/Akt/mTOR pathway is activated in murine lupus nephritis and downregulated by rapamycin. **NEPHROL DIAL TRANSPLANT.** 2011 Feb;26(2):498-508. doi: 10.1093/ndt/gfq496. Epub 2010 Aug 13. PMID: 20709738. **IF 6.1 , Citations (02/2024): 121**
6) **Petrakis I**, Mavroeidi V, Stylianou K, Giannakakis K, Daphnis E. Blocking glomerular immunoglobulin deposits in a mouse

model of lupus nephritis on indirect immunofluorescence with the use of Fab fragments. **J IMMUNOL METHODS.** 2012 Feb 28;376(1-2):139-42. doi: 10.1016/j.jim.2011.11.008. Epub 2011 Nov 25. PMID: 22138606. **IF 2.2 , Citations (02/2024): 1**

7) Anastasia Markaki, John Kyriazis, **Ioannis Petrakis**, Vasiliki Mavroeidi, Kostas Perakis, George A Fragkiadakis, Maria Venyhaki, Michail Tzanakakis, Eleftheria Vardaki, Kyriaki Maraki, Theodoros Doskas, Eugene Daphnis. The role of leptin in Nutritional Status and Survival in Chronic Kidney Disease (CKD) Patients. **NEPHROL DIAL TRANSPLANT,** 2012, Vol 27, Suppl. 2, SAP264 **IF 6.1, Citations (02/2024): 1**
8) Stylianou K, **Petrakis I**, Mavroeidi V, Stratakis S, Kokologiannakis G, Lioudaki E, Liotsi C, Kroustalakis N, Vardaki E, Stratigis S, Perakis K, Kyriazis J, Nakopoulou L, Daphnis E. Rapamycin induced ultrastructural and molecular alterations in glomerular podocytes in healthy mice. **NEPHROL DIAL TRANSPLANT.** 2012 Aug;27(8):3141-8. doi: 10.1093/ndt/gfr791. Epub 2012 Jan 30. PMID: 22290989. **IF 6.1, Citations (02/2024): 16**
9) Stratakis S, Stylianou K, **Petrakis I**, Mavroeidi V, Poulidaki R, Petra C, Moisiadis D, Stratigis S, Vardaki E, Nakopoulou L, Daphnis E. Rapamycin ameliorates proteinuria and restores nephrin and podocin expression in experimental membranous nephropathy. **J IMMUNOL RES** (former CLIN. DEVELOP. IMMUNOLOGY) 2013:941893. doi: 10.1155/2013/941893. Epub 2013 Aug 31. PMID: 24069045; PMCID: PMC3773418. **IF 4.1, Citations (02/2024): 18**
10) Xydakis D, Papadogiannakis A, Sfakianaki M, Kostakis K, Stylianou K, **Petrakis I**, Ergini A, Voskarides K, Dafnis E.

Residual renal function in hemodialysis patients: the role of Angiotensin-converting enzyme inhibitor in its preservation. **ISRN NEPHROL.** 2012 Dec 24;2013:184527. doi: 10.5402/2013/184527. PMID: 24959534; PMCID: PMC4045428. **IF NA, Citations (02/2024): 25**

11) Mavroeidi V, **Petrakis I**, Stylianou K, Katsarou T, Giannakakis K, Perakis K, Vardaki E, Stratigis S, Ganotakis E, Papavasiliou S, Daphnis E. Losartan affects glomerular AKT and mTOR phosphorylation in an experimental model of type 1 diabetic nephropathy. **J HISTOCHEM CYTOCHEM**. 2013 Jun;61(6):433-43. doi: 10.1369/0022155413482925. Epub 2013 Mar 1. PMID: 23456824; PMCID: PMC3715326. **IF 3.2, Citations (02/2024): 36**

12) **Petrakis I**, Mavroeidi V, Stylianou K, Efthymiou G, Perakis K, Vardaki E, Stratigis S, Giannakakis K, Kourouniotis K, Amoiridis G, Plaitakis A, Saraiva MJ, Yamamura KI, Daphnis E. Human TTRV30M localization within podocytes in a transgenic mouse model of transthyretin related amyloidosis: does the environment play a role? **TRANSGENIC RES.** 2013 Feb;22(1):101-16. doi: 10.1007/s11248-012-9632-0. Epub 2012 Jul 18. PMID: 22806634. **IF 3, Citations (02/2024): 3**

13) **Petrakis I**, Mavroeidi V, Stylianou K, Andronikidi E, Lioudaki E, Perakis K, Stratigis S, Vardaki E, Zafeiri M, Giannakakis K, Plaitakis A, Amoiridis G, Saraiva MJ, Daphnis E. Hsf-1 affects podocyte markers NPHS1, NPHS2 and WT1 in a transgenic mouse model of TTRVal30Met-related amyloidosis. **AMYLOID.** 2013 Sep;20(3):164-72. doi: 10.3109/13506129.2013.814046. Epub 2013 Jul 5. PMID: 23829269. **IF 5.2, Citations (02/2024): 4**

14) Katsipi I, Stylianou K, **Petrakis I**, Passam A, Vardaki E, Parthenakis F, Makrygiannakis A, Daphnis E, Kyriazis J. The use of pulse wave velocity in predicting pre-eclampsia in high-risk women. **HYPERTENS RES.** 2014 Aug;37(8):733-40. doi: 10.1038/hr.2014.62. Epub 2014 Mar 13. PMID: 24621469. **IF 5.4, Citations (02/2024): 31**

15) Androvitsanea A, Stylianou K, Maragkaki E, Tzanakakis M, Stratakis S, **Petrakis I**, Giatzakis C, Daphnis E. Vanishing urate, acute kidney injury episodes, and a homozygous SLC2A9 mutation. **INT UROL NEPHROL.** 2015 Jun;47(6):1035-6. doi: 10.1007/s11255-015-1005-1. Epub 2015 May 13. PMID: 25966807. **IF 2, Citations (02/2024): 7**

16) Lioudaki E, Stylianou KG, **Petrakis I**, Kokologiannakis G, Passam A, Mikhailidis DP, Daphnis EK, Ganotakis ES. Increased Urinary Excretion of Podocyte Markers in Normoalbuminuric Patients with Diabetes. **NEPHRON.** 2015;131(1):34-42. doi: 10.1159/000438493. Epub 2015 Sep 5. PMID: 26340089. **IF 2.5 Citations (02/2024): 46**

17) Zewinger S, Kleber ME, Rohrer L, Lehmann M, Triem S, Jennings RT, **Petrakis I**, Dressel A, Lepper PM, Scharnagl H, Ritsch A, Thorand B, Heier M, Meisinger C, de Las Heras Gala T, Koenig W, Wagenpfeil S, Schwedhelm E, Böger RH, Laufs U, von Eckardstein A, Landmesser U, Lüscher TF, Fliser D, März W, Meinitzer A, Speer T. Symmetric dimethylarginine, high-density lipoproteins and cardiovascular disease. **EUR HEART J.** 2017 May 21;38(20):1597-1607. doi: 10.1093/eurheartj/ehx118. PMID: 28379378. **IF 39.3, Citations (02/2024): 95**

18) Zewinger S, Kleber ME, Tragante V, McCubrey RO, Schmidt AF, Direk K, Laufs U, Werner C, Koenig W, Rothenbacher D, Mons U, Breitling LP, Brenner H, Jennings RT, **Petrakis I**, Triem S, Klug M, Filips A, Blankenberg S, Waldeyer C, Sinning C, Schnabel RB, Lackner KJ, Vlachopoulou E, Nygård O, Svingen GFT, Pedersen ER, Tell GS, Sinisalo J, Nieminen MS, Laaksonen R, Trompet S, Smit RAJ, Sattar N, Jukema JW, Groesdonk HV, Delgado G, Stojakovic T, Pilbrow AP, Cameron VA, Richards AM, Doughty RN, Gong Y, Cooper-DeHoff R, Johnson J, Scholz M, Beutner F, Thiery J, Smith JG, Vilmundarson RO, McPherson R, Stewart AFR, Cresci S, Lenzini PA, Spertus JA, Olivieri O, Girelli D, Martinelli NI, Leiherer A, Saely CH, Drexel H, Mündlein A, Braund PS, Nelson CP, Samani NJ, Kofink D, Hoefer IE, Pasterkamp G, Quyyumi AA, Ko YA, Hartiala JA, Allayee H, Tang WHW, Hazen SL, Eriksson N, Held C, Hagström E, Wallentin L, Åkerblom A, Siegbahn A, Karp I, Labos C, Pilote L, Engert JC, Brophy JM, Thanassoulis G, Bogaty P, Szczeklik W, Kaczor M, Sanak M, Virani SS, Ballantyne CM, Lee VV, Boerwinkle E, Holmes MV, Horne BD, Hingorani A, Asselbergs FW, Patel RS; GENIUS-CHD consortium; Krämer BK, Scharnagl H, Fliser D, März W, Speer T. Relations between lipoprotein(a) concentrations, LPA genetic variants, and the risk of mortality in patients with established coronary heart disease: a molecular and genetic association study. **LANCET DIABETES ENDOCRINOL.** 2017 Jul;5(7):534-543. doi: 10.1016/S2213-8587(17)30096-7. Epub 2017 May 26. PMID: 28566218; PMCID: PMC5651679. **IF 44.5, Citations (02/2024): 96**

19) Zewinger S, Rauen T, Rudnicki M, Federico G, Wagner M, Triem S, Schunk SJ, **Petrakis I**, Schmit D, Wagenpfeil S, Heine GH, Mayer G, Floege J, Fliser D, Gröne HJ, Speer T. Dickkopf-3 (DKK3) in Urine Identifies Patients with Short-Term Risk of eGFR Loss. J **AM SOC NEPHROL.** 2018 Nov;29(11):2722-2733. doi:10.1681/ASN.2018040405. Epub 2018 Oct 2. PMID: 30279273; PMCID: PMC6218861. **IF 13.6, Citations (02/2024): 85**

20) **Petrakis I**, Androvitsanea A, Stratakis S, Daphnis E, Stylianou K. Intense immunostaining of heat shock protein 70-s within renal interstitium associates with long-term renal survival in an ANCA-associated vasculitis cohort. **CELL STRESS CHAPERONES.** 2021 Jan ;26(1):51-65. doi: 10.1007/s12192-020-01151-8. Epub 2020 Sep 2. PMID: 32876904; PMCID: PMC7736385. **IF 3.8 Citations (02/2024): 4**

21) Markaki A, Kyriazis P, Dermitzaki EK, Maragou S, Psylinakis E, Spyridaki A, Drosataki H, Lygerou D, Grammatikopoulou MG, **Petrakis I**, Stylianou K. The Association Between Handgrip Strength and Predialysis Serum Sodium Level in Patients With Chronic Kidney Disease Stage 5D. **FRONT MED (LAUSANNE).** 2021 Jan 12;7:610659. doi: 10.3389/fmed.2020.610659. PMID: 33511145; PMCID: PMC7835135. **IF 3.9 Citations (02/2024):8**

22) Schunk SJ, Speer T, **Petrakis I**, Fliser D. Dickkopf 3—a novel biomarker of the 'kidney injury continuum'. **NEPHROL DIAL TRANSPLANT.** 2021 Apr 26;36(5):761-767. doi: 10.1093/ndt/gfaa003. PMID: 32025732. **IF 6.1, Citations (02/2024): 36.**

23) Androvitsanea A, Stylianou K, Drosataki E, **Petrakis I**. The Pathophysiological Role of Heat Shock Response in Autoimmunity: A Literature Review. **CELLS.** 2021 Oct 1;10(10):2626. doi: 10.3390/cells10102626. PMID: 34685607; PMCID: PMC8533860. **IF 6.0, Citations (02/2024): 14.**

24) Psyllaki A, Stavrakaki I, Androvitsanea A, Gakiopoulou H, **Petrakis I,** Stylianou K. Two cases of glomerular involvement after vaccination against COVID-19: epiphenomenon or causality? **CLIN KIDNEY J.** 2021 Dec 8;15(3):574-575. doi: 10.1093/ckj/sfab252. PMID: 35211312; PMCID: PMC8862059. **IF 4.6, Citations (02/2024): 8.**

25) **Petrakis I**, Drosataki E, Stavrakaki I, Dermitzaki K, Lygerou D, Konidaki M, Pleros C, Kroustalakis N, Maragkou S, Androvitsanea A, Stylianou I, Zaganas I, Stylianou K. The p.Pro482Ala Variant in the CNNM2 Gene Causes Severe Hypomagnesemia Amenable to Treatment with Spironolactone. **INT J MOL SCI.** 2022 Jun 30;23(13):7284. doi: 10.3390/ijms23137284. PMID: 35806288; PMCID: PMC9266752. **IF 5.6 Citations (02/2024): 1**

26) Lioudaki E, Androvitsanea A, **Petrakis I**, Bakogiannis C, Androulakis E. Cardiac Imaging and Management of Cardiac Disease in Asymptomatic Renal Transplant Candidates: A Current Update. **DIAGNOSTICS (BASEL).** 2022 Sep 27;12(10):2332. doi: 10.3390/diagnostics12102332. PMID: 36292020; PMCID: PMC9600087. **IF 3.6 Citations (02/2024): 1**

27) Bacharaki D, **Petrakis I**, Kyriazis P, Markaki A, Pleros C, Tsirpanlis G, Theodoridis M, Balafa O, Georgoulidou A, Drosataki E, Stylianou K. Adherence to the Mediterranean Diet

Is Associated with a More Favorable Left Ventricular Geometry in Patients with End-Stage Kidney Disease. J **CLIN MED.** 2022 Sep 28;11(19):5746. doi: 10.3390/jcm11195746. PMID: 36233612; PMCID: PMC9571193. **IF 3.9 Citations (02/2024): 3**

28) Drosataki E, Maragkou S, Dermitzaki K, Stavrakaki I, Lygerou D, Latsoudis H, Pleros C, **Petrakis I**, Zaganas I, Stylianou K. Dent-2 disease with a Bartter-like phenotype caused by the Asp631Glu mutation in the OCRL gene. **BMC NEPHROL.** 2022 May 12;23(1):182. doi: 10.1186/s12882-022-02812-9. PMID: 35549682; PMCID: PMC9097321. **IF 2.3 Citations (02/2024):1**

29) Georgopoulou T, **Petrakis I**, Dermitzaki K, Pleros C, Drosataki E, Aletras G, Foukarakis E, Lioudaki E, Androulakis E, Stylianou K. Cardiorenal Syndrome: Challenges in Everyday Clinical Practice and Key Points towards a Better Management. **J CLIN MED**. 2023 Jun 18;12(12):4121. doi: 10.3390/jcm12124121. PMID: 37373813; PMCID: PMC10321054. **IF 3.9 Citations (02/2024): 1**

