CURRICULUM VITAE

Eleni Papanikolaou, PhD

DATE AND PLACE OF BIRTH: December 7, 1971, Athens, Greece
CITIZENSHIP: Greek
PHONE NO: +306976002732
E-MAIL ADDRESS: elpapanik@med.uoa.gr

LANGUAGES

Fluent in English and Modern Greek. Reading, speaking competence and translation competence in Italian. Reading and basic speaking competence in French and German.

EDUCATION

2003-2005	Specialization in Gene Therapy Division of Medical Genetics, Medical School, University of Washington, Seattle, USA
2003	Ph.D. (Doctoral Thesis) "summa cum laude" 10 Aristotle University of Thessaloniki, School of Biology, Thessaloniki, Greece
1995	B.Sc. (Biology Degree) "Cum Laude" 7.46 Aristotle University of Thessaloniki, School of Biology, Thessaloniki, Greece

PUBLICATIONS IN SCIENTIFIC JOURNALS

Total number of citations: 2065
H-index: 12

1. Drakopoulou, E.; Georgomanoli, M.; Lederer, C.W.; Panetsos, F.; Kleanthous, M.; Voskaridou, E.; Valakos, D.; **Papanikolaou, E**.; Anagnou, N.P. The Optimized γ-Globin Lentiviral Vector GGHI-mB-3D Leads to Nearly Therapeutic HbF Levels In Vitro in CD34+ Cells from Sickle Cell Disease Patients. Viruses 2022, 14, 2716. https://doi.org/10.3390/v14122716
2. Markopoulou P, **Papanikolaou E**, Loukopoulou S, Galina P, Papassotiriou I, Siahanidou T. Elevated circulating endothelial microparticles (EMPs) in prepubertal children born preterm. Pediatr Res. 2021 Jul 20. doi: 10.1038/s41390-021-01655-8. Epub ahead of print. PMID: 34285352.
3. Markopoulou P, **Papanikolaou E**, Loukopoulou S, Galina P, Mantzou A, Siahanidou T. Increased circulating endothelial progenitor cells (EPCs) in prepubertal children born

prematurely: a possible link between prematurity and cardiovascular risk. Pediatr Res. 2021 Jul;90(1):156-165. doi: 10.1038/s41390-020-01190-y. Epub 2020 Oct 10. PMID: 33038874

