

Akrivi Chrysanthopoulou

Personal info

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Education

2008	Bachelor of Science: Biology, Aristotle University of Thessaloniki, Greece
2014	PhD Thesis, Department of Medicine, Democritus University of Thrace (DUTH) <i>“Interplay between inflammation and proteases of the blood coagulation cascade”</i> . Supervisor: Ritis K, Professor of Internal Medicine, DUTH. (https://thesis.ekt.gr/35169)

Employed experience and current position

2011-2014 / **PhD Student**: *“Investigation of new inflammatory mechanisms in autoinflammatory and autoimmune diseases such as Familial Mediterranean Fever and other periodic syndromes, Gout, Crohn’s Disease, Rheumatoid Arthritis and its subtypes such as Still”*. Project Coordinator: Boumpas D, Professor of Medicine, National and Kapodistrian University of Athens. Principal Investigator, DUTH: Ritis K, Professor of Internal Medicine, DUTH. (**SYNERGASIA, ESPA 2007-2011**)

2015-2018 / **Postdoctoral Researcher**: *“The role of neutrophils in thromboinflammatory conditions. Examples from the model of Acute Coronary Syndrome, Ulcerative Colitis and Systemic Lupus Erythematosus”*. Laboratory of Molecular Hematology, DUTH. Supervisor: Ritis K, Professor of Internal Medicine, DUTH. **Personal scholarship from the Bodossaki Foundation.**

2018-2021 / **Postdoctoral Researcher**: *“Novel targets for diagnostic stratification and epidemiologic surveillance of human brucellosis: host-guided molecular study in an endemic area*

at the crossroad between Asia and Europe". Laboratory of Molecular Hematology, DUTH. *Project Coordinator & Principal Investigator: Skendros P, Associate Professor of Internal Medicine, DUTH. (BMBF/GSRT German- Greek Bilateral Research & Innovation Programme)*

2021-2022 / **Postdoctoral Researcher:** *"Study of neutrophil/platelet interaction to identify and validate new inflammatory biomarkers in atherosclerosis and cardiovascular risk stratification (ATHERONET)"*. Pilot study within the **InTechThrace Regional Excellence Program**, *"Integrated Technologies in biomedical research: multilevel biomarker analysis in Thrace"*. Coordinator & Principal Investigator of InTechThrace: Koffa M, Associate Professor in the Department of Molecular Biology & Genetics, DUTH. Principal Investigator of ATHERONET pilot study: Skendros P, Associate Professor of Internal Medicine, DUTH. **(Support for Regional Excellence under "Competiveness, Entrepreneurship and Innovation", EPAnEK of the NSRF 2014-2020)**

06/2022 - / **Assistant Professor**, Department of Biological Applications & Technology, University of Ioannina

Research interests

My activity mainly focuses on translational research, in clinical models of immunology. In particular, the molecular pathways and immune mechanisms that regulate inflammation are examined, as well as the interactions between inflammation, thrombosis (immunothrombosis) and/or fibrosis. The multifaceted mechanisms of actions of neutrophils, such as neutrophil extracellular traps (NETs), have a central role in my studies. In the context of translational analysis of various human diseases, the cross-talk between neutrophils and other cell populations, including platelets, mesenchymal and endothelial cells, is also investigated. The dissemination of meaningful and applicable results that benefit human health, both diagnostically & therapeutically, is a basic pursuit of the current studies.

Publications (peer-reviewed)

2022

Complement C3 inhibition in severe COVID-19 using compstatin AMY-101. Skendros P, Germanidis G, Mastellos DC, Antoniadou C, Gavriilidis E, Kalopitas G, Samakidou A, Liontos A, **Chrysanthopoulou A**, Ntinopoulou M, Kogias D, Karanika I, Smyrlis A, Cepaityte D, Fotiadou I, Zioga N, Mitroulis I, Gatselis NK, Papagoras C, Metallidis S, Milionis H, Dalekos GN, Willems L, Persson B, Manivel VA, Nilsson B, Connolly ES, Iacobelli S, Papadopoulos V, Calado RT, Huber-Lang M, Risitano AM, Yancopoulou D, Ritis K, Lambris JD. 2022. *Sci Adv*. doi: 10.1126/sciadv.abo2341.