30) Waldman M, Sinaii N, Lerma EV, Kurien AA, Jhaveri KD, Uppal NN, Wanchoo R, Avasare R, Zuckerman JE, Liew A, Gallan AJ, El-Meanawy A, Yagil Y, Lebedev L, Baskaran K, Vilayur E, Cohen A, Weerasinghe N, **Petrakis I**, Stylianou K, Gakiopoulou H, Hamilton AJ, Edney N, Millner R, Marinaki S, Rein JL, Killen JP, Rodríguez Chagolla JM, Bassil C, Lopez Del Valle R, Evans J, Urisman A, Zawaideh M, Baxi PV, Rodby R, Vankalakunti M, Mejia Vilet JM, Ramirez Andrade SE, Homan MP, Vásquez Jiménez E, Perinpanayagam N, Velez JCQ, Mohamed MMB, Mohammed KMG, Sekar A, Ollila L,

Aron AW, Arellano Arteaga KJ, Islam M, Berrio EM, Maoujoud O, Morales RR, Seipp R, Schulze CE, Yenchek RH, Vancea I, Muneeb M, Howard L, Caza TN. COVID-19 Vaccination and New Onset Glomerular Disease: Results from the IRocGN2 International Registry. **KIDNEY360.** 2023 Mar 1;4(3):349-362. doi: 10.34067/KID.0006832022. PMID: 36996301; PMCID: PMC10103269. **IF 2.7 Citations (02/2024): 13**

31) Palamaris K, Stylianou K, Destouni M, Stofas A, Theodoropoulou H, Kroustalakis N, Dermitzaki EK, **Petrakis I**, Pleros C, Theochari I, Sarantis P, Paliouras C, Gakiopoulou H. Tubulointerstitial nephritis and uveitis (TINU) syndrome: a report of 6 cases with renal biopsy and electron microscopy evaluation. **NEPHRON.** 2023 Aug 23. doi: 10.1159/000533402. Epub ahead of print. PMID: 37611557. **IF 2.5, Citations (02/2024): 0.**

32) Bacharaki D, **Petrakis I**, Stylianou K. Redefining the therapeutic strategies against cardiorenal morbidity and mortality: Patient phenotypes. **WORLD J CARDIOL.** 2023 Mar 26;15(3):76-83. doi: 10.4330/wjc.v15.i3.76. PMID: 37033683; PMCID: PMC10074996. **IF 1.9 Citations (02/2024): 0.**

33) Balafa O, Dounousi E, Giannikouris I, **Petrakis I**, Georgoulidou A, Karassavidou D, Kokalis A, Stauroulopoulos A, Theodoridis M, Oikonomidis I, Triantafyllis G, Tsotsorou O, Tzannis K, Bacharaki D. Lower serum magnesium is a predictor of left ventricular hypertrophy in patients on dialysis. **INT UROL NEPHROL.** 2023 Apr;55(4):1015-1023. doi: 10.1007/s11255-022-03391-2. Epub 2022 Oct 24. PMID: 36279086. **IF 2 Citations (02/2024): 1.**

34) Pleros C, Adamidis K, Kantartzi K, Griveas I, Baltsavia I, Moustakas A, Kalliaropoulos A, Fraggedaki E, Petra C, Damianakis N, Mentis A, Drosataki E, **Petrakis I**, Passadakis P, Panagopoulos P, Stylianou K, Panagoutsos S. Dialysis Patients Respond Adequately to Influenza Vaccination Irrespective of Dialysis Modality and Chronic Inflammation. J **CLIN MED.** 2023 Sep 26;12(19):6205. doi: 10.3390/jcm12196205. PMID: 37834849; PMCID: PMC10573409. **IF 3.9 Citations (02/2024): 0**

35) **Petrakis I**, Sfakiotaki M, Bitsori M, Drosataki E, Dermitzaki K, Pleros C, Androvitsanea A, Samonakis D, Sertedaki A, Xekouki P, et al. The Phenotypic Variability Associated with Hepatocyte Nuclear Factor 1B Genetic Defects Poses Challenges in Both Diagnosis and Therapy. *International Journal of Molecular Sciences.* 2024; 25(8):4552. https://doi.org/10.3390/ijms25084552 **IF 4.9 Citations (09/2024): 0**

36) **Petrakis I**, Bacharaki D, Kyriazis P, Balafa O, Dounousi E, Tsirpanlis G, Theodoridis M, Tsotsorou O, Markaki A, Georgoulidou A, et al. Cardiovascular and All-Cause Mortality Is Affected by Serum Magnesium and Diet Pattern in a Cohort of Dialysis Patients. Journal of Clinical Medicine. 2024; 13(14):4024. https://doi.org/10.3390/jcm13144024 **IF 2.9 Citations (09/2024): 5**

37) Korela D, Foukarakis E, Plevritaki A, Maragkoudakis S, Anastasiou I, Patrianakos A, Kapsoritakis N, Koukouraki S, Bourogianni O, Pontikoglou C, Psillaki M, Padadaki HA, Zaganas I, Samonakis D, Detorakis E, **Petrakis I,** Stylianou K, Chlouverakis G, Giannakoudakis E, Simantirakis E,

Kochiadakis G, Marketou M. Deterioration of Myocardial Global Longitudinal Strain and Its Relationship with Arterial Stiffness in Patients with Cardiac Amyloidosis: A Six-Month Follow-Up. J Clin Med. 2025 Mar 18;14(6):2078. doi: 10.3390/jcm14062078. PMID: 40142887; PMCID: PMC11942735. **IF 2.9 Citations (09/2024): 0**

38) Aletras G, Bachlitzanaki M, Stratinaki M, Lamprogiannakis E, Panagoutsos S, Kantartzi K, Georgopoulou T, **Petrakis I,** Foukarakis E, Pantazis Y, et al. Unraveling Acute Cardiorenal Syndrome : Predictors and Consequences in Acute Heart Failure. Journal of Clinical Medicine. 2025; 14(7):2270. https://doi.org/10.3390/jcm14072270 **IF 2.9 Citations (09/2024): 0**

39) Aletras G, Bachlitzanaki M, Stratinaki M, **Petrakis I,** Georgopoulou T, Pantazis Y, Foukarakis E, Hamilos M, Stylianou K. The Role of Chloride in Cardiorenal Syndrome: A Practical Review. *Journal of Clinical Medicine*. 2025; 14(15):5230. https://doi.org/10.3390/jcm14155230 **IF 2.9 Citations (09/2024): 0**

40) **Petrakis I**, Drosataki E, Lygerou D, Antonakis A, Kydonaki K, Mitrakos M, Pleros C, Sfakiotaki M, Xekouki P, Stylianou K. Familial MEN1 Syndrome with Atypical Renal Features and a Coexisting CLDN16 Variant: A Case Series. J Clin Med. 2025 Aug 2;14(15):5447. doi: 10.3390/jcm14155447. PMID: 40807067; PMCID: PMC12347269. **IF 2.9 Citations (09/2024): 0**

10. Presentations at Greek conferences (Until 02/2024)

1) 15ο Panhellenic Nephrology Conference, Athens, June 2008, Oral Presentation "*Cellular damage is an early feature of lupus nephritis in NZBW mice*." Perisinaki G, Moisidis D, Kyriakou K, Stratakis S, **Petrakis I,** Boubas D, Nakopoulou L, Dafnis E. **Award for best oral presentation.**

2) 15. Panhellenic Nephrology Conference, Athens, June 2008, Oral Presentation *"Steroid administration in lupus nephritis in NZBW mice restores the expression of nephrin- : Preliminary results."* Moisidis D, Perisinaki G, Kyriakou K, Stratakis S, **Petrakis I,** Boubas D, Nakopoulou L, Dafnis E.

3) 16th Panhellenic Nephrology Conference, Kos, June 2010, Oral Presentation: *"Rapamycin reduces proteinuria and restores the expression of thin basement membrane proteins in an experimental model of membranous nephropathy"* Stratakis S, **Petrakis I,** Mavroidi V, Passam A, Katsarou T., Stylianou K., Vardaki E., Stratigis S., Perisinaki G., Kokologiannakis G., Perakis K., Nakopoulou L., Dafnis E.

4) 16ο Panhellenic Nephrology Conference, Kos, June 2010, Oral Presentation: *"The PI3K/Akt/mTOR pathway participates in the pathogenesis of lupus nephritis. The role of rapamycin."* Xydakis D, Stylianou K, Mavroidi V, Katsarou T, **Petrakis I.** Passam A, Vardaki E, Perakis K, Stratigis S, Stratakis S, Kokologiannakis G, Nakopoulou L, Dafnis E– **Award for best oral presentation.**

5) 16thPanhellenic Nephrology Conference, Kos, June 2010, Poster Presentation: *"Clinical characteristics and progression of patients at an outpatient nephrology clinic."* Stylianou K, Perakis K., Stratigis S., Vardaki E., **Petrakis I.**, Mavroidi V., Passam A., Katsarou T., Kroustalakis N., Kokologiannakis G., Karagiozidis N., Xydakis D., Dafnis E.

6) 16thPanhellenic Nephrology Conference, Kos, June 2010, Poster Presentation: *"Revelation of antigenic epitopes of the thin septum: A multifactorial dependent process."* **Petrakis I,** Stylianou K, Mavroidis V., Katsarou Th., Vardaki E., Perakis K., Stratigis S., Saraiva MJ, Amoiridis G., Dafnis E.
7) 16th Panhellenic Nephrology Conference, Kos, June 2010, Poster Presentation: *"From embryo to deposition: Pre-amyloid deposits in the kidney of transgenic mice for human transthyretin (i.e., mice)"* **Petrakis I.,** Stylianou K., Mavroidi V., Katsaros Th, Stratakis S, Kouroniotis K, Vardaki E, Perakis K, Stratigis S, Yamamura KI, Amoiridis G, Dafnis E.
8) 17th Panhellenic Nephrology Conference, Kyllini, May 2012, Oral Presentation: *"Effect of losartan on the PI3K/Akt/mTOR pathway in an experimental model of diabetic nephropathy"* Mavroidi B, **Petrakis I,** Stylianou K, Katsarou T, Efthymiu G, Stratakis S, Maragaki E, Tzanakakis M, Kokologiannakis G., Giannakakis K., Perakis K., Vardaki E., Stratigis S., Ganotakis E., Papavasiliou E., Dafnis E. – **Commendation for oral presentation**
9) 17thPanhellenic Nephrology Conference, Kyllini, May 2012, Oral Presentation: *"The effect of different environmental conditions on the internalization of transthyretin by podocytes"* **Petrakis I**, Stylianou K, Mavroidi V, Perakis K, Stratigis S, Vardaki E, Kokologiannakis G, Tzanakis M, Maragaki E, Stratakis S, Giannakakis K, Amoiridis G, Plaitakis A, Yamamura KI, Dafnis E.
10) 17thPanhellenic Nephrology Conference, Kyllini, May 2012, Poster Presentation: *"Magnesium (Mg) and Calcium (Ca) determine adiponectin levels in chronic kidney disease patients"*

Markaki A, **Petrakis I,** Stratakis S, Vardaki E, Perakis K, Venychaki M, Gkouskou G, Fragiadakis G, Lambrinoudis G, Doskas T, Kyriazis I, Dafnis E.

11) 17th Panhellenic Nephrology Conference, Kyllini, May 2012, Poster Presentation: *"Usefulness of applying Stewart's physicochemical approach to acid-base balance versus the classic Henderson Hasselbach approach in patients undergoing extracorporeal dialysis"* Maragaki E, Kroustalakis N, Stylianou K, Tzanakakis M, Kokologiannakis G, Stratakis S, Vardaki E, Stratigis S, Perakis K, **Petrakis I,** Dafnis E.

12) ^{86th}Scientific Meeting of the Hellenic Society of Nephrology (14-15 November 2013, Thessaloniki Hotel "The Met") *"Presentation of a case of a patient with acute and interstitial nephritis and membranous glomerulopathy in the context of IgG4 syndrome"* Maragaki E, Petra X, Tzanakakis M, Stratakis S, **Petrakis I,** Stratigis S, Perakis K, Vardaki V, Stylianou K, Gakipoulou X, Dafnis E.

13) 18th PANHELLENIC CONFERENCE ON NEPHROLOGY (May 13-17, 2014, Thraki Palace Hotel, Alexandroupolis) – Oral Presentation: Renal lymphocytic infiltrates in transgenic models of familial amyloid polyneuropathy: The role of transthyretin (TTR) and HSF-1 **I. Petrakis,** K. Stylianou, V. Mavroidi, E. Maragaki, A. Passam, A. Andronikidi, A. Androvitsanea, S. Stratakis, E. Vardaki, S. Stratigis, K. Perakis, G. Amoiridis, M.J. Saraiva, K. Giannakakis, E. Dafnis.

14) 18th PANHELLENIC CONFERENCE ON NEPHROLOGY (May 13-17, 2014, Thraki Palace Hotel, Alexandroupolis) – Oral Presentation: The effect of HSF-1 on the podocyte markers Mephrine, Podocin, and WT-1 in a transgenic model of familial

amyloid polyneuropathy **I. Petrakis,** V. Mavroidi, K. Stylianou, E. Andronikidis, A. Passam, K. Perakis, S. Stratigis, E. Vardaki, A. Androvitsanea, E. Maragaki, K. Giannakakis, A. Plaitakis, G. Amoiridis, M.J. Saraiva, E. Dafnis.

15) *22nd PANHELLENIC CONFERENCE ON NEPHROLOGY (May 13–16, 2021, Makedonia Palace Hotel, THESSALONIKI) Posted Announcement: Heat stress proteins are associated with the outcome in a cohort of ANCA renal vasculitis.* **I. Petrakis,** A. Androvitsanea, S. Stratakis, E. Dafnis, K. Stylianou.

16) *22nd PANHELLENIC CONFERENCE ON NEPHOLOGY (May 13–16, 2021, Makedonia Palace Hotel, THESSALONIKI) Poster Presentation: IgA Nephropathy Thrombotic Microangiopathy and Direct Kidney Involvement in Splenic Leishmaniasis.* E. Drosataki, K. Alexakis, I. Papakitsou, K. Dermitzaki, D. Ligerou, E. Maridakis, S. Marangou, **I. Petrakis,** D. Kofteridis, K. Stylianou.