4. **Papanikolaou E**, Bosio A. The promise and the hope of gene therapy**. Frontiers in Genome Editing**. 2021. https://www.frontiersin.org/article/10.3389/fgeed.2021.618346
5. Markopoulou P, **Papanikolaou E**, Loukopoulou S, Galina P, Mantzou A, Siahanidou T. Increased circulating endothelial progenitor cells (EPCs) in prepubertal children born prematurely: a possible link between prematurity and cardiovascular risk. **Pediatr Res.** 2020 Oct 10. doi: 10.1038/s41390-020-01190-y. Epub ahead of print. PMID: 33038874.
6. Karponi G, Kritas SK, Papadopoulou G, Akrioti EK, **Papanikolaou E**, Petridou E. Development of a CRISPR/Cas9 system against ruminant animal brucellosis. **BMC Vet Res.** 2019 Nov 27;15(1):422. doi: 10.1186/s12917-019-2179-z.
7. Karponi G, Kritas SK, **Papanikolaou E**, Petridou E. A Cellular Model of Infection with Brucella melitensis in Ovine Macrophages: Novel Insights for Intracellular Bacterial Detection. **Vet Sci**. 2019 Sep 3;6(3). pii: E71. doi: 10.3390/vetsci6030071.
8. Markopoulou P, **Papanikolaou E**, Analytis A, Zoumakis E, Siahanidou T. Preterm Birth as a Risk Factor for Metabolic Syndrome and Cardiovascular Disease in Adult Life: A Systematic Review and Meta-Analysis. **J Pediatr**. 2019 Jul;210:69-80.e5.
9. Drakopoulou E, Georgomanoli M, Lederer CW, Kleanthous M, Costa C, Bernadin O, Cosset FL, Voskaridou E, Verhoeyen E, **Papanikolaou E**, Anagnou NP. A Novel BaEVRless-Pseudotyped γ-Globin Lentiviral Vector Drives High and Stable Fetal Hemoglobin Expression and Improves Thalassemic Erythropoiesis In Vitro. **Hum Gene Ther**. 2019 May;30(5):601-617.
10. Karponi G, Kritas S, Petridou E, **Papanikolaou E**. Efficient Transduction and Expansion of Ovine Macrophages for Gene Therapy Implementations. **Vet Sci**. 2018 Jun 18;5(2).
11. **Papanikolaou E**, Paruzynski A, Kasampalidis I, Deichmann A, Stamateris E, Schmidt M, Kalle CV, Anagnou NP. *Cell Cycle Status of CD34⁺ Hemopoietic Stem Cells Determines Lentiviral Integration in Actively Transcribed and Development-related Genes***. Mol Ther**. 2015, 4: 683-96.
12. Drakopoulou E**, Papanikolaou E**, Georgomanoli M, Anagnou NP. *Towards More Successful Gene Therapy Clinical Trials for β-Thalassemia*. **Curr Mol Med**. 2013, 13, 1-17.
13. **Papanikolaou E**, Kontostathi G, Drakopoulou E, Georgomanoli M, Stamateris E, Vougas K, Vlahou A, Maloy A, Ware M, Anagnou NP. *Characterization and comparative performance of lentiviral vector preparations concentrated by either one-step ultrafiltration or ultracentrifugation* **.Virus Res**. 2013 Jul; 175(1):1-11. Epub 2013 Apr 11.
14. **Papanikolaou E**, Georgomanoli M, Stamateris E, Panetsos F, Karagiorga M, Grafakos S, Tsaftaridis P and Anagnou NP. *The New Self-Inactivating Lentiviral Vector for Thalassemia Gene Therapy Combining Two HPFH Activating Elements Corrects Human Thalassemic Hematopoietic Stem Cells***. Hum Gene Ther**. 2012 Jan;23(1):15-31

15. Drakopoulou E, **Papanikolaou E** and Anagnou NP. *The Ongoing Challenge of Hematopoietic Stem Cell-Based Gene Therapy of β-Thalassemia.* **Stem Cells International**, Volume 2011, Article ID 987980, doi:10.4061/2011/987980

16. **Papanikolaou E**, Pappa KI and Anagnou NP. *Genetic Manipulation of Stem Cells.* **Gynecol Obstetrics** 2011, S:6, http://dx.doi.org/10.4172/2161-0932.S6-001

17. Wilber A, Hargrove PW, Kim YS, Riberdy JM, Sankaran VG, **Papanikolaou E,** Georgomanoli M, Anagnou NP, Orkin SH, Nienhuis AW, Persons DA. *Therapeutic levels of fetal hemoglobin in erythroid progeny of {beta}-thalassemic CD34$^+$ cells following lentiviral vector-mediated gene transfer.* **Blood**. 2011 Mar 10;117(10):2817-26.

18. **Papanikolaou E**, Anagnou NP. *Major challenges for gene therapy of thalassemia and sickle cell disease.* **Curr Gene Ther**. 2010 (5):404-12.

19. Magkou C, Mylona E, Theohari I, Giannopoulou I, **Papanikolaou E**, Markaki S, Nakopoulou L: *An immunohistochemical evaluation of phosphorylated Akt at threonine 308 [pAkt(Thr308)] in invasive breast cancer.* **In Vivo** 21(6):967-72, 2007.

20. **Papanikolaou E**, Kouvatsis V, Dimitriadis G, Inoue N, and Arsenakis M: *Identification and characterization of the gene products of open reading frame U86/87 of human herpesvirus 6.* **Virus Res** 89:89-101, 2002.

21. Armaka M, **Papanikolaou E**, Sivropoulou A, and Arsenakis M: Antiviral *Properties of Isoborneol as a Potent Inhibitor of Herpes Simplex Virus 1.* **Antiviral Res** 43:79-92, 1999.