Combined administration of inhaled DNase, baricitinib and tocilizumab as rescue treatment in COVID-19 patients with severe respiratory failure. Gavriilidis E, Antoniadou C, Chrysanthopoulou A, Ntinopoulou M, Smyrlis A, Fotiadou I, Zioga N, Kogias D, Natsi AM, Pelekoudas C, Satiridou E, Bakola SA, Papagoras C, Mitroulis I, Peichamperis P, Mikroulis D, Papadopoulos V, Skendros P, Ritis K. 2022. *Clin Immunol*. doi: 10.1016/j.clim.2022.109016. ([1st author – equal contribution](#))

A gene expression map of host immune response in human brucellosis. Mitroulis I, **Chrysanthopoulou A**, Divolis G, Ioannidis C, Ntinopoulou M, Tasis A, Konstantinidis T, Antoniadou C, Soteriou N, Lallas G, Mitka S, Lesche M, Dahl A, Gembardt S, Panopoulou M, Sideras P, Wielockx B, Coskun Ü, Ritis K, Skendros P. 2022. *Front Immunol*. doi: 10.3389/fimmu.2022.951232.

Serum granulocyte-macrophage colony-stimulating factor (GM-CSF) is increased in patients with active radiographic axial spondyloarthritis and persists despite anti-TNF treatment. Papagoras C, Tsiami S, Chrysanthopoulou A, Mitroulis I, Baraliakos X. 2022. *Arthritis Res Ther*. doi: 10.1186/s13075-022-02888-6.

2021

Angiotensin II triggers neutrophil extracellular traps release linking thromboinflammation with essential hypertension. **Chrysanthopoulou A**, Gkaliagkousi E, Lazaridis A, Arelaki S, Pateinakis P, Ntinopoulou M, Mitsios A, Antoniadou C, Argyriou C, Georgiadis GS, Papadopoulos V, Giatromanolaki A, Ritis K, Skendros P. *JCI Insight*. 2021. doi: 10.1172/jci.insight.148668. ([1st author](#))

IL-17A expressed on neutrophil extracellular traps promotes mesenchymal stem cell differentiation towards Bone-forming cells in ankylosing spondylitis. Papagoras C, Chrysanthopoulou A, Mitsios A, Ntinopoulou M, Tsironidou V, Batsali AK, Papadaki HA,

Skendros P, Ritis K. 2021. *Eur J Immunol*. doi: 10.1002/eji.202048878. (1st author – equal contribution)

Multiple sclerosis in a patient with cryopyrin-associated autoinflammatory syndrome: Evidence that autoinflammation is the common link. Papagoras C, Lampropoulou V, Mavraki E, **Chrysanthopoulou A**, Deftereos S, Aróstegui JI, Skendros P, Ritis K. *Clin Immunol*. 2021. doi: 10.1016/j.clim.2021.108750.

Neutrophil Extracellular Traps and Interleukin 17 in Ankylosing Spondylitis. Papagoras C, Chrysanthopoulou A, Mitsios A, Tsironidou V, Ritis K. 2021. *Mediterr J Rheumatol*. doi: 10.31138/mjr.32.2.182.

2020

Complement and tissue factor-enriched neutrophil extracellular traps are key drivers in COVID-19 immunothrombosis. Skendros P, Mitsios A, **Chrysanthopoulou A**, Mastellos DC, Metallidis S, Rafailidis P, Ntinopoulou M, Sertaridou E, Tsironidou V, Tsigalou C, Tektonidou MG, Konstantinidis T, Papagoras C, Mitroulis I, Germanidis G, Lambris JD, Ritis K. 2020. *J Clin Invest*. doi: 10.1172/JCI141374. (1st author – equal contribution)

Complement C3 vs C5 inhibition in severe COVID-19: Early clinical findings reveal differential biological efficacy. Mastellos DC, Pires da Silva BGP, Fonseca BAL, Fonseca NP, Auxiliadora-Martins M, Mastaglio S, Ruggeri A, Sironi M, Radermacher P, **Chrysanthopoulou A**, Skendros P, Ritis K, Manfra I, Iacobelli S, Huber-Lang M, Nilsson B, Yancopoulou D, Connolly ES, Garlanda C, Ciceri F, Risitano AM, Calado RT, Lambris JD. 2020. *Clin Immunol*. doi: 10.1016/j.clim.2020.108598.