17) 23rd PANHELLENIC CONFERENCE ON NEPHROLOGY (June 1-5, 2022, THESSALONIKI) *Autosomal Dominant Polycystic Kidney Disease Type 6 (ADPKD6). E. Drosataki, I. Stavrakaki, D. Ligerou, K. Dermitzaki, S. Marangou, S. Stratigis, N. Kroustalakis,* ***I. Petrakis,*** *H. Pleros, K. Stylianou.*

18) 23rd PANHELLENIC CONFERENCE ON NEPHROLOGY (June 1-5, 2022, THESSALONIKI). *Epidemiology of Acute Kidney Injury in Adult ICU Patients: A One-Year Observational Study. Eleni Drosataki, Diamantina Marouli, Nikos Kroustallakis, Christos Pleros, Ioanna Stavrakaki, Dimitra Ligerou,* ***Ioannis Petrakis,*** *Nektaria Xirouchaki, Kostas Stylianou.*

19) *23rd PANHELLENIC CONFERENCE ON NEPHROLOGY (June 1-5, 2022, THESSALONIKI*). *Treatment of hypomagnesemia in a patient with type 6 renal hypomagnesemia due to a new mutation in Cyclin M2. Ioanna Stavrakaki, Christos Pleros, Eleni Drosataki, Kleio Dermitzaki, Nikos Kroustalakis, Sevasti Marangou, Dimitra Ligerou, Ariadni Androvitsanea,* ***Ioannis Petrakis,*** *Kostas Stylianou*

20) *23rd PANHELLENIC CONFERENCE ON NEPHROLOGY (June 1-5, 2022, THESSALONIKI*). *Interstitial Nephritis, Fanconi Syndrome as the initial manifestation of asymptomatic primary biliary cirrhosis. E. Drosataki, I. Stavrakaki, S. Marangou, D. Ligerou, K. Dermitzaki, A. Androvitsanea, H. Pleros, N. Kroustalakis, K. Stylianou,* ***I. Petrakis.***

21) *24th PANHELLENIC CONFERENCE ON NEPHROLOGY (May 17-20, 2023, Heraklion, Crete). Hemolysis following mechanical thrombectomy of an arteriovenous graft using Angiojet in a patient with chronic inflammatory demyelinating polyneuropathy. I. Stavrakaki,* ***I. Petrakis,*** *S. Stratigis, E. Drosataki, E.K. Dermitzaki, Ch. Pleros, D. Ligerou, M. Konidakis, M. Mitrakos, A. Antonakis, E. Kechagias, N. Galanakis, K. Stylianou.*

22) *24th PANHELLENIC CONFERENCE ON NEPHROLOGY (May 17-20, 2023, Heraklion, Crete). The Evaluation of "Psychogenic Polydipsia" Reveals a Family with Nephrogenic Diabetes Insipidus and a New Mutation in the AVPR2 Receptor. Ch. Pleros,* ***I. Petrakis,*** *I. Stavrakaki, E. Drosataki, M. Mitrakos, K. Dermitzaki, N. Kroustalakis, A. Androvitsanea, D. Ligerou, M. Konidakis, N. Papadakis, A. Antonakis, S. Marangou, M. Papapanagiotou, K. Stylianou.*

23) 24th PANHELLENIC CONFERENCE ON NEPHROLOGY (May 17-20, 2023, Heraklion, Crete). ANCA-positive endocarditis with renal involvement. E. Drosataki, S. Marangou, I. Stavrakaki, ***I. Petrakis,*** *D. Ligerou, Ch. Pleros, K. Dermitzaki, M. Mitrakos, M. Konidakis, A. Antonakis, N. Papadakis, N. Kroustalakis, Ch. Gakiopoulou, K. Stylianou.*

*24) 24th PANHELLENIC CONFERENCE ON NEPHROLOGY (May 17-20, 2023, Heraklion, Crete). Two modern mutations of complement factor H (CFH) cause atypical hemolytic uremic syndrome (aHUS)****. I. Petrakis,*** *K. Dermitzaki, E. Drosataki, Ch. Pleros, M. Mitrakos, N. Kroustalakis, A. Androvitsanea, D. Ligerou, I. Stavrakaki, M. Konidaki, N. Papadakis, S. Marangou, A. Antonakis, K. Stylianou.*

25) 24th PANHELLENIC CONFERENCE ON NEPHROLOGY (May 17-20, 2023, Heraklion, Crete). Renal Involvement and Phenotypic Heterogeneity of HNF1B Syndrome. Description of 3 patients with heterozygous deletion of the corresponding gene. ***I. Petrakis,*** *K. Dermitzaki, M. Mitrakos, I. Stavrakaki, N. Papadakis, M. Konidaki, A. Antonakis, D. Ligerou, S. Marangou, N. Kroustalakis, Ch. Pleros, M. Sfakiotaki, P. Xekouki, K. Stylianou.*

26) 24th PANHELLENIC CONFERENCE ON NEPHROLOGY (May 17-20, 2023, Heraklion, Crete).Nephrocalcinosis in three generations of women due to a pathogenic mutation in the MEN1 gene. N. Papadakis, D. Ligerou, C. Pleros, K. Dermitzaki, ***I. Petrakis,*** *I. Stavrakaki, E. Drosataki, M. Konidaki, M. Mitrakos, A. Antonakis, N. Kroustalakis, I.M. Sfakiotaki, I. Zaganis, P. Xekouki, K. Stylianou.*

27) 24th PANHELLENIC CONFERENCE ON NEPHROLOGY (May 17-20, 2023, Heraklion, Crete). Long-term outcome in a cohort of patients with systemic vasculitis. ***I. Petrakis,*** *K. Dermitzaki, E. Drosataki, S. Marangou, M. Konidakis, M. Mitrakos, Ch. Pleros, N. Papadakis, D. Ligerou, I. Stavrakaki, A. Antonakis, N. Kroustalakis, K. Palamaris, E. Dafnis, Ch. Gakipoulou, K. Stylianou.*

28) 24th PANHELLENIC CONFERENCE ON NEPHROLOGY (May 17-20, 2023, Heraklion, Crete). Multicenter Study of Vaccination and SARS-COV2 Infection in Patients with Chronic Kidney Disease Undergoing Extracorporeal Clearance. D. Baharaki, P. Kriki, I. Tsoubou, ***I. Petrakis,*** *O. Tsotsorou, P. Nikolopoulos, E. Yoga, V. Giannikos, V. Geropoulou, H. Kourtidou, M. Theodoridis, I. Revela, K. Stamatelou, E. Stavroulopoulou, A. Stavroulopoulos, V. Gkinis, G. Triantafyllis, K. Kantartzi, S. Dadouti, Eir. Stamataki, K. Stylianou, V. Liakopoulos, S. Panagoutsos, S. Lionaki.*

29) 24th PANHELLENIC CONFERENCE ON NEPHROLOGY (May 17-20, 2023, Heraklion, Crete). Administration of Remdesivir to patients with CKD undergoing hemodialysis: The experience of one center. S.A. Marangou, ***I. Petrakis,*** *I. Stavrakaki, S. Stratigis, C. Pleros, E.K. Dermitzaki, M. Konidakis, D. Ligerou, M. Mitrakos, E. Drosataki, N. Papadakis, N. Kroustalakis, A. Antonakis, M. Papapanagiotou, K. Stylianou.*

30) 24th PANHELLENIC CONFERENCE ON NEPHROLOGY (May 17-20, 2023, Heraklion, Crete). Hyponatremia and Hypernatremia as Main Manifestations of Panhypopituitarism. D. Ligeros, Ch. Pleros, K. Dermitzaki, ***I. Petrakis,*** *I. Stavrakaki,*

S. Stratigis, E. Drosataki, M. Konidaki, M. Mitrakos, A. Antonakis, N. Kroustalakis, P. Xekouki, K. Stylianou.

31) 24th PANHELLENIC CONFERENCE ON NEPHROLOGY (May 17-20, 2023, Heraklion, Crete).Pharmaceutical administration of coenzyme Q10 to patients with COQ8 coenzyme mutation and nephrotic syndrome stabilizes renal damage and reduces proteinuria. ***I. Petrakis****, E.K. Dermitzaki, E. Drosataki, C. Pleros, D. Ligerou, K. Korsavas, N. Kroustalakis, I. Stavrakaki, M. Mitrakos, M. Konidaki, N. Papadakis, S. Marangou, A. Antonakis, K. Stylianou.*

11. Presentations at international conferences (until 02/2024)

1) World Congress of Nephrology Milan, Italy, 2009: S Stratakis, K Stylianou, **I Petrakis**, C Kastrinaki, G Perysinaki, D Moisiades, V Mavroeidi, A Passam, K Perakis, E Daphnis. Rapamycin ameliorates proteinuria and alters slit diaphragm proteins expression in passive Heymann nephritis.

2) World Congress of Nephrology Milan, Italy, 2009: **I Petrakis**, V Mavroeidi, S Stratakis, K Perakis, E Vardaki, K Stylianou, E Daphnis. Intermittent Peritoneal Dialysis: a disregarded therapy for disadvantaged patients. World Congress of Nephrology Milan, Italy, 2009. **Among the 30 best of the conference - "Best abstracts award" and published in the journal Clinical Nephrology. Travel Grand**

3) American Society of Nephrology, Renal Week, San Diego California, USA Nov 2009: Stylianou K, Mavroeidi V, **Petrakis J**, Stratakis S, Stratigis S, Vardaki E, Perakis K, Daphnis E. The PI3K/akt/mTOR Pathway Is Implicated in the Pathogenesis of Murine Lupus Nephritis: The Role of Rapamycin.

4) American Society of Nephrology, Renal Week, San Diego, California, USA, November 2009: I. Katsipi, K. Stylianou, **I. Petrakis**, V. Mavroeidi, J. Kyriazis, E. Vardaki, A. Makrygiannakis, E. Daphnis. Diagnostic Utility of Pulse Wave Velocity and Its Association with the sFlt1 Anti-Angiogenic Factor in Preeclampsia.
5) American Society of Nephrology, Renal Week, Denver Colorado, USA Nov 2010: K Stylianou, **I Petrakis**, V Mavroeidi, S Stratakis, T Katsarou, E Vardaki, S Stratigis, K Perakis, J Kyriazis, E Daphnis. Rapamycin causes alterations of podocytes even without proteinuria.
6) VIII International Symposium on Familial Polyneuropathy November 20-22 Kumamoto Japan 2011. **Petrakis I,** Mavroeidi V, Stylianou K, Maragaki E, Stratakis S, Kokologiannakis G, Stratigis K, Vardaki E, Liotsi C, Amoiridis G, Gianakakis K, Plaitakis A, Yamamura K.I Daphnis **E**. Is tranthyretin internalized by podocytes? The effect of different environmental conditions. **Young Investigator Award**
7) VIII International Symposium on Familial Polyneuropathy November 20-22 Kumamoto Japan 2011. *"Rapamycin administration in a mouse model of transthyretin related amyloidosis: Does sex matter?"* **Petrakis I**, Mavroeidi V, Stylianou K, Maragaki E, Kokologiannakis G, Liotsi C, Katsarou T, Perakis K, Stratigis S, Vardaki E, Giannakakis K, Amoiridis G, Plaitakis A, Yamamura KI, Daphnis E.
8) VIII International Symposium on Familial Polyneuropathy November 20-22 Kumamoto Japan 2011 *"Transthyretin Val30Met gene carrier status and daily urinary albumin excretion in a transgenic mouse model of transthyretin related*

amyloidosis" **Petrakis I**, Mavroeidi V, Stylianou K, Katsarou T, Perakis K, Stratigis S, Vardaki E, Giannakakis K, Amoiridis G, Plaitakis A, Yamamura KI, Daphnis E.

9) 49th ERA-EDTA Congress Paris 2012: THE ROLE OF LEPTIN IN NUTRITIONAL STATUS AND SURVIVAL IN CHRONIC KIDNEY DISEASE (CKD) PATIENTS. A. Markaki, I**. Petrakis,** V. Mavroeidi, K. Perakis, G. Fragkiadakis, M. Venyhaki, M. Tzanakakis, E. Vardaki, K. Maraki, T. Doskas, J. Kyriazis, E. Daphnis.
10) 11th Congress of the Balkan Cities Association of Nephrology, Transplantation and Artificial Organs Timisoara, 2013: Podocyturia as an earlier marker of diabetic nephropathy. E.Lioudaki, K. Stylianou, I.Petrakis, E. Andronikidi, C. Liotsi, E. Ganotakis, J. Kyriazis, E. Daphnis.
11) 51st ERA EDTA Congress, Amsterdam, The Netherlands: HOMOZYGOUS SLC2A9 MUTATION CAUSING SEVERE HYPOURICEMIA AND REVERSIBLE EXERTIONAL ACUTE RENAL FAILURE. Eugene Daphnis. Kostas G Stylianou, John Kyriazis, Ariadni Androvitsanea, Michael Tzanakakis, Eleftheria Maragkaki, **John Petrakis,** Stavros Stratakis, Rafaela Poulidaki, Eleftheria Vardaki, Christina Petra, Spyros Statigis, Kostas Perakis.
12) 54th ERA-EDTA Congress, Madrid, Spain, June 3-6, 2017: APOLIPOPROTEIN C3 INDUCES SYSTEMIC INFLAMMATION IN PATIENTS WITH CHRONIC KIDNEY DISEASE BY ACTIVATING THE NALP3 INFLAMMASOME VIA A NOVEL MOLECULAR PATHWAY. Stephen Zewinger, Vera Jankowski, Richard

Jennings, **Ioannis Petrakis,** Winfried März, Joachim Jankowski, Ulrich Laufs, Danilo Fliser, Thimoteus Speer.

13) 55th ERA-EDTA CONGRESS Copenhagen Denmark May 24th - 27th 2018: DKK3 IN URINE IDENTIFIES PATIENTS WITH PROGRESSIVE CHRONIC KIDNEY DISEASE. Stephen Zewinger, Thomas Rauen, Michael Rudnicki, Guiseppina Federico, Martina Wagner, Sarah Triem, **Ioannis Petrakis,** Stefan Schunk, Stefan Wagenpfeil, Gunnar Heine, Gert Mayer, Jürgen Flöge, Hermann-Josef Gröne, Danilo Fliser, Thimoteus Speer.

14) 10th Annual Meeting of the German Society of Nephrology, September 27-30, 2018, Berlin. Apolipoprotein C3 (ApoC3) induces systemic inflammation in patients with chronic kidney disease by activating the NALP3 inflammasome via a new molecular pathway. S. Zewinger, V. Jankowski, I**. Petrakis,** S. Schunk, U. Sester, M. Sester, W. März, J. Jankowski, U. Laufs, D. Fliser, T. Speer; Homburg/Saar, Aachen Mannheim.