22. Sivropoulou A**, Papanikolaou E,** Nikolaou C, Kokkini S, Lanaras T, and Arsenakis M: *Antimicrobial, Cytotoxic and Antiviral Activities of Salvia fruticosa Essential Oil*. **J Agric Food Chem** 45:3197-3201, 1998.

23. Sivropoulou A, **Papanikolaou E,** Nikolaou C, Kokkini S, Lanaras T, and Arsenakis M: *Antimicrobial and Cytotoxic Activities of Origanum Essential Oils.* **J Agric Food Chem** 44: 1202-1205, 1998.

24. **Papanikolaou E** and Anagnou, NP. (2016). Gene Targeting- Gene Editing. Haema 7(1): 111-119.

25. Georgomanoli M, Drakopoulou E, **Papanikolaou E** and Anagnou, NP. (2011) Gene Therapy: Current therapeutic approaches for β-thalassemia. Haema 2(3) 341-358. Haema is the official journal of the Hellenic Society of Hematology.

26. **Papanikolaou E.** The use of mouse models for gene therapy of β-thalassemia. Hellenic Society of Biomedical and Laboratory Animal Science Newsletter 1: 4-5, 2011.

27. Petridou E, Filiousis G, **Papanikolaou E**, Arsenakis M, and Sarris K. Isolation and characterization of Mycoplasma agalactiae strains isolated in Greece. COST Action 826 Mycoplasmas and Ruminants: Pathogenicity, Diagnostics, Epidemiology and Molecular Genetics, Budapest, Hungary, May 1998. Proceedings of COST Action 826: 20 .

28. Filiousis G, Petridou E, **Papanikolaou E**, Arsenakis M, and Sarris K: Isolation and characterization of Mycoplasma bovis strains isolated from a calf pneumonia outbreak in Greece. COST Action 826 Mycoplasmas and Ruminants: Pathogenicity, Diagnostics, Epidimiology and Molecular Genetics, Budapest, Hungary, May 1998. Proceedings of COST Action 826: 21.

BOOK CHAPTERS

1. **Papanikolaou E and Anagnou NP** (2016). "Novel Therapies for Heart Failure. The Cell and Gene Methods". Under publication in: "FRONTIERS IN HEART FAILURE- MOLECULAR IMAGING" e-book. Editor: GEORGOULIAS PANAGIOTIS, 2016, Vol. 1, 309-351.
2. **Papanikolaou E** and Anagnou NP (2015). "Gene Therapy for the Heart", in **Introduction to Translational Cardiovascular Research**, Editor: Dennis Kokkinos, Springer International Publishing, Switzerland 2015, pp 553-564.
3. **Papanikolaou E**, (2014). "Molecular Therapies for Treatment of Thalassemia" in **Thalassemia: Causes, Treatment Options and Long-Term Health Outcomes,** Editors**:** Makenzie Greene, Nova Publishers

   https://novapublishers.com/shop/thalassemia-causes-treatment-options-and-long-term-health-outcomes/