Increased neutrophil extracellular trap are associated with smoking intensity and subclinical atherosclerosis in patients with type 2 diabetes. Chatzigeorgiou A, Mitroulis I, **Chrysanthopoulou A**, Legaki AI, Ritis K, Tentolouris N, Protogerou AD, Koutsilieris M, Sfikakis PP. 2020. *Thromb Haemost*. doi: 10.1055/s-0040-1714371.

Ticagrelor exerts immune-modulatory effect by attenuating neutrophil extracellular traps. Mitsios A, **Chrysanthopoulou A**, Arampatzoglou A, Angelidou I, Vidali V, Ritis K, Skendros P, Stakos D. 2020. *Int. J. Mol. Sci*. doi: 10.3390/ijms21103625.

2019

The REDD1/autophagy pathway promotes thromboinflammation and fibrosis in human Systemic Lupus Erythematosus (SLE) through NETs decorated with tissue factor (TF) and interleukin-17A (IL-17A). Frangou E, **Chrysanthopoulou A**, Mitsios A, Kambas K, Arelaki S, Angelidou I, Arampatzoglou A, Gakiopoulou H, Bertsias GK, Verginis P, Ritis K, Boumpas DT.

2018. *Ann Rheum Dis*. doi: 10.1136/annrheumdis-2018-213181. (1st author – equal contribution)

Linking Complement Activation, Coagulation and Neutrophils in Transplant-Associated Thrombotic Microangiopathy. Gavriilaki E, **Chrysanthopoulou A**, Sakellari I, Batsi I, Mallouri D, Touloumenidou T, Papalexandri A, Mitsios A, Arampatzioglou A, Ritis K, Brodsky RA, Mitroulis I, Anagnostopoulos A. 2019. *Thromb Haemost*. doi: 10.1055/s-0039-1692721.

2018

REDD1/Autophagy Pathway Is Associated with Neutrophil-Driven IL-1 β Inflammatory Response in Active Ulcerative Colitis. Angelidou I, **Chrysanthopoulou A**, Mitsios A, Arelaki A, Arampatzioglou A, Kambas K, Ritis D, Tsironidou V, Moschos I, Dalla V, Stakos D, Kouklakis G, Mitroulis I, Ritis K, Skendros P. 2018. *J Immunol*. doi: 10.4049/jimmunol.1701643. (1st author – equal contribution)

Clarithromycin enhances the antibacterial activity and wound healing capacity in Type2 Diabetes Mellitus by increasing LL-37 load on Neutrophil Extracellular Traps. Arampatzioglou A, Papazoglou D, Konstantinidis T, **Chrysanthopoulou A**, Mitsios A, Angelidou I, Maroulakou I, Ritis K, Skendros P. 2018. *Front Immunol*. doi: 10.3389/fimmu.2018.02064.

2017

Interferon lambda1/IL-29 and Inorganic Polyphosphate are novel regulators of neutrophil-driven thromboinflammation. **Chrysanthopoulou A**, Kambas K, Stakos D, Mitroulis I, Mitsios A, Vidali V, Angelidou I, Bochenek M, Arelaki S, Arampatzioglou A, Galani IE, Skendros P, Couladouros EA, Konstantinides S, Andreacos E, Schäfer K, Ritis K. 2017. *J Pathol*. doi: 10.1002/path.4935 (1st author) - *Cover Page of the Issue*

REDD1 links stress with IL-1 β -mediated familial Mediterranean fever attack through autophagy-driven neutrophil extracellular traps. Skendros P, **Chrysanthopoulou A**, Rousset F, Kambas K, Arampatzioglou A, Mitsios A, Bocly V, Konstantinidis T, Pellet P, Angelidou I, Apostolidou E, Ritis D, Tsironidou V, Galtsidis S, Papagoras C, Stakos D, Kouklakis G, Dalla V, Koffa M, Mitroulis I, Theodorou I, Ritis K. 2017. *J Allergy Clin Immunol*. doi: 10.1016/j.jaci.2017.02.021. (1st author – equal contribution) - *The Editor's Choice*

Autophagy inhibition in adult-onset Still's disease: still more space for hydroxychloroquine? Papagoras C, **Chrysanthopoulou A**, Mitsios A, Arampatzioglou A, Ritis K, Skendros P. 2017. *Clin Exp Rheumatol*.