15) 10th Annual Meeting of the German Society of Nephrology, September 27-30, 2018, Berlin. Dickkopf-3 (DKK3) in urine identifies patients with progressive chronic kidney disease. S. Zewinger, T. Rauen, M. Rudnicki, G. Federico, S. Schunk, M. Wagner, S. Triem, I**. Petrakis,** S. Wagenpfeil, G.H. Heine, G. Mayer, J. Floege, D. Fliser, H.-J. Gröne, T. Speer; Homburg/Saar, Aachen, Innsbruck/A, Heidelberg.

16) 10th Annual Meeting of the German Society of Nephrology, September 27-30, 2018, Berlin. Dickkopf-3 (DKK3) in urine as a predictor of short- and long-term kidney damage in patients prior to cardiac surgery: A prospective study. S. Schunk, T.

Speer, M. Wagner, D. Schmit, I**. Petrakis,** H.-J. Schäfers, H. V. Groesdonk, D. Fliser, S. Zewinger; Homburg/Saar.

17) 57th ERA-EDTA Congress, Online: INTERSTITIAL HSP70 EXPRESSION AT DIAGNOSIS ASSOCIATES WITH LONG TERM RENAL SURVIVAL IN AN ANCA VASCULITIS COHORT. **Ioannis Petrakis**, Ariadni Androvitsanea, Stavros Stratakis, Eugene Daphnis, Kostas Stylianou.

18) World Congress of Nephrology, 2022, Kuala Lumpur, Malaysia. G Stavrakaki, E Drosataki, N Kroustalakis, S Maragkou, K Dermitzaki, D Lygerou, A Androvitsanea, **I Petrakis**, K Stylianou. POS-095 TREATING HYPOMAGNESEMIA IN THE PATIENT WITH A NOVEL CYCLIN M2 MUTATION (RENAL HYPOMAGNESEMIA 6) Kidney International Reports 7 (2), S40-S41, 2022

19) World Congress of Nephrology, 2023. **I PETRAKIS**, K Dermitzaki, C Pleros, M Mitrakos, N Kroustalakis, A Androvitsanea, D Lygerou, E Drosataki, I Stavrakaki, M Konidaki, N Papadakis, S Maragou, E Xylouri, I Zaganas, K Stylianou. WCN23-0577 TWO MUTATIONS IN COMPLEMENT FACTOR H GENE CAUSE ATYPICAL HEMOLYTIC UREMIC SYNDROME (AHUS). Kidney International Reports 8 (3), S72-S73, 2022

20) World Congress of Nephrology, 2023. K. Dermitzaki, **I. Petrakis**, E. Drosataki, M. Papapanagiotou, C. Pleros, D. Lygerou, . I. Stavrakaki, M. Mitrakos, N. Papadakis, M. Konidaki, S. Maragou, N. Kroustalakis, D. Varvouti, A. Androvitsanea, K. Stylianou. WCN23-0585 THE FIRST CASE OF DNAJB11-ASSOCIATED NEPHROPATHY IN GREECE (AUTOSOMAL DOMINANT POLYCYSTIC KIDNEY

DISEASE-6/ADPKD-6). Kidney International Reports 8 (3), S245-S246, 2022

21) World Congress of Nephrology, 2023. **I Petrakis,** K Dermitzaki, E Drosataki, C Pleros, D Lygerou, K Korsavas, I Katsipi, N Kroustalakis, I Stavrakaki, M Mitrakos, M Konidaki, N Papadakis, K Stylianou. WCN23-0427 COENZYME Q10 SUPPLEMENTATION IN AN ADULT PATIENT WITH COQ8 MUTATION AND NEPHROTIC SYNDROME ALLEVIATES RENAL FUNCTION DETERIORATION AND REMITS PROTEINURIA. Kidney International Reports 8 (3), S67-S68, 2022

22) World Congress of Nephrology, 2023. C Pleros, **I PETRAKIS**, I Stavrakaki, E Drosataki, M Mitrakos, K Dermitzaki, N Kroustalakis, A Androvitsanea, D Lygerou, M Konidaki, N Papadakis, A Passam, I Katsipi, I Zaganas, K Stylianou. WCN23-0434 THE FURTHER EVALUATION OF A PATIENT WITH ALLEGED PSYCHOGENIC POLYDIPSIA REVEALED A KINDRED WITH NEPHROGENIC DIABETES INSIPIDUS WITH A NOVEL MUTATION IN AVPR2. Kidney International Reports 8 (3), S44, 2022.

23) 60th ERA Congress, June 15-18, 2023. Kostas Palamaris, **Ioannis Petrakis**, Kleio Dermitzaki, Christos Pleros, Nikos Kroustalakis, Maria Destouni, Anastasios Stofas, Christos Paliouras, Irene Theochari, Panagiotis Sarantis, Eleni Theodoropoulou, Kostas Stylianou, Harikleia Gakiopoulou. # 6543 TUBULOINTERSTITIAL NEPHRITIS AND UVEITIS (TINU) SYNDROME: A REPORT OF 6 CASES WITH RENAL BIOPSY AND ELECTRON MICROSCOPY EVALUATION. Nephrology Dialysis Transplantation, Volume

38, Issue Supplement_1, June 2023, gfad063c_6543, https://doi.org/10.1093/ndt/gfad063c_6543

24) 60th ERA Congress, June 15-18, 2023. **Ioannis Petrakis**, Kleio Dermitzaki, Kostas Palamaris, Eleni Drosataki, Sevasti Alexandra Maragkou, Christos Pleros, Nikos Kroustalakis, Ioanna Stayrakaki, Harikleia Gakiopoulou, Kostas Stylianou. # 6032 LONG-TERM OUTCOMES IN A COHORT OF PATIENTS WITH SYSTEMIC VASULITIDES (SV) AND KIDNEY INVOLVEMENT. Nephrology Dialysis Transplantation, Volume 38, Issue Supplement_1, June 2023, gfad063c_6032

25) 60th ERA Congress, June 15-18, 2023. **Ioannis Petrakis**, Kleio Dermitzaki, Christos Pleros, Myrto Konidaki, Dimitra Ligerou, Marinos Mitrakos, Andreas Antonakis, Nikos Kroustalakis, Sevasti Alexandra Maragkou, Kostas Stylianou. # 6286 NEPHROCALCINOSIS IN 3 GENERATIONS OF FEMALE PATIENTS DUE TO A PATHOGENIC MEN1 MUTATION. *Nephrology Dialysis Transplantation,* Volume 38, Issue Supplement_1, June 2023, gfad063c_6286, https://doi.org/10.1093/ndt/gfad063c_6286

26) 21st International Vasculitis Workshop, Barcelona Spain 2024, **Accepted as oral presentation:** Long-term Observational Study of Interstitial Lung Disease in ANCA-Associated Vasculitis: European Multicentre Study. Aglaia Chalkia, Rachel Jones, Ajay Kamath, Aladdin Mohammad, Sara Monti, Chetan Mukhtyar, Viral Nanda, **Ioannis Petrakis,** Dimitrios Petras, Ashnish Sinha, Pasupathy Sivasothy, Rona Smith, Konstantinos Stylianou, Dimitrios Vassilopoulos, David Jayne.

27) 21st International Vasculitis Workshop, Barcelona, Spain, 2024, **Accepted as poster presentation.** Kidney Phenotype in Interstitial Lung Disease Associated with ANCA-Vasculitis: European Multicentre Study. Aglaia Chalkia, Rachel Jones, Ajay Kamath, Aladdin Mohammad, Sara Monti, Chetan Mukhtyar, Viral Nanda, **Ioannis Petrakis,** Dimitrios Petras, Ashnish Sinha, Pasupathy Sivasothy, Rona Smith, Konstantinos Stylianou, Dimitrios Vassilopoulos, David Jayne.

12. Participation in research protocols

I. Participation in the IROG-QN2 recording network in collaboration with Dr. Marryl Waldman, NIDDK, NIH, to investigate the phenomenon of de novo glomerulonephritis following vaccination against SARS-COV2R

II. Participation in the ELIDEK proposal under review with submission number 23310 in collaboration with the Department of Medical Physics of the University of Crete and the Department of Radiology of the University of Crete (Head Professor Mr. Perisinakis).

13. Contribution to doctoral dissertations, master's/bachelor's theses

I. Contribution to the preparation of doctoral dissertations by colleagues Vasiliki Mavroidi, Stavros Stratakis, Irini Lioudaki, Konstantinos Stylianou

II. Contribution to the thesis of Mr. Georgios Efthymios entitled " " using the immunogold method in mouse kidney cells (Postdoctoral researcher, INSERM France)

III. Member of the three-member committee for the master's thesis of Ms. Anna Psyllaki entitled Retrospective Study

Comparing Histological Classification Models of Renal Involvement in ANCA Vasculitis.

14.Honors

I. 15th Panhellenic Nephrology Conference, Athens, June 2008, Oral Presentation "Cellular damage is an early feature of lupus nephritis in NZBW mice." Perisynaki G, Moisidis D, Kyriakou K, Stratakis S, **Petrakis I,** Boubas D, Nakopoulou L, Daphnis E. **Award for best oral presentation.**

II. **Petrakis I,** Mavroeidi V, Stratakis S, Perakis K, Vardaki E, Stylianou K, Daphnis E. Intermittent Peritoneal Dialysis: a disregarded therapy for disadvantaged patients. World Congress of Nephrology Milan, Italy, 2009. Travel Grand. **This paper was included in the 30 best of the conference "Best abstracts award" and published in the journal Clinical Nephrology**

III. 16th Panhellenic Nephrology Congress, Kos, June 2010, Oral Presentation: "The PI3K/Akt/mTOR pathway participates in the pathogenesis of lupus nephritis. The role of rapamycin." Xydakis D, Stylianou K, Mavroidi V, Katsarou T, **Petrakis I.** Passam A, Vardaki E, Perakis K, Stratigis S, Stratakis S, Kokologiannakis G, Nakopoulou L, Dafnis E– **Award for best oral presentation.**

IV. **Petrakis I,** Mavroeidi V, Stylianou K, Maragaki E, Stratakis S, Kokologiannakis G, Stratigis K, Vardaki E, Liotsi C, Amoiridis G, Gianakakis K, Plaitakis A, Yamamura K.I Daphnis E. Is tranthyretin internalized by podocytes? The effect of different environmental conditions. VIII International

Symposium on Familial Polyneuropathy November 20-22 Kumamoto Japan 2011. **Young Investigator Award**

V. Mavroidi V, **Petrakis I**, Stylianou K, Katsarou Th, Efthymiu G, Stratakis S, Maragaki E, Tzanakakis M, Kokologiannakis G, Giannakakis K, Perakis K, Vardaki E, Stratigis S, Ganotakis E, Papavasiliou E, Dafnis E. Effect of losartan on the PI3K-AKT-mTOR pathway in an experimental model of diabetic nephropathy. 17th Panhellenic Nephrology Conference, May 10-13, 2012, Kyllini. **Commendation for oral presentation**

15. Abstracts of publications in international journals (Until 02/2024)

1) Perakis KE, Stylianou KG, Kyriazis JP, Mavroeidi VN, Katsipi IG, Vardaki EA, **Petrakis IG**, Stratigis S, Kroustalakis NG, Alegakis AK, Daphnis EK. Long-term **complication** rates and survival of peritoneal dialysis catheters: the role of percutaneous versus surgical placement**. SEMIN DIAL**. 2009 Sep-Oct; 22(5):569-75. doi: 10.1111/j.1525-139X.2009.00621.x. Epub 2009 Sep 11. PMID: 19747179

This retrospective clinical study compared the complications and survival of peritoneal catheters placed percutaneously with those placed surgically. The study included 170 patients undergoing peritoneal dialysis. In 84 patients, the peritoneal catheter was placed transdermally and in 86 surgically. The total observation time was 4997 person-months. The total number of complications did not differ between the two groups. The only difference observed was early leakage of peritoneal solution in the percutaneous catheter placement group. No difference was observed

in catheter survival, frequency of peritonitis, and exit site infections in the two groups. The study concluded that percutaneous placement of peritoneal catheters is an immediately available, safe technique that contributes to the development of the peritoneal dialysis program.

2) **Petrakis I**, Stylianou K, Mavroeidi V, Vardaki E, Stratigis S, Stratakis S, Xylouri I, Perakis C, Petraki C, Nakopoulou. Biopsy-proven resolution of renal light-chain deposition disease after autologous stem cell transplantation. **NEPHROL DIAL TRANSPLANT** 2010 Jun;25(6):2020-3. doi: 10.1093/ndt/gfq023. Epub 2010 Feb 3. PMID: 20133281.

This article describes the case of a patient with severe CKD due to light chain deposition disease who was administered high doses of melphalan and then underwent autologous stem cell transplantation.The autologous stem cell transplant contributed to sustained improvement in renal function. Four years after the initial improvement, the patient developed nephrotic-level proteinuria, with no evidence of relapse of plasma cell dyscrasia. The new renal biopsy showed complete elimination of light chain deposits and extensive glomerulosclerosis, which explained the cause of proteinuria. In conclusion, in severe renal damage due to light chain deposition, autologous stem cell transplantation can be considered as a therapeutic option for preserving renal function.

3) **I.G. Petrakis,** V.N Mavroeidi, S.I. Stratakis, K.E. Petrakis, E.A. Vardaki, K.G. Stylianou, and E.K. Daphnis. Intermittent peritoneal Dialysis: a disregarded therapy for disadvantaged patients. **CLINICAL NEPHROLOGY**, Vol 74, pp. S170-S171, 2009.

The above-mentioned research paper discusses the finding that intermittent peritoneal dialysis within the Intermittent Peritoneal Dialysis

(IPD) center can be applied to elderly patients with multiple comorbidities who cannot undergo hemodialysis and cannot perform peritoneal dialysis. (IPD) can be applied to elderly patients with multiple comorbidities who cannot undergo hemodialysis and cannot perform peritoneal dialysis at home. Twenty patients with a mean age of 71.3 years who underwent IPD were identified. Eighty-five percent had no caregiver, which ruled out home peritoneal dialysis. The survival of patients undergoing IPD was 19.4 months, similar to automated peritoneal dialysis (CAPD). At the same time, fewer episodes of peritonitis were observed, and peritoneal catheter survival was similar to that of patients undergoing CAPD. Frail patients who are unable to undergo hemodialysis or who do not have home support can be treated with IPD on a trial basis.

4) Stylianou K, Stratakis S, Mavroeidi V, **Petrakis I**, Xydakis D, Vardaki E, Stratigis S, Perakis K, Katsarou T, Kanellou P, Xylouri I, Petraki C, Alexandrakis M, Daphnis E. Membranous nephropathy and lupus-like syndrome after hematopoietic cell transplantation: a case report. J **MED CASE REP.** 2010 Sep 10;4:303. doi: 10.1186/1752-1947-4-303. PMID: 20831803; PMCID: PMC2944192.