   https://www.novapublishers.com/catalog/product_info.php?products_id=49795

SELECTED HONORS (AWARDS AND DISTINCTIONS)*

2018 May	**"Choremio Prize**" at the 56th Panhellenic Pediatric Congress for the project entitled "Endothelial dysfunction and cardiovascular risk in prematurely born babies - the role of endothelial microparticles and stem endothelial cells", in Halkidiki, Greece
2017 November	**1st Award of best poster** at the 28th Annual Congress for the Hellenic Society of Hematology for the project entitled "Gene Therapy for multiple myeloma via oncolytic lentiviral vectors" in Athens, Greece
2017 May	**1st Award of best presenting paper** at the 2nd Annual Conference of the Greek Society for Gene Therapy and Regenerative Medicine for the project entitled "Genome editing as a therapeutic approach for molecular treatment of β-thalassemia", in Athens, Greece
2017 May	**1st prize in Basic Research**, at the 43rd Annual Conference of the Athens Medical Society (AMS) for the project entitled "Gene Therapy for Multiple Myeloma", in Athens, Greece
2014 January	The article published in **Virus Research** entitled "Characterization and comparative performance of lentiviral vector preparations concentrated by either one-step ultrafiltration or ultracentrifugation" serves as **Key Scientific Article** in Global Medical Discovery: http://globalmedicaldiscovery.com/key-scientific-articles/characterization-comparative-performance-lentiviral-vector-preparations-concentrated-either-one-stepultrafiltration-ultracentrifugation/
2010 October	**Travel award** in the **17th Annual Conference of European Society of Gene and Cell Therapy (ESGCT)** for the project entitled "'Gene therapy for β-thalassemia using lentiviral vectors encoding either γ-globin or BCL11A/shRNA" in **Milan, Italy**.
2010 May	**Oral presentation** in the **13th Annual Meeting of the American Society of Gene and Cell Therapy (ASGCT)** for the project entitled "Therapeutic Fetal Hemoglobin Production in Erythroid Progeny of Normal and β-Thalassemic

Human CD34^{+} Cells Using Lentiviral Vectors Encoding γ-Globin or shRNA To Down Modulate the Transcriptional Repressor BCL11A" in **Washington, DC, USA**.

2008 May **<u>Oral presentation</u>** in the **11th Annual Meeting of the American Society of Gene and Cell Therapy (ASGCT)** for the project entitled "New Lentiviral Vectors for Gene Therapy of Thalassemia with the HPFH-2 Enhancer and the -117 HPFH Activating Mutation: Studies on Thalassemic Hematopoietic Stem Cells" in **Boston, MA, USA**.

* Full list of awards and distinctions available upon request

SELECTED PARTICIPATION IN PEERED MEETINGS PROCEEDINGS*

Total number of participations: 62

1. Bissels U, Johnston I, Reinartz S, Brams D, Aivazidou F, Krenz D, Bomhard IV, Knöbel S, Bosio A, **Papanikolaou E**. Automation in hemopoietic stem cell gene therapy: results of a head-to-head comparison of a manual vs an automated procedure. 27th **Annual Congress of the European Society of Cell and Gene Therapy**, 22-25 October, 2019, Barcelona, Spain, P197.

2. Armenteros -Monterroso E, Buckland KF, Diasakou A, Pereira I, Leon-Rico D, Reinartz S, Krenz D, Bissels U, Johnston I, **Papanikolaou E**, Booth C, Thrasher AJ. Comparison of the CliniMACS Plus and the CliniMACS Prodigy for CD34 enrichment of mobilised peripheral blood stem cells (mPBSC). 27th **Annual Congress of the European Society of Cell and Gene Therapy**, 22-25 October, 2019, Barcelona, Spain, P236.

3. Bissels U, Aivazidou F, Knöbel S, Bosio A, **Papanikolaou E**. A novel systematic CFU assay for hemopoietic stem and progenitor cells combined with user independent analysis. 7th **Annual Congress of the German Stem Cell Network**, 23-25 September, 2019, Berlin, Germany, P057.

4. Karponi G, Kritas S, **Papanikolaou E**, Petridou E. CRISPR/Cas9 vectors reduce bacterial loads in a Brucella melitensis ovine macrophage infection model. 1st International Conference of the European College of Veterinary Microbiology, 26-27 September 2019, Athens, Greece, pp 87.

5. **Papanikolaou E**, Bissels U, Knöbel S, Bosio A. An automated process for lentiviral transduction of CD34+ cells in a GMP-compliant closed system. Gene Therapy - Ready for the Market? 30-31 January 2019 DECHEMA-Haus, Frankfurt/Main, Germany.

6. Markopoulou P, Galina P, Loukopoulou S, **Papanikolaou E**, Siahanidou S. Endothelial dysfunction and cardiovascular risk in prematurely born babies - the role of endothelial microparticles and stem endothelial cells. 56th Panhellenic Pediatric Congress, May 25-27, 2018, Halkidiki, Greece.