2016

Neutrophil extracellular traps regulate IL-1 β -mediated inflammation in familial Mediterranean fever. Apostolidou E, Skendros P, Kambas K, Mitroulis I, Konstantinidis T, **Chrysanthopoulou**, Nakos K, Tsironidou V, Koffa M, Boumpas TD, Ritis K. 2016. *Ann Rheum Dis*. doi: 10.1136/annrheumdis-2014-205958.

2014

Neutrophil extracellular traps promote differentiation and function of fibroblasts. **Chrysanthopoulou A, Mitroulis I**, Apostolidou E, Arelaki S, Mikroulis D, Konstantinidis T, Sivridis E, Koffa M, Giatromanolaki A, Boumpas TD, Ritis K, Kambas K. 2014. *J Pathol*. doi: 10.1002/path.4359. (*1st author – equal contribution*)

2013

Tissue factor expression in neutrophil extracellular traps and neutrophil derived microparticles in antineutrophil cytoplasmic antibody associated vasculitis may promote thromboinflammation and the thrombophilic state associated with the disease. Kambas K, **Chrysanthopoulou A**, Vassilopoulos D, Apostolidou E, Skendros P, Girod A, Arelaki S, Froudarakis M, Nakopoulou L, Giatromanolaki A, Sidiropoulos P, Koffa M, Boumpas TD, Ritis K, Mitroulis I. 2013. *Ann Rheum Dis*. doi: 10.1136/annrheumdis-2013-203430.

2012

Autophagy mediates the delivery of thrombogenic tissue factor to neutrophil extracellular traps in human sepsis. Kambas K, Mitroulis I, Apostolidou E, Girod A, **Chrysanthopoulou A**, Pneumatikos I, Skendros P, Kourtzelis I, Koffa M, Kotsainidis I, Ritis K. 2013. *PLoS One*. doi: 10.1371/journal.pone.0045427.

Genetic analysis of C5a receptors in neutrophils from patients with familial Mediterranean fever. Apostolidou E, Kambas K, **Chrysanthopoulou A**, Kourtzelis I, Speletas M, Ritis K, Mitroulis I. 2012. *Mol Biol Rep*. doi: 10.1007/s11033-011-1353-6.

2011

Neutrophil extracellular trap formation is associated with IL-1 β and autophagyrelated signaling in gout. Mitroulis I, Kambas K, **Chrysanthopoulou A**, Skendros P, Apostolidou E, Kourtzelis I, Drosos IG, Boumpas TD, Ritis K. 2011. *PLoS One*. doi: 10.1371/journal.pone.0029318.

Tissue factor-thrombin signalling enhances the fibrotic activity of myofibroblasts in systemic sclerosis through up-regulation of endothelin receptor A. **Chrysanthopoulou A, Mitroulis I**, Kambas K, Skendros P, Kourtzelis I, Vradelis S, Kolios G, Aslanidis S, Doumas M, Ritis K. 2011. *Arthritis Rheum*. doi: 10.1002/art.30586. (*1st author – equal contribution*)

Endothelin-1 signaling promotes fibrosis in vitro in a bronchopulmonary dysplasia model by activating the extrinsic coagulation cascade. Kambas K, **Chrysanthopoulou A**, Kourtzelis I, Skordala M, Mitroulis I, Rafail S, Vradelis S, Sigalas I, Wu YQ, Speletas M, Kolios G, Ritis K. 2011. *J Immunol*. doi: 10.4049/jimmunol.1003756. (1st author – equal contribution)

Evidence for the involvement of mTOR inhibition and basal autophagy in familial Mediterranean fever phenotype. Mitroulis I, Kourtzelis I, Kambas K, **Chrysanthopoulou A**, Ritis K. 2011. *Hum Immunol*. doi: 10.1016/j.humimm.2010.11.006.

2010

Regulation of the autophagic machinery in human neutrophils. Mitroulis I, Kourtzelis I, Kambas K, Rafail S, **Chrysanthopoulou A**, Speletas M, Ritis K. 2010. *Eur J Immunol*. doi: 10.1002/eji.200940025.

2009

Fast and reliable mutation detection of the complete exon 11-15 JAK2 coding region using non-isotopic RNase cleavage assay (NIRCA). Kambas K, Mitroulis I, Kourtzelis I, **Chrysanthopoulou A**, Speletas M, Ritis K. 2009. *Eur J Haematol*. doi: 10.1111/j.1600-0609.2009.01279.x.