Description of a case of a patient who presented with nephrotic syndrome due to membranous nephropathy in the context of chronic relapsing graft-versus-host disease (GVHD), along with a syndrome similar to systemic lupus erythematosus. The syndrome was characterized by pancytopenia, positive anti-DNA antibodies, and a renal biopsy showing membranous glomerulopathy with subepithelial and mesangial deposits. The nephrotic syndrome subsided after short-term administration of cyclosporine and

steroids. This case shows that graft-versus-host disease can be accompanied by manifestations similar to those of autoimmune diseases.

5) Stylianou K, **Petrakis I**, Mavroeidi V, Stratakis S, Vardaki E, Perakis K, Stratigis S, Passam A, Papadogiorgaki E, Giannakakis K, Nakopoulou L, Daphnis E. The PI3K/Akt/mTOR pathway is activated in murine lupus nephritis and downregulated by rapamycin. **NEPHROL DIAL TRANSPLANT.** 2011 Feb;26(2):498-508. doi: 10.1093/ndt/gfq496. Epub 2010 Aug 13. PMID: 20709738.

In female NZB mice, the expression of Akt and mTOR was examined by immunofluorescence and western blot, as well as the phosphorylated forms of Akt that result from the activation of the PI3K/Akt/mTOR signaling pathway.At the same time, the effect of rapamycin before and after the onset of lupus nephritis in NZBW mice was studied. In untreated mice, overexpression of Akt and mTOR and phosphorylation of Akt activation sites were observed. Rapamycin administration prolonged survival, maintained normal renal function, reversed proteinuria, restored the expression of nephrin and podocin in podocytes, reduced anti-dsDNA titers, improved the histological picture of lupus nephritis, and reduced Akt and mTOR expression and Akt activation. The study concluded that in female NZBW mice, the PI3K/Akt/mTOR signaling pathway is activated and that this activation justifies treatment with rapamycin. Rapamycin inhibits the activation of the PI3K/Akt/mTOR pathway. Rapamycin is an effective treatment for nephritis in female NZB mice.

6) **Petrakis I**, Mavroeidi V, Stylianou K, Giannakakis K, Daphnis E. Blocking glomerular immunoglobulin deposits in a mouse model of lupus nephritis on indirect immunofluorescence with the use of Fab fragments. **J IMMUNOL METHODS.** 2012 Feb 28;376(1-

2):139-42. doi: 10.1016/j.jim.2011.11.008. Epub 2011 Nov 25. PMID: 22138606.

An experimental technical study conducted on a model of nephritis in female NZBW hybrid mice with systemic lupus erythematosus (SLE). This study examined whether cross-reactions due to extensive endogenous glomerular IgG immune complex deposits in the context of SLE nephritis are an obstacle to the study of molecules of interest through indirect immunofluorescence. Specifically, it examined the presence of cross-reactions of secondary antibodies with IgG immune complexes due to phylogenetic relatedness of the species used to produce the secondary antibodies ( ) and NZBW mice. The application of Fab fragments can eliminate non-specific interactions in NZBW mouse kidney tissue. The application of Fab fragments inhibits the paratopic interactions of secondary antibodies with endogenous IgG immune complexes. However, the inhibition appears to be related to the species of animal used to develop the secondary antibodies. Increased phylogenetic homology of the animal in which the secondary antibodies were produced with the NZBW mouse may render inhibition of secondary antibody IgG immune complex interactions via Fab fragments impossible.

7) Stylianou K, **Petrakis I**, Mavroeidi V, Stratakis S, Kokologiannakis G, Lioudaki E, Liotsi C, Kroustalakis N, Vardaki E, Stratigis S, Perakis K, Kyriazis J, Nakopoulou L, Daphnis E. Rapamycin induced ultrastructural and molecular alterations in glomerular podocytes in healthy mice. **NEPHROL DIAL TRANSPLANT.** 2012 Aug;27(8):3141-8. doi: 10.1093/ndt/gfr791. Epub 2012 Jan 30. PMID: 22290989.

An experimental study was conducted on Balb/c mice that were administered three different doses of rapamycin intraperitoneally for one

week. Low dose 1mg/kg/day, intermediate dose 1.5mg/kg, and high dose 3mg/kg. The intermediate dose was also administered for three different periods of 1, 4, and 8 weeks. Renal function, albumin excretion, glomerular content of nephrin, podocin, Akt, and Ser473-phospho-Akt, as well as the amount of podocin and nephrin mRNA were assessed by polymerase chain reaction. The mean width of podocytes was measured by electron microscopy. In the high-dose group ( ), albumin excretion increased and was accompanied by a mild deterioration in renal function. The increase in the mean width of the foot processes was dose-dependent during the first week. In long-term administration of the intermediate dose, the amplitude of the foot reflexes was pathologically increased in the first week compared to the fourth week, while in the eighth week it was even lower. Nephrin and podocin mRNA showed a significant decrease in the first week and recovered in the fourth and eighth weeks. Ser473-phospho-Akt increased in all groups administered rapamycin. In conclusion, rapamycin caused significant structural and functional disturbances in podocytes, accompanied by increased albumin excretion. These changes were observed with high doses and at the beginning of treatment but were subsequently reversed.

8) Stratakis S, Stylianou K, **Petrakis I**, Mavroeidi V, Poulidaki R, Petra C, Moisiadis D, Stratigis S, Vardaki E, Nakopoulou L, Daphnis E. Rapamycin ameliorates proteinuria and restores nephrin and podocin expression in experimental membranous nephropathy. **J IMMUNOL RES** (former CLIN. DEVELOP. IMMUNOLOGY) 2013:941893. doi: 10.1155/2013/941893. Epub 2013 Aug 31. PMID: 24069045; PMCID: PMC3773418.

An original experimental study conducted in an experimental model of membranous nephropathy, which manifested in 12 Sprague-Dawley male

rats after intravenous administration of anti-Fx1. One week later, 6 experimental animals began daily subcutaneous administration of rapamycin at a dose of 0.5 mg/kg. All experimental animals were euthanized 7 weeks after the development of membranous nephropathy. The administration of rapamycin significantly reduced proteinuria, improved the histological picture, and reduced autoantibody deposition. Rats that did not receive treatment showed reduced expression of nephrin and podocin. The expression of nephrin and podocin was restored with the administration of rapamycin. Monotherapy with rapamycin in rats improves both proteinuria and the histological picture of experimental membranous nephropathy by inhibiting the allogeneic response during its autologous phase.

9) Xydakis D, Papadogiannakis A, Sfakianaki M, Kostakis K, Stylianou K, **Petrakis I**, Ergini A, Voskarides K, Dafnis E. Residual renal function in hemodialysis patients: the role of Angiotensin-converting enzyme inhibitor in its preservation. **ISRN NEPHROL.** 2012 Dec 24;2013:184527. doi: 10.5402/2013/184527. PMID: 24959534; PMCID: PMC4045428.

This is a randomized prospective study that examined the effect of angiotensin-converting enzyme inhibitor (ACEI) administration on residual renal function in patients undergoing hemodialysis. The study included 42 patients who were randomly divided into two groups. Patients in one group received enalapril at the start of dialysis, while those in the other group received antihypertensive treatment that did not include ACE inhibitors. The follow-up period was 12 months. This study showed that the administration of enalapril achieved better preservation of residual renal function compared to patients who did not receive ACE inhibitors.

10) Mavroeidi V, **Petrakis I**, Stylianou K, Katsarou T, Giannakakis K, Perakis K, Vardaki E, Stratigis S, Ganotakis E, Papavasiliou S, Daphnis E. Losartan affects glomerular AKT and mTOR phosphorylation in an experimental model of type 1 diabetic nephropathy. **J HISTOCHEM CYTOCHEM**. 2013 Jun;61(6):433-43. doi: 10.1369/0022155413482925. Epub 2013 Mar 1. PMID: 23456824; PMCID: PMC3715326.

An experimental study conducted on Sprague-Dawley rats that developed type I diabetes mellitus after administration of streptozotocin. This study examined the effect of losartan on the phosphorylation of the AKT-mTOR pathway in glomeruli and podocytes. Two months after administration of losartan, the rats' kidneys were subjected to immunohistochemical studies. The glomeruli were isolated for western blot analysis. Diabetes activated various forms of AKT and mTOR in both the glomeruli and podocytes. Losartan in diabetic rats reduced the phosphorylated active forms of AKT (Thr308) and mTOR (Ser2448) in the glomeruli, but in the podocytes it reduced only the activated mTOR. Administration of losartan to healthy rats in both the glomeruli and podocytes had the opposite effect. In conclusion, the effect of losartan on the glomeruli of diabetic rats differs from that in healthy rats.

11) **Petrakis I**, Mavroeidi V, Stylianou K, Efthymiou G, Perakis K, Vardaki E, Stratigis S, Giannakakis K, Kourouniotis K, Amoiridis G, Plaitakis A, Saraiva MJ, Yamamura KI, Daphnis E. Human TTRV30M localization within podocytes in a transgenic mouse model of transthyretin related amyloidosis: does the environment play a role? **TRANSGENIC RES.** 2013 Feb;22(1):101-16. doi: 10.1007/s11248-012-9632-0. Epub 2012 Jul 18. PMID: 22806634.

Original experimental study examining the localization of human mutant transthyretin in the podocytes of transgenic mice with the human mutation TTRV30M (hTTRV30M) under different living conditions (specie-free [SPF] versus non-SPF conditions). Glomeruli of transgenic hTTRV30M mice were examined using immunofluorescence techniques for the presence of hTTRV30M, serum amyloid P, activated caspase-3, and nephrin. The degree of correlation was assessed for nephrin-hTTRV30M, nephrin-activated caspase-3, and hTTRV30M-serum amyloid P. The localization of hTTRV30M in podocytes was examined by immun electron microscopy. The expression levels of hTTRV30M and nephrin genes were assessed. Non-SPF conditions were accompanied by increased glomerular deposition of hTTRV30M compared to SPF conditions. In addition, increased podocyte localization of hTTRV30M was observed in non-SPF conditions. Glomerular caspase-3 activation increased only in non-SPF living conditions. Podocyte caspase-3 activation increased in both SPF and non-SPF conditions. In conclusion, environmental conditions affect the glomerular deposition and podocyte localization of hTTRV30M. In this context, increased caspase-3 activation was observed.

12) **Petrakis I**, Mavroeidi V, Stylianou K, Andronikidi E, Lioudaki E, Perakis K, Stratigis S, Vardaki E, Zafeiri M, Giannakakis K, Plaitakis A, Amoiridis G, Saraiva MJ, Daphnis E. Hsf-1 affects podocyte markers NPHS1, NPHS2 and WT1 in a transgenic mouse model of TTRVal30Met-related amyloidosis. **AMYLOID.** 2013 Sep;20(3):164-72. doi: 10.3109/13506129.2013.814046. Epub 2013 Jul 5. PMID: 23829269.

An experimental study that examined the effect of Hsf-1 on the expression of various podocyte markers. This study was conducted on renal tissue from transgenic mice carrying the human mutant transthyretin gene (hTTRVal30Met). These mice were either homozygous or heterozygous for Hsf-1, or had their endogenous transthyretin gene inactivated. The expression of the nephrin, podocin, and WT1 genes was examined using immunohistochemistry and western blot techniques. The width of the podocytes and the thickness of the basement membrane were assessed using electron microscopy. The glomeruli of Hsf-1 hemizygous mice expressed lower levels of nephrin and podocin but an increased number of podocytes compared to homozygous transgenic mice. The gene expression of nephrin, podocin, and WT1 was not affected by the Hsf-1 carrier status. The deposition of hTTRVal30Met was accompanied by increased width of the podocytes and increased thickness of the basement membrane. In conclusion, Hsf-1 hemizygous mice showed thickening of the basement membrane of the glomeruli, increased deposition of hTTRVal30Met in them, and damage to the structure of the podocellular filtration barrier, but without any change in the gene expression of nephrin and podocin.

13) Katsipi I, Stylianou K, **Petrakis I**, Passam A, Vardaki E, Parthenakis F, Makrygiannakis A, Daphnis E, Kyriazis J. The use of pulse wave velocity in predicting pre-eclampsia in high-risk women. **HYPERTENS RES.** 2014 Aug;37(8):733-40. doi: 10.1038/hr.2014.62. Epub 2014 Mar 13. PMID: 24621469.

A study conducted on 118 pregnant women to assess the diagnostic value of pulse wave velocity measurement as a single diagnostic test or in combination with other diagnostic indicators in the early diagnosis of pre-eclampsia in high-risk pregnancies.high-risk pregnancies. Pregnant

women who were between 22 and 26 weeks of gestation and had a high risk of developing preeclampsia were enrolled in the study and underwent measurement of a) aortic pulse wave velocity, b) serum sFlt-1 c) serum uric acid, d) 24-hour urinary protein excretion, and e) 24-hour urinary calcium excretion. Of all the markers used, measurement of the aortic pulse wave was the test that detected most (81%) cases of preeclampsia at an early stage. When this was combined with the determination of sFlt-1 in serum, the diagnostic accuracy reached 91%. The study concluded that combining the measurement of the aortic pulse wave with the determination of sFlt-1 in the serum of pregnant women can be a sensitive indicator for the early diagnosis of preeclampsia.

14) Androvitsanea A, Stylianou K, Maragkaki E, Tzanakakis M, Stratakis S, **Petrakis I**, Giatzakis C, Daphnis E. Vanishing urate, acute kidney injury episodes and a homozygous SLC2A9 mutation. **INT UROL NEPHROL.** 2015 Jun;47(6):1035-6. doi: 10.1007/s11255-015-1005-1. Epub 2015 May 13. PMID: 25966807.

Case report of recurrent episodes of acute kidney injury in a patient with a previously unreported SLC2A9 gene mutation. The last episode of acute kidney injury was characterized by a complete absence of uric acid in plasma (<0.2 mg%) and increased fractional excretion of uric acid (150%). The increased fractional excretion of uric acid raised the suspicion of loss of GLUT9 functionality in the proximal convoluted tubule, resulting in the inability to reabsorb uric acid. DNA sequencing revealed a loss of exons 8-12 in the SLC2A9 gene. The study concluded that in cases of acute kidney injury with low blood uric acid levels, fractional excretion of uric acid should be determined.

15) Lioudaki E, Stylianou KG, **Petrakis I**, Kokologiannakis G, Passam A, Mikhailidis DP, Daphnis EK, Ganotakis ES. Increased Urinary Excretion of Podocyte Markers in Normoalbuminuric Patients with Diabetes. **NEPHRON.** 2015;131(1):34-42. doi: 10.1159/000438493. Epub 2015 Sep 5. PMID: 26340089.