7. Mpountouni P, **Papanikolaou E**, Georgomanoli M, Drakopoulou E, Lalou E, Voskaridou E, Angelopoulou M, Konstantopoulos K, and Anagnou NP. Genome editing as a therapeutic approach for molecular treatment of β-thalassemia. 2nd Annual Conference of the

Greek Society for Gene Therapy and Regenerative Medicine, May 26-27, 2017, Athens, Greece.

8. Antoniou P, **Papanikolaou E**, Georgomanoli M, Drakopoulou E and Anagnou NP. The LCR-free lentiviral vector combining two HPFH activating elements corrects murine thalassemic phenotype in vivo. 19th American Society of Gene and Cell Therapy **(ASGCT)**, May 4-7, 2016 Washington, DC, USA.
9. **Papanikolaou E**, Paruzynski A, Kasampalidis I, Deichmann A, Stamateris E, Schmidt M, Kalle CV, Anagnou NP. Cell Cycle Status of $CD34^+$ Hemopoietic Stem Cells Determines Lentiviral Integration in Actively Transcribed and Development-related Genes. **ESGCT and NVGCT Collaborative Congress**, Hague, Netherlands, October 2014. HUMAN GENE THERAPY 25:A2–A121 (November 2014), P131, ppA98.
10. **Papanikolaou E**, Stamateris E, Georgomanoli M, Wilber A, Sankaran VG, Hargrove PW, Kim YS, Orkin SH, Nienhuis AW, Persons DA, Anagnou NP. Gene therapy for β-thalassemia using lentiviral vectors encoding either γ-globin or BCL11A/shRNA. 17th Annual Conference of European Society of Gene and Cell Therapy **(ESGCT)**, October 2010, Milan, Italy, Abstract No: 161, page 1454. ***TRAVEL AWARD***.
11. Wilber A, Sankaran VG, Hargrove PW, Kim YS, P**apanikolaou E**, Anagnou NP, Orkin SH, Nienhuis AW, Persons DA. Therapeutic Fetal Hemoglobin Production in Erythroid Progeny of Normal and β-Thalassemic Human CD34+ Cells Using Lentiviral Vectors Encoding γ-Globin or shRNA To Down Modulate the Transcriptional Repressor BCL11A. 13th **Annual Meeting of the American Society of Cell and Gene Therapy**, May 17-22, 2010, Washnigton DC, USA. Mol Ther 18 (Suppl. 1):S131, 2010. ***ORAL PRESENTATION***.
12. **Papanikolaou E**, Georgomanoli M and Anagnou NP. New Lentiviral Vectors for Gene Therapy of Thalassemia with the HPFH-2 Enhancer and the -117 HPFH Activating Mutation: Studies on Thalassemic Hematopoietic Stem Cells. 11th **Annual Meeting of the American Society of Cell and Gene Therapy**, May 28-June 1, 2008, Boston, USA. Mol Ther 16 (Suppl. 1):S278, 2008. ***ORAL PRESENTATION***.

* Full list of conferences available upon request

PATENTS

A combination of compositions for elimination and enhanced engraftment of hematopoietic stem cells in the bone marrow of a subject
Publication number: 20220133791
Filed: January 22, 2020
Publication date: May 5, 2022
Inventors: **Eleni Papanikolaou**, Stefan Miltenyi, Andreas Bosio, Mario Assenmacher, Andrew Kaiser

Abstract: The present invention provides a combination of compositions comprising i) a composition comprising I) a population of T cells, NK cells or cytotoxic immune effector cells comprising a chimeric antigen receptor specific for a stem cell antigen and/or, II) ?) a population of T cells, NK cells or cytotoxic immune effector cells comprising a chimeric antigen receptor specific for a tag of a tagged polypeptide, wherein said tagged polypeptide binds

specifically to a stem cell antigen, and ?) said tagged polypeptide, and ii) a composition comprising a) a population of CD34+ hematopoietic stem cells, and b) one or more accessory or contributory cell populations selected from the group consisting of myeloid cell lineages expressing CD14, CD11b, CD11c, CD123, CD33; CD36; CD47, CD66b, CD235a, CD146 and CD326. A method applying these compositions to a subject in need thereof are also provided.