Selected presentations in conferences

- ✚ **13th International Conference on Complement Therapeutics: *Complement activation and thrombogenic NETs in COVID-19 immunothrombosis.*** Chrysanthopoulou A, Skendros P, Mitsios A, Mastellos D, Ntinopoulou M, Rafailidis P, Metallidis S, Sertaridou E, Tsironidou V, Tsigalou C, Tektonidou M, Konstantinidis T, Papagoras P, Mitroulis I, Germanidis G, Lambris J, and Ritis K. **2021.** ► ***Aegean Conference Travel Award 2021, Akrivi Chrysanthopoulou.*** (Oral presentation)

- ✚ **2nd German-Greek Workshop on Knowledge and Technology Transfer (Online):** “BRIDGING” project: ***BRucellosis IDendification in Greece aNd Germany.*** ***Akrivi Chrysanthopoulou.*** Group Leader: Panagiotis Skendros. **2021.** (***Selected oral presentation***)

- ✚ **24th European Hematology Association (The Netherlands): *Linking Complement Activation, Coagulation and Neutrophils in Transplant-Associated Thrombotic Microangiopathy.*** Gavriilaki E, ***Chrysanthopoulou A***, Sakellari I, Batsi I, Mallouri Δ, Touloumenidou T, Papalexandri A, Mitsios A, Arampatzioglou A, Ritis K, Brodsky RA, Mitroulis I, Anagnostopoulos A. **2019.** (***poster***)

- ✚ **25th United European Gastroenterology Week (Spain): *Active ulcerative colitis is characterized by the formation of thrombogenic Tissue Factor –expressing neutrophil extracellular traps.*** Angelidou, A. Mitsios, ***A. Chrysanthopoulou***, K. Kambas, A. Arampatzioglou, E. Dellaporta, S. Arelaki, V. Dalla, K. Ritis, G. Kouklakis, P. Skendros. **2017.** ***National Scholar Awardees 2017, Akrivi Chrysanthopoulou, Greece.*** (***poster***)

- ✚ **10th European Lupus Meeting (Italy): *Autophagy-mediated release of tissue factor and IL-17A on Neutrophil extracellular traps promotes kidney injury in Systemic lupus erythematosus.*** Frangou E, ***Chrysanthopoulou A***, Kambas K, Apostolidou E, Bertias G, Verginis P, Gakiopoulou C, Ritis K, Boumpas D. **2016.** (***oral presentation***)

- ✚ **67th Panhellenic Conference of the Hellenic Society of Biochemistry and Molecular Biology (HSBMB, Greece): *Stress-induced protein REDD1 emerges as a novel mediator in the pathogenesis of familial Mediterranean fever.*** ***Chrysanthopoulou A***, Skendros P, Kambas K, Arampatzioglou A, Mitsios A, Angelidou I, Konstantinidis T, Ritis D, Theodorou I, Ritis K. **2016.** (***oral presentation***)

- ✚ **4th Summer School of Immunology (Greece): *The fundamental role of NETs in fibrotic process; in vitro observations in lung models.*** ***Chrysanthopoulou A***, Mitroulis I,

- Apostolidou E, Arelaki S, Koffa M, Mikroulis D, Ritis K, Kambas K. **2013. (oral presentation)**
- ✚ Annual European Congress of Rheumatology “EULAR 2011” (UK): ***Bosentan inhibits the fibrotic activity of human colonic myofibroblasts by attenuating the ET-1 dependent expression of tissue factor.*** Mitroulis I, Chrysanthopoulou A, Kambas K, Skendros P, Kourtzelis I, Vradelis S, Kolios G, Aslanidis S, Doumas M, Ritis K. **2011. (oral presentation)**
- ✚ 67th Panhellenic Conference of the Hellenic Society of Biochemistry and Molecular Biology (HSBMB, Greece): ***The involvement of endothelin-1 signaling in fibrosis, induced by activation of the extrinsic coagulation cascade in infants with brochopulmonary dysplasia.*** Chrysanthopoulou A, Kambas K, Kourtzelis I, Skordala M, Mitroulis I, Rafail S, Vradelis S, Sigalas I, Wu YQ, Speletas M, Kolios G, Lambris JD, Ritis K. **2010. (oral presentation)**