A pioneering study conducted on people with type II diabetes mellitus with the aim of detecting an early indicator of diabetic nephropathy. The urine of 71 patients with type II diabetes mellitus who had normal albumin excretion, for the presence of 3 specific podocyte markers, nephrin, podocin, and synaptopodin, using real-time quantitative PCR, and compared them with those of 39 non-diabetic controls. The patients were divided into two large categories according to their podocyte marker profiles. One group had only synaptopodin mRNA in their urine, and the other group had synaptopodin mRNA along with podocin or nephrin mRNA, or both. The presence of nephrin or podocin mRNA, or both, was more common in diabetic patients than in controls. Statistical analysis of the data indicated that the presence of podocin or nephrin mRNA, or both, was an indicator of diabetic nephropathy . The study concluded that podocyte markers may be a useful tool in the early diagnosis of diabetic nephropathy.

16) Zewinger S, Kleber ME, Rohrer L, Lehmann M, Triem S, Jennings RT, **Petrakis I**, Dressel A, Lepper PM, Scharnagl H, Ritsch A, Thorand B, Heier M, Meisinger C, de Las Heras Gala T, Koenig W, Wagenpfeil S, Schwedhelm E, Böger RH, Laufs U, von Eckardstein A, Landmesser U, Lüscher TF, Fliser D, März W, Meinitzer A, Speer T. Symmetric dimethylarginine, high-density lipoproteins and cardiovascular disease. **EUR HEART J.** 2017

May 21;38(20):1597-1607. doi: 10.1093/eurheartj/ehx118. PMID: 28379378.

Dysfunctional high-density lipoprotein (d-HDL) in chronic kidney disease (CKD) is known to undergo a change in its composition, causing a phenotype of endothelial damage, among other things, through the accumulation of symmetric dimethylarginine. The endothelial glycocalyx, which covers the endothelial luminal surface, is the first line of defense against vascular diseases, including atherosclerosis. Here, we conducted a translational, cross-sectional study to determine the role of symmetric dimethylarginine in d-HDL as a mediator of glycocalyx damage. Using confocal microscopy and atomic force microscopy, it was found that intact HDL from healthy donors maintains the glycocalyx, while HDL from dialysis patients and exogenously administered symmetric dimethylarginine caused significant damage to the glycocalyx of endothelial cells in vitro in a dose-dependent manner ( ). Symmetric dimethylarginine caused destruction of the glycocalyx via molecular pathways mediated by toll-like-receptor 2 receptors and metalloproteinase-9. Corresponding intravital microscopy showed that exogenous administration of symmetrical dimethylarginine and d-HDL from hemodialysis patients caused glycocalyx damage, which subsequently contributed to changes in leukocyte rolling . Biologically active HDL was the only parameter that could independently predict glycocalyx damage in vivo. Thus, our data suggest that symmetric dimethylarginine within d-HDL mediates glycocalyx damage in CKD.

17) Zewinger S, Kleber ME, Tragante V, McCubrey RO, Schmidt AF, Direk K, Laufs U, Werner C, Koenig W, Rothenbacher D, Mons U, Breitling LP, Brenner H, Jennings RT, **Petrakis I**, Triem S, Klug M, Filips A, Blankenberg S, Waldeyer C,

Sinning C, Schnabel RB, Lackner KJ, Vlachopoulou E, Nygård O, Svingen GFT, Pedersen ER, Tell GS, Sinisalo J, Nieminen MS, Laaksonen R, Trompet S, Smit RAJ, Sattar N, Jukema JW, Groesdonk HV, Delgado G, Stojakovic T, Pilbrow AP, Cameron VA, Richards AM, Doughty RN, Gong Y, Cooper-DeHoff R, Johnson J, Scholz M, Beutner F, Thiery J, Smith JG, Vilmundarson RO, McPherson R, Stewart AFR, Cresci S, Lenzini PA, Spertus JA, Olivieri O, Girelli D, Martinelli NI, Leiherer A, Saely CH, Drexel H, Mündlein A, Braund PS, Nelson CP, Samani NJ, Kofink D, Hoefer IE, Pasterkamp G, Quyyumi AA, Ko YA, Hartiala JA, Allayee H, Tang WHW, Hazen SL, Eriksson N, Held C, Hagström E, Wallentin L, Åkerblom A, Siegbahn A, Karp I, Labos C, Pilote L, Engert JC, Brophy JM, Thanassoulis G, Bogaty P, Szczeklik W, Kaczor M, Sanak M, Virani SS, Ballantyne CM, Lee VV, Boerwinkle E, Holmes MV, Horne BD, Hingorani A, Asselbergs FW, Patel RS; GENIUS-CHD consortium; Krämer BK, Scharnagl H, Fliser D, März W, Speer T. Relations between lipoprotein(a) concentrations, LPA genetic variants, and the risk of mortality in patients with established coronary heart disease: a molecular and genetic association study. **LANCET DIABETES ENDOCRINOL.** 2017 Jul;5(7):534-543. doi: 10.1016/S2213-8587(17)30096-7. Epub 2017 May 26. PMID: 28566218; PMCID: PMC5651679.

This study examined whether serum lipoprotein(a) (LPA) concentration or genetic variants of LPA predict long-term mortality in patients with pre-existing coronary artery disease.

We used data from 3,313 patients with coronary artery disease in the Ludwigshafen Risk and Cardiovascular Health (LURIC) study. We tested

associations of plasma lipoprotein(a) concentration and two single nucleotide polymorphisms (SNPs) of LPA (rs10455872 and rs3798220) with all-cause mortality and cardiovascular mortality using Cox analysis and with disease severity using a generalized linear model, with and without adjustment for age, sex, diabetes diagnosis, systolic blood pressure, body mass index, smoking status, estimated glomerular filtration rate, LDL-cholesterol concentration, and use of lipid-lowering therapy. The results for plasma lipoprotein(a) concentrations were validated in five independent studies involving 10,195 patients with coronary artery disease. The results for genetic associations were validated through a large-scale collaborative analysis in the GENIUS-CHD cohort, which examines 106,353 patients with coronary artery disease, including 19,332 deaths.

The mean follow-up was 9.9 years. Increased severity of coronary artery disease is associated with increased plasma lipoprotein(a) concentrations and the presence of any LPA SNP (1.88, 1.40–2.53). No associations were found in LURIC with total mortality and any LPA SNP or cardiovascular mortality or in the validation studies. In conclusion, in patients with coronary artery disease, lipoprotein(a) concentrations and genetic parameters showed no associations with mortality. Therefore, these variables are not useful as risk factors for predicting progression to death in established coronary artery disease.

18) Zewinger S, Rauen T, Rudnicki M, Federico G, Wagner M, Triem S, Schunk SJ, **Petrakis I**, Schmit D, Wagenpfeil S, Heine GH, Mayer G, Floege J, Fliser D, Gröne HJ, Speer T. Dickkopf-3 (DKK3) in Urine Identifies Patients with Short-Term Risk of eGFR Loss. J **AM SOC NEPHROL.** 2018 Nov;29(11):2722-2733. doi:

10.1681/ASN.2018040405. Epub 2018 Oct 2. PMID: 30279273; PMCID: PMC6218861.

The individualized progression of chronic kidney disease (CKD) can vary, and better methods are needed to determine which patients will experience a decline in glomerular filtration rate (eGFR) in the short term. Assessment of urinary Dickkopf-3 (DKK3), a pro-fibrotic glycoprotein produced by the tubular epithelial cell and influenced by tubular injury, can provide information on the progression of tubulointerstitial fibrosis and eGFR loss in the short term.

To investigate the potential usefulness of urinary DKK3 as a biomarker of eGFR loss in the short term (12 months), we prospectively evaluated eGFR and urinary DKK3 levels in patients with CKD of various etiologies. We also measured urinary DKK3 in a sample of the general population and in patients with kidney biopsies or IgA nephropathy undergoing treatment.

The mean urine DKK3 to urine creatinine ratio was significantly higher in patients with CKD compared to the general population sample. In the CKD cohort, the presence of urinary DKK3 to urinary creatinine >4000 pg/mg was independently and significantly associated with a mean annual decline in eGFR of 7.6%. Urine DKK3 significantly improved the prediction of renal function decline compared to eGFR or albuminuria. Urine DKK3 to urine creatinine levels were associated with the extent of tubulointerstitial fibrosis in kidney biopsies. In patients with IgA nephropathy, increased urinary DKK3 was associated with a significant decrease in eGFR within 6 months, while stable or decreasing urinary DKK3 levels indicated a more favorable course.

We conclude that urinary DKK3 levels identify patients at high risk of eGFR decline over the next 12 months regardless of the cause of kidney damage and beyond established biomarkers, thus providing a tool for monitoring the progression of CKD and evaluating the effects of potential therapeutic interventions.

19) **Petrakis I**, Androvitsanea A, Stratakis S, Daphnis E, Stylianou K. Intense immunostaining of heat shock protein 70 within renal interstitium associates with long-term renal survival in an ANCA-associated vasculitis cohort. **CELL STRESS CHAPERONES.** 2021

The pathogenesis of anti-neutrophil cytoplasmic antibody-associated vasculitis (AAV), genetic predisposition, ANCA autoantibodies, extracellular neutrophil traps (NETs), complement activation, and toll-like receptor signaling are involved. Heat shock proteins (HSPs), an evolutionarily conserved group of small molecular chaperones, are involved in protein folding during cellular stress. Although HSPs were initially observed intracellularly, it subsequently became apparent that they can be secreted into the extracellular space and regulate the immune response in various autoimmune diseases, including AAV. The aim of the present study was to investigate the role of HSP60 and HSP70 in long-term renal effects in a cohort of 29 patients with AAV who were followed up for 20 years. At diagnosis, immunohistochemistry for HSP60 and HSP70 was performed on the patients' renal tissue. Higher renal HSP60 expression was associated with increased interstitial inflammatory infiltrates at diagnosis, while HSP70 expression was associated with greater extent of interstitial fibrosis at diagnosis. Furthermore, intense tissue expression of HSP70 at the time of biopsy was associated with

reduced renal survival. This finding may indicate a role for HSPs in the progression of renal disease in ANCA vasculitis.

20) Markaki A, Kyriazis P, Dermitzaki EK, Maragou S, Psylinakis E, Spyridaki A, Drosataki H, Lygerou D, Grammatikopoulou MG, **Petrakis I**, Stylianou K. The Association Between Handgrip Strength and Predialysis Serum Sodium Level in Patients With Chronic Kidney Disease Stage 5D. **FRONT MED (LAUSANNE).** 2021 Jan 12;7:610659. doi: 10.3389/fmed.2020.610659. PMID: 33511145; PMCID: PMC7835135.

Handgrip strength (HGS) is a useful tool for the systematic assessment of muscle function related to nutritional status. Decreased HGS has been associated with poor clinical outcomes in patients with stage 5D chronic kidney disease (CKD-5D). In the same patients, low pre-dialysis serum sodium (sNa) has been associated with malnutrition and increased mortality. In the present study, we investigated the role of pre-dialysis sNa in muscle function in patients with CKD-5D.

We evaluated 45 patients on hemodialysis (HD) and 28 patients on peritoneal dialysis (PD) with HGS measurement, bioimpedance analysis, anthropometry, and malnutrition inflammation score (MIS) measurements. Pre-dialysis sNa was a strong and independent determinant of HGS and a reliable nutritional indicator in patients with CKD-5D. However, according to our findings, lower sNa levels appeared to be more related to underlying adverse comorbidities leading to reduced HGS than a causative factor of reduced HGS. Whether optimizing sNa levels improves muscle function in patients requires further investigation.

21) Schunk SJ, Speer T, **Petrakis I**, Fliser D. Dickkopf 3—a novel biomarker of the 'kidney injury continuum'. **NEPHROL DIAL TRANSPLANT.** 2021 Apr 26;36(5):761-767. doi: 10.1093/ndt/gfaa003. PMID: 32025732.

Progressive CKD leading to uremia can be considered a systemic disease with a critical impact on almost all organ systems. Therefore, it is particularly important to identify patients with ongoing progression of CKD, which is difficult because the individualized progression of CKD is difficult to predict. Patterns of progression in patients with CKD include linear and non-linear trajectories of renal function loss. Renal function may also remain stable for years. In addition, a significant reduction in renal function may occur in the absence of high-grade albuminuria (non-proteinuric CKD), making the measurement of albuminuria less reliable for predicting CKD progression in such patients. In this review, we focus on the recently identified glycoprotein Dickkopf-3 (DKK3) as a tubular cell-derived glycoprotein. In experimental models of CKD, DKK3 promotes tubulointerstitial fibrosis by regulating the canonical Wnt/β-catenin pathway. In clinical studies, elevated urinary DKK3 levels indicated patients at high risk for rapid progression of CKD, regardless of the cause of kidney disease, pre-existing kidney function, and albuminuria. Furthermore, elevated urinary DKK3 levels are associated with a high risk of acute kidney injury and future loss of renal function after cardiac surgery. These findings define DKK3 as a mediator of heat shock response ( ) damage to renal tubular cells, contributing to the short-term progression of CKD, with potential therapeutic implications.

22) Androvitsanea A, Stylianou K, Drosataki E, **Petrakis I**. The Pathophysiological Role of Heat Shock Response in Autoimmunity: A Literature Review. **CELLS.** 2021 Oct

1;10(10):2626. doi: 10.3390/cells10102626. PMID: 34685607; PMCID: PMC8533860.

Over the past two decades, there has been growing evidence that heat shock proteins can have a differential effect on the immune system. They can either promote or suppress immune responses. This review focuses on describing the stimulatory as well as inhibitory effects of heat shock proteins 27, 40, 70, 65, 60, and 90 in experimental models and clinical autoimmune syndromes.

23) Psyllaki A, Stavrakaki I, Androvitsanea A, Gakiopoulou H, **Petrakis I,** Stylianou K. Two cases of glomerular involvement after vaccination against COVID-19: epiphenomenon or causality? **CLIN KIDNEY J.** 2021 Dec 8;15(3):574-575. doi: 10.1093/ckj/sfab252. PMID: 35211312; PMCID: PMC8862059.

Vaccination against coronavirus disease 2019 (COVID-19) is the most important intervention for preventing severe acute respiratory syndrome (ARDS) from coronavirus. During the global vaccination program, rare complications related to the COVID-19 vaccine, such as glomerular disease (CVAGD), have been reported. Here we present two patients with CVAGD and their therapeutic management. Both patients were middle-aged males and presented with minimal change disease (MCD) and membranous nephropathy (MN), respectively. The therapeutic management was the same as the standard therapeutic practice for the two diseases, and the response was complete in the case of the patient with MLE and partial in the case of the patient with FMN.

24) **Petrakis I**, Drosataki E, Stavrakaki I, Dermitzaki K, Lygerou D, Konidaki M, Pleros C, Kroustalakis N, Maragkou S, Androvitsanea A, Stylianou I, Zaganas I, Stylianou K. The

p.Pro482Ala Variant in the CNNM2 Gene Causes Severe Hypomagnesemia Amenable to Treatment with Spironolactone. **INT J MOL SCI.** 2022 Jun 30;23(13):7284. doi: 10.3390/ijms23137284. PMID: 35806288; PMCID: PMC9266752.

Renal hypomagnesemia syndromes caused by pathogenic variants of the CNNM2 protein are associated with varying degrees of neurocognitive dysfunction and hypomagnesemia. Here, we report a family with a novel mutation in CNNM2 p.Pro482Ala, presenting with overt hypomagnesemia and mild neurological involvement (autosomal dominant renal hypomagnesemia 6, HOMG6, MIM#613882). Using a bioinformatics approach, we showed that the amino acid substitution p.Pro482Ala causes a three-dimensional change in the structure of CNNM2 in the cystathionine beta-synthase (CBS) domain and in the carboxy-terminal protein domain. A new finding was that aldosterone inhibition with spironolactone helped relieve hypomagnesemia and symptoms in these patients.

25) Lioudaki E, Androvitsanea A, **Petrakis I**, Bakogiannis C, Androulakis E. Cardiac Imaging and Management of Cardiac Disease in Asymptomatic Renal Transplant Candidates: A Current Update. **DIAGNOSTICS (BASEL).** 2022 Sep 27;12(10):2332. doi: 10.3390/diagnostics12102332. PMID: 36292020; PMCID: PMC9600087.

Given the high cardiovascular risk associated with stage 5 chronic kidney disease (CKD st V), it would be important for the clinical nephrologist to know which method(s) detect high-risk patients and whether screening asymptomatic kidney transplant candidates effectively reduces cardiovascular risk perioperatively and in the long term. This review reports and critically analyzes points in studies addressing the above

questions. The lack of uniform screening criteria and an adequate predictive effect of cardiovascular screening for kidney transplant candidates lays the foundation for a personalized approach to the patient in the near future and highlights the need for well-designed studies to produce reliable data that will answer the above questions.

26) Bacharaki D, **Petrakis I**, Kyriazis P, Markaki A, Pleros C, Tsirpanlis G, Theodoridis M, Balafa O, Georgoulidou A, Drosataki E, Stylianou K. Adherence to the Mediterranean Diet Is Associated with a More Favorable Left Ventricular Geometry in Patients with End-Stage Kidney Disease. J **CLIN MED.** 2022 Sep 28;11(19):5746. doi: 10.3390/jcm11195746. PMID: 36233612; PMCID: PMC9571193.

The aim of the study was to examine the effect of the Mediterranean diet (MD) on left ventricular hypertrophy (LVH) and cardiac geometry in patients with chronic kidney disease undergoing dialysis (CKD-5D), given the high prevalence of cardiovascular morbidity in this population. A total of 127 patients with CKD-5D (77 men and 50 women, 69 on hemodialysis and 58 on peritoneal dialysis) with a mean age of 62 years were studied. The results of the study showed that adherence to the MD is associated with less LVH, better cardiac geometry, and protection against future heart disease in patients undergoing hemodialysis.

27) Drosataki E, Maragkou S, Dermitzaki K, Stavrakaki I, Lygerou D, Latsoudis H, Pleros C, **Petrakis I**, Zaganas I, Stylianou K. Dent-2 disease with a Bartter-like phenotype caused by the Asp631Glu mutation in the OCRL gene. **BMC NEPHROL.** 2022 May 12;23(1):182. doi: 10.1186/s12882-022-02812-9. PMID: 35549682; PMCID: PMC9097321.

In this study, we present the clinical features of the new Asp631Glu mutation in the OCRL gene, which occurs in a family as Dent-2 disease with Bartter-like features. Phosphorus replacement resulted in significant improvement of all clinical features (bone and muscle disease, electrolyte disturbances, alkalosis, and nephrocalcinosis) but did not halt the progressive worsening of CKD. Angiotensin blockade improved proteinuria and stabilized renal function for several years.

28) Georgopoulou T, **Petrakis I**, Dermitzaki K, Pleros C, Drosataki E, Aletras G, Foukarakis E, Lioudaki E, Androulakis E, Stylianou K. Cardiorenal Syndrome: Challenges in Everyday Clinical Practice and Key Points towards a Better Management. **J CLIN MED**. 2023 Jun 18;12(12):4121. doi: 10.3390/jcm12124121. PMID: 37373813; PMCID: PMC10321054.

Systematic review study of cardiorenal syndrome. The term cardiorenal syndrome (CRS) encompasses an increasing number of patients presenting with combined cardiac and renal dysfunction. Despite accelerating knowledge about the pathophysiology, diagnosis, and treatment of CRS, many of the aforementioned aspects remain unclear in everyday clinical practice. Some of the challenges faced by clinicians when treating CRS today are the need for patient-centered management with timely diagnosis, timely intervention, distinguishing true renal injury from permissible deterioration of renal function during decongestive therapy, and developing therapeutic algorithms to guide treatment.

A CRS classification system that assesses underlying organ damage and its temporal sequence will help clinicians provide the right treatment to the right patient.

In addition, a combination of multiple biomarkers (both cardiac and renal) should be established to identify patients at higher risk of developing a more severe form of CRS. Serum chloride and C-NP appear to be promising markers, but additional research is needed before they can be used in clinical practice.

The management of CRS remains complex due to the complications of decongestive therapy and the choice of therapies , such as inotropes, management of diuretic resistance, and the ideal timing and dose of fluid volume decongestion. Anemia in the context of cardiac and renal failure completes a complex triad that must always be addressed.

29) Waldman M, Sinaii N, Lerma EV, Kurien AA, Jhaveri KD, Uppal NN, Wanchoo R, Avasare R, Zuckerman JE, Liew A, Gallan AJ, El-Meanawy A, Yagil Y, Lebedev L, Baskaran K, Vilayur E, Cohen A, Weerasinghe N, **Petrakis I**, Stylianou K, Gakiopoulou H, Hamilton AJ, Edney N, Millner R, Marinaki S, Rein JL, Killen JP, Rodríguez Chagolla JM, Bassil C, Lopez Del Valle R, Evans J, Urisman A, Zawaideh M, Baxi PV, Rodby R, Vankalakunti M, Mejia Vilet JM, Ramirez Andrade SE, Homan MP, Vásquez Jiménez E, Perinpanayagam N, Velez JCQ, Mohamed MMB, Mohammed KMG, Sekar A, Ollila L, Aron AW, Arellano Arteaga KJ, Islam M, Berrio EM, Maoujoud O, Morales RR, Seipp R, Schulze CE, Yenchek RH, Vancea I, Muneeb M, Howard L, Caza TN. COVID-19 Vaccination and New Onset Glomerular Disease: Results from the IRocGN2 International Registry. **KIDNEY360.** 2023 Mar 1;4(3):349-362. doi: 10.34067/KID.0006832022. PMID: 36996301; PMCID: PMC10103269.

Recently, many patients with various forms of de novo glomerular disease (GD) have been reported after vaccination against SARS-CoV-2.

The etiological relationship has not been documented and the long-term effects are unknown. To better characterize the different forms of GD and their clinical course and outcome, we have created the International Registry of COVID-19 Vaccination and de novo GD after exposure to COVID-19 vaccine.

Detailed information on the type and timing of vaccination and the histology of GD was recorded in the registry. We collected information on laboratory values (before and after vaccination and during follow-up), treatments, and kidney-related outcomes. We detected 98 patients with GD over an 11-month period from 44 centers worldwide. The median follow-up was 89 days after diagnosis. IgA nephropathy (IgAN) and minimal change disease (MCD) were the most common kidney diseases reported. Restoration of renal function and remission of proteinuria were more likely in IgAN and MCD at 4-6 months compared with immune-mediated GN/vasculitis and membranous nephropathy. The onset of GD after SARS-CoV-2 vaccination may be a very rare adverse event. There is a temporal association for IgAN and MCD, but the etiology is not well documented. The renal outcome for IgAN and MCD is good. Based on these findings, no changes in the assessment of the risk-benefit ratio of vaccination are recommended.

30) Palamaris K, Stylianou K, Destouni M, Stofas A, Theodoropoulou H, Kroustalakis N, Dermitzaki EK, **Petrakis I**, Pleros C, Theochari I, Sarantis P, Paliouras C, Gakiopoulou H. Tubulointerstitial nephritis and uveitis (TINU) syndrome: a report of 6 cases with renal biopsy and electron microscopy evaluation. **NEPHRON.** 2023 Aug 23. doi: 10.1159/000533402. Epub ahead of print. PMID: 37611557.

This series of patients describes new features of tubulointerstitial nephritis and uveitis (TINU) syndrome, a rare, immunologically induced entity characterized by inflammatory infiltration of the eye and kidney. All of our patients presented with ocular and renal manifestations, characterized by bilateral uveitis and photosensitivity, along with impaired renal function. In some patients, elevated serum creatinine was accompanied by non-nephrotic range proteinuria, glycosuria, or "complete" Fanconi syndrome. The rest of the laboratory evaluation was normal, except for the presence of increased erythrocyte sedimentation rate and increased urinary β2-microglobulin, as well as normochromic, normocytic anemia in some cases. All patients underwent kidney biopsy. Classic histochemical and immunohistochemical staining was performed for immune system cell populations and for the renal localization of β2-microglobulin. The biopsies were also examined with an electron microscope. Histologically, there was diffuse inflammatory infiltration consisting mainly of lymphocytes, with a predominance of T cells, along with numerous macrophages. The severity of the inflammation varied among patients, with some showing sparse inflammatory foci, while others showed dense, diffuse interstitial inflammatory infiltration. Interestingly, in two cases, a granulomatous pattern was detected, characterized by non-necrotic, indistinct granulomas. Peritubular inflammation was also observed in some patients. Different levels of tubular atrophy, interstitial fibrosis, and spherical glomerulosclerosis were observed among the various cases. Immunohistochemical evaluation of β2-microglobulin revealed a significant reduction in cytoplasmic staining in tubular epithelial cells compared to control kidneys. The most notable finding from electron microscopy was the presence, in one patient, of scattered granular electron-dense deposits along some tubular basement membranes. The treatment of choice was steroids, which in

some cases were supplemented with additional immunosuppressive agents. Three patients showed partial or complete response, while progressive renal damage was observed in one case with severe chronic damage and persistence of the inflammatory reaction. Our cases appear to represent progressive stages in the context of the ongoing evolution of the disease. Patients with more prominent inflammation may represent a more initial state, while those with a more severe chronicity index may represent more advanced stages. While T-cell predominance suggests a cell-mediated autoimmune mechanism as the driving force behind the onset of the disease, the presence of immune complexes in more advanced stages may suggest the involvement of humoral immunity as a late event in the course of the disease.

31) Bacharaki D, **Petrakis I**, Stylianou K. Redefining the therapeutic strategies against cardiorenal morbidity and mortality: Patient phenotypes. **WORLD J CARDIOL.** 2023 Mar 26;15(3):76-83. doi: 10.4330/wjc.v15.i3.76. PMID: 37033683; PMCID: PMC10074996.

Patients with chronic kidney disease (CKD) face unacceptably high morbidity and mortality, mainly from cardiovascular diseases. Diabetes mellitus, hypertension, and dyslipidemia are particularly prevalent in patients with CKD. Established treatment protocols for diabetes mellitus, hypertension, and dyslipidemia are not as effective in patients with CKD as they are in the general population. The role of non-traditional cardiovascular risk factors has gained interest in recent decades. These include secondary hyperparathyroidism involving vascular and valvular calcification, collectively referred to as "CKD-MBD" (CKD-MBD), uremia itself, inflammation, and oxidative stress. Each of these non-traditional risk factors has been addressed in various research efforts, but

the results do not show practical clinical benefit for patients with CKD. We propose a therapeutic paradigm that moves from individual treatment targets, as currently practiced, to precision medicine that includes patient phenotypes with distinct underlying pathophysiology.

First, selection of patients expected to have high mortality, i.e., prognostic enrichment. Second, selection of patients likely to respond to a specific treatment, i.e., probabilistic enrichment.

32) Balafa O, Dounousi E, Giannikouris I, **Petrakis I**, Georgoulidou A, Karassavidou D, Kokalis A, Stauroulopoulos A, Theodoridis M, Oikonomidis I, Triantafyllis G, Tsotsorou O, Tzannis K, Bacharaki D. Lower serum magnesium is a predictor of left ventricular hypertrophy in patients on dialysis. **INT UROL NEPHROL.** 2023 Apr;55(4):1015-1023. doi: 10.1007/s11255-022-03391-2. Epub 2022 Oct 24. PMID: 36279086.

This multicenter observational study investigated the association of serum Mg with left ventricular hypertrophy (LVH) and cardiac geometry in patients with stage 5 chronic kidney disease. Patients undergoing hemodialysis (HD) and peritoneal dialysis (PD) from nine nephrology departments in Greece were included. Echocardiographic LVH was defined as left ventricular (LV) mass index > 95 g/m2 in women and > 115 g/m2 in men. Four LV geometric patterns were defined: normal, concentric remodeling, eccentric LVH, and concentric LVH. Demographic and laboratory data were collected. A total of 133 patients (68 HD, 65 PD) with a mean age of 63 years (IQR 52-74) were studied. Mg was positively correlated with creatinine and HDL and negatively correlated with CRP levels and BMI. There were no significant differences in Mg between the treatment groups. Eighty patients had LVH (43 HD patients and 37 PD patients). Patients with LVH were older

(median age 68 vs. 55 years, $p < 0.001$), had a higher BMI (median 26.9 vs. 24.7 kg/m², $p = 0.009$), had a history of PVD or CAD (55% vs. 30.2%, $p = 0.003$), had higher systolic blood pressure (median 60 vs. 50, $p = 0.017$), MIS score (median 5 vs. 4, $p = 0.011$), lower albumin (median 3.5 vs. 3.8 g/dl, $p = 0.011$), and Mg levels (median 2.1 vs. 2.4 mg/dl, $p < 0.001$). In univariate analysis, age, CVD comorbidities, pulse pressure, CRP, BMI, albumin, Mg, MIS, and use of beta-blockers or calcium channel blockers were predictive factors for LVH. In the multivariate analysis, Mg was an independent predictor of LVH, adjusted for age, MIS, and beta-blockers. Considering LV geometry, lower Mg levels were mainly associated with concentric LVH. In conclusion, low serum magnesium levels appear to be an independent factor for LVH in patients undergoing hemodialysis and peritoneal dialysis.

33) Pleros C, Adamidis K, Kantartzi K, Griveas I, Baltsavia I, Moustakas A, Kalliaropoulos A, Fraggedaki E, Petra C, Damianakis N, Mentis A, Drosataki E, **Petrakis I**, Passadakis P, Panagopoulos P, Stylianou K, Panagoutsos S. Dialysis Patients Respond Adequately to Influenza Vaccination Irrespective of Dialysis Modality and Chronic Inflammation. J **CLIN MED.** 2023 Sep 26;12(19):6205. doi: 10.3390/jcm12196205. PMID: 37834849; PMCID: PMC10573409.

Multicenter prospective observational study to evaluate the immune response in hemodialysis (HD) patients and online hemodiafiltration (OL-HDF) patients to a seasonal inactivated quadrivalent influenza vaccine (IQIV). A total of 172 patients with chronic hemodialysis (87 on HD and 85 on OL-HDF) and 18 control subjects without chronic kidney disease participated. Participants were vaccinated with seasonal IQIV and antibody titers were determined using the hemagglutination inhibition

(HI) assay before vaccination (month 0) and 1, 3, and 6 months after. Demographic data and inflammatory markers (CRP, IL-6, IL-1β) were recorded at month 0. The primary endpoints were seroconversion (SR) rates, defined as a fourfold increase in HI titer, and seroprotection (SP), defined as an HI titer ≥ 1/40 throughout the study period. Statistical analyses were performed using R statistical software (version 3.6.3). Differences between groups were analyzed using chi-square and t-tests for binary and continuous variables, respectively. To determine the independent determinants of SR and SP, generalized linear models were created with the response or protection ( ) per virus strain as the dependent variable and group, age, sex, time (month 0, 1, 3, 6), diabetes, IL-6, year of dialysis, HD access, and HDF volume. SR and SP rates were similar between control subjects and dialysis patients and were not affected by the mode of dialysis. SP rates were high (>70%) at the start of the study and reached nearly 100% after vaccination in all study groups. These results were consistent for all four virus strains included in the IQIV. IL-6 levels differed significantly between study groups, with HD patients having the highest values, but this did not affect SP rates. In conclusion, dialysis patients respond adequately and similarly to the general population to influenza immunization. Therefore, annual vaccination policies should be encouraged in dialysis units. OL-HDF reduces chronic inflammation; however, this has no effect on SP rates.

16.Summary of doctoral thesis

Introduction: Familial Amyloid Polyneuropathy (FAP) was first described about 60 years ago. Today, it is one of the most common forms of hereditary amyloidosis worldwide. It is inherited in an autosomal dominant manner. The clinical picture is diverse, with the predominant feature being the involvement of small nerve fibers. To date, all patients

suffering from OAP are carriers of point mutations in the transthyretin gene and present amyloid with transthyretin molecules in various tissues. Renal amyloid deposition and renal damage have been described in patients with OAP. Regarding the pathogenesis of ADP, oligomeric non-fibrillar forms of transthyretin induce apoptosis, increased pro-inflammatory cytokines, and oxidative stress in tissues.

Objective: The present study aimed to investigate the mechanisms of renal damage in animal models of ADP. In particular, it examined daily urinary albumin excretion in transgenic models of ADP. In addition, it examined mechanisms involving the various components of the glomerular filtration barrier (nephrin, podocin), podocyte population, WT-1 mRNA levels, and the thickness of the basement membrane and secondary podocyte foot processes change depending on the presence or partial absence of Hsf-1. It also examined, under the influence of different environmental conditions, the presence of glomerular deposits of human mutant transthyretin, the expression of the mutant human transthyretin gene, the localization of human mutant transthyretin within podocytes, and the activation of intracellular podocyte caspase 3. In addition, he investigated the presence or absence of human mutant transthyretin deposits depending on the sex of the transgenic animals, the effect of rapamycin on glomerular deposition of human mutant transthyretin, and the expression levels of bax/bcl-2 molecules within the glomerulus in relation to the sex of the animals.

Materials and methods: Transgenic animals for the human mutant transthyretin gene [C57Bl/6-Tg(6.0 TTRMet30)15Imeg –hTTRV30M] derived from the implantation of deep-frozen embryos (CARD, Kumamoto, Japan) into the fallopian tubes of surrogate mothers. Young animals (10-16 months) and old animals (16-21 months) with or without the hTTRVal30Met were placed in metabolic cages (Tecniplast) for 24-

hour urine collection. Daily albumin excretion was normalized according to the body weight of the animals. Daily urinary albumin excretion was determined by ELISA (Bethyl Laboratories). Daily albumin excretion data were log-transformed. The chi-square test was used for statistical analysis of the results. Pearson's R test was used to assess the degree of correlation. Statistical significance was set at ≤ 0.05. SPSS 19 software was used for statistical analysis of the results. At the same time, a group of 8-month-old animals was administered intraperitoneal rapamycin (DMSO & Rapamycin) or (DMSO) every other day at a dose of 0.4 mg/kg body weight for 2 months. At the same time, 24-hour urine samples were collected to determine daily albumin excretion. The kidneys were rapidly cooled in liquid nitrogen (-196°C). Cryosections 5 μm thick were fixed with 4% paraformaldehyde solution and incubated with antibodies against human transthyretin (rabbit anti-human TTR antibody-DAKO), against mouse bax protein (bax rabbit anti-mouse antibody-Abcam) against mouse bcl-2 protein (bcl-2 rabbit anti-mouse antibody-Abcam). The renal tissue was further subjected to histochemical staining with silver methenamine, Congo red, Masson's trichrome, and PAS. A confocal fluorescence microscope was used to examine the immunofluorescence sections (Leica SP). The fluorescence images were analyzed using Leica Confocal Software. The data were checked for normality of distribution. In case of non-normal distribution, a logarithmic transformation of the data was performed. Statistical significance (defined as ≤ 0.05) was tested using the X2 and T tests for independent samples. Correlation was tested using Pearson's R test. SPSS19 software was used for statistical analysis. In addition, the degree and extent to which the deposition of human mutant transthyretin (TTRV30M) is affected by different environmental conditions (high barrier conditions-SPF and low barrier conditions-non-SPF) was investigated. Specifically, co-transcripts from transgenics for the

human mutant transthyretin gene (hTTRV30M) were examined using direct and indirect confocal fluorescence microscopy for the presence of human mutant transthyretin, murine serum amyloid P, murine activated caspase 3, and nephrin. The correlation between the degree of colocalization and the percentage of colocalization was estimated using Image J software. The localization of human mutant transthyretin deposits within podocytes was performed using immunogold transmission electron microscopy. The renal expression of human mutant transthyretin (hTTRV30M) and nephrin (NPHS-1) was determined using real-time polymerase chain reaction (RT-PCR). At the same time, the genes of nephrin, podocin, and WT1 were studied in hTTRV30M renal tissue from mice that were hemizygous or homozygous for the Hsf-1 factor using immunohistochemistry, Western blotting, and RT-PCR. Transmission electron microscopy was used to assess the thickness of the secondary podocyte foot processes and the glomerular basement membrane in renal tissue from mice heterozygous for Hsf-1 either with or without glomerular deposition of human mutant transthyretin (hTTRV30M) or amyloid deposition.

Results: 78.6% of young hTTRV30M animals had daily albumin excretion greater than the median value (0.72), while 21.4% of non-transgenic young animals had daily albumin excretion above the median value (X2=0.583, p=0.445).100% of elderly hTTRVal30Met animals had a daily albumin excretion above the median value, while 0% of non-transgenic animals had a daily albumin excretion above the median value. (X2 =8.6, p=0.003,R=0.496, p=0.002). In terms of daily albumin excretion (HAAlb - ng/24 hours/g BW) for transgenic mice receiving rapamycin, the mean HAAlb was 778.9 +/- 6.0, while transgenic mice receiving DMSO had a HAA 815.3 +/- 3.3 p=0.97. In all animals studied, the renal tissue was

negative for Congo red staining, indicating a lack of amyloid deposition. The glomeruli from male transgenic mice receiving rapamycin had a smaller mesangial area when compared to male transgenic mice receiving DMSO (X2 = 26.56; p < 0.001). The glomeruli from female transgenic mice receiving rapamycin had a larger mesangial area when compared to transgenic mice receiving DMSO (X2 =16.6; p=0.001). Male transgenic mice receiving rapamycin had 17.6% of glomeruli with fluorescence intensity greater than the median value. Female transgenic mice receiving rapamycin had 89.8% of glomeruli with fluorescence intensity greater than the median value (X2 =72.4; p<0.001). There was no difference in fluorescence intensity between female and male transgenic mice receiving DMSO (X2 = 2.12; p=0.18), and the fluorescence intensity values were between those of female transgenic mice and male transgenic mice receiving rapamycin. e male mice receiving rapamycin had 28.6% of glomeruli with a bax/bcl-2 ratio greater than the median (1.52) while 88.9% of the glomeruli in female transgenic mice receiving rapamycin had a bax/bcl-2 ratio greater than the median value (X2 = 27.71; p<0.001). The corresponding values for male mice receiving DMSO were 10%, while for female mice receiving DMSO they were 71.4% (X2 =24.45; p<0.001). Transgenic animals housed under low barrier (non-SPF) showed increased deposition of human mutant transthyretin hTTRV30M in their glomeruli compared to transgenic animals housed under high barrier (SPF) conditions. In addition, increased podocyte deposition of hTTRV30M was observed in non-SPF transgenic mice. Glomerular caspase-3 activation was increased in non-SPF mice. Podocyte activation of caspase-3 was increased in transgenic animals regardless of conditions compared to non-transgenic animals under the same conditions. In addition, the glomeruli of Hsf-1 heterozygous transgenic mice for human mutant transthyretin had lower nephrin and podocin content but a higher

number of podocytes when compared to the corresponding Hsf-1 homozygous transgenic animals. Transientin deposition was increased in the glomeruli of animals that were hemizygous for Hsf-1. The expression levels of the nephrin, podocin, and WT-1 genes were not affected by Hsf-1 hemizygosity or homozygosity. Increased transthyretin deposition in Hsf-1 hemizygous animals was associated with increased podocyte foot process thickness and glomerular basement membrane thickness.

Conclusions: The presence of the human mutant tr e gene (hTTRVal30Met) affects daily albumin excretion in this transgenic model. Carriers of the gene show statistically significantly higher daily albumin excretion as they age when compared to their counterparts. Male transgenic mice receiving rapamycin had a smaller mesangial area when compared to female mice receiving rapamycin. In addition, more glomeruli from male transgenic mice receiving rapamycin had increased hTTRVal30Met deposition compared to female transgenic mice. The bax/bcl-2 ratio was more frequently increased in glomeruli from female transgenic mice than in glomeruli from male transgenic mice. Thus, rapamycin may induce different effects, either destructive or beneficial, depending on gender. This interaction is not accompanied by increased albumin excretion. Different environmental conditions (high barrier conditions – SPF/low barrier conditions – non-SPF) affect glomerular deposition and intracellular localization of human mutant transthyretin (hTTRVal30Met). Under these conditions (non-SPF), increased caspase-3 activation is observed. At the same time, under the influence of hemizygosity in Hsf-1, hTTRV30M deposition has devastating effects on the thickness of the glomerular basement membrane, the thickness of podocyte foot processes, and the composition of the thin basement membrane without affecting the expression of nephrin and podocin genes. Thus, renal damage induced by

the deposition of hTTRV30M pre-amyloid deposits depends on environmental as well as genetic factors.

17. Participation in the conference organizing committee (until 02/2024)

Participation in the Organizing Committee and the Review Committee of the 24th Panhellenic Nephrology Conference, 2023, in Heraklion, Crete.

18. Participation in multicenter studies (until 02/2024)

I. A Phase 3, Multicenter, Randomized, Double-blind, Placebo-controlled Trial to Evaluate the Efficacy and Safety of Sibeprenlimab Administered Subcutaneously in Subjects with Immunoglobulin A Nephropathy: **Sub-investigator**

II. A Phase III, Randomized, Double-Blind, Active-Controlled Study to Assess the Efficacy, Safety, and Tolerability of Baxdrostat in Combination with Dapagliflozin Compared with Dapagliflozin Alone on Chronic Kidney Disease (CKD) Progression in Participants with CKD and High Blood Pressure. **Sub-investigator**

III. A Phase 3, Randomized, Double-Blind, Placebo-Controlled Study to Evaluate the Efficacy and Safety of Ravulizumab in Adult Participants with Immunoglobulin A Nephropathy (IgAN). **Sub-investigator**

IV. A Phase 2b/3, Multicenter, Randomized, Double-blind, Placebo-controlled, Combined Dose-Finding and Cardiovascular Outcome Study to Investigate the Efficacy and Safety of CSL300 (Clazakizumab) in Subjects with End Stage Kidney Disease Undergoing Dialysis. **Sub-investigator**

V. SPIRIT "A multicenter prospective observational study of outpatients A multicenter prospective observational study of outpatients with reduced eGFR, monitored in hospital nephrology units, with the aim of evaluating treatment algorithms, disease management, and quality of life in Greece." **Sub-investigator**

19. Reviewer/Editor for reputable scientific journals (until 02/2024)

I. Reviewer

i. Clinical Experimental Rheumatology IF 4.86
ii. Pathology Research and Practice IF 2.8
iii. Cell Stress and Chaperones IF 3.82
iv. Immunopharmacology and Immunotoxicology IF 3.71
v. Kidney and Blood Pressure Research IF 3.09
vi. International Journal of Molecular Sciences IF 6.2
vii. Cells IF 6
viii. Diagnostics IF 3.6
ix. Journal of Clinical Medicine IF 3.9
x. Medicina IF 2.6
xi. Biomedicines IF 4.7
xii. Medical Science Monitor IF 3.1
xiii. Annals of Transplantation IF 1.47
xiv. American Journal of Case Reports IF 1.2
xv. Frontiers in Endocrinology, Obesity IF 5.2
xvi. Frontiers in Molecular Biosciences Molecular Diagnostics and Therapeutics IF 5
xvii. Frontiers in Endocrinology, Renal Endocrinology IF 5.2

To date, I have reviewed at least 70 scientific works [ORCID database (ID 0000-0002-0095-9823)].

II. Academic Publisher

i. Wiley - Hindawi Publishing House (Biomed Research International)

ii. Frontiers Publishing House (Aging and Public Health, Renal Physiology and Pathophysiology)

In honor,

Ioannis Petrakis