

CV George Mavrothalassitis

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Education:
1980 - B.A. (Chemistry), University of Thessaloniki, Thessaloniki, Greece
1984 - Ph.D. (Biochemistry), University of Thessaloniki, Thessaloniki, Greece

Positions:
2010 - date Professor, School of Medicine, University of Crete.
2001 - 2010 Associate Professor, School of Medicine, University of Crete.
1996 - date Collaborating Research Scientist /Group leader, IMBB-FORTH.
1995 - 2001 Assistant Professor, School of Medicine, University of Crete.
1988 - 1996 Visiting Fellow, Visiting Associate (1991) and Visiting Scientist (1993), Laboratory of Molecular Oncology, National Cancer Institute (NCI-NIH), Frederick, MD, USA
1984 - 1988 Postdoctoral Fellow, IMBB-FORTH, Heraklion, Crete, Greece

Teaching:
Undergraduate course in medical chemistry at the Department of Medicine, UoC.
Graduate courses in the Joint Graduate Programs in Molecular Biology and Biomedicine (Department of Medicine, Biology and IMBB), and Oikologia (Department of Medicine and NHRF)
Supervisor of PhD, MS and BS student thesis (9 PhD, 8 MSc, 17 BS)

Administrative
2023 – 2025 Chair of the Division of Biomedical Sciences, Medical School, University of Crete, Greece
2017 - date Chair of the Graduate committee, Medical School, University of Crete, Greece
2005 - 2015 Director, vice-director (alternating) of the Joint Graduate Program in Molecular Biology and Biomedicine, University of Crete, Greece.
2007 - 2025 Member of the General Assembly, Medical School, University of Crete, Greece
2001 - date Chair or member of numerous Departmental and Institutional committees of the Medical School and the University of Crete, Greece, including Chair of the Division of Biomedical Sciences, Medical School, in 2010-11

Funding
1991-1996 NIH Intramural Grant (LMO site visit 1990 and 1995)
1994-1995 Special AIDS Research Intramural Grant
1996-1999 BIOMED2 (EU network)
1996-2000 TMR (EU network)

1997-1998	TMR (EU R40)
2000-2001	PENED 99 (Greek network)
2000-2001	Oncologia 99.
2000-2004	RTN (EU network; coordinator)
2002-2007	PENED 01 (Greek network; coordinator)
2003-2008	EPEAEK II (Institutional; coordinator)
2005	EPEAEK II (Institutional, instrumentation; coordinator)
2005-2007	PYTHAGORAS II (Greek network; coordinator)
2005-2007	PYTHAGORAS II (Greek network)
2005-2009	PENED 03 (Greek network; coordinator)
2010-2013	HERAKLITOS II
2010-2015	Synergia (Greek network; coordinator)
2016-2017	IKY-Siemens excellence award.
2018-2021	Bioimage-GR (Infrastructure; UoC coordinator)
2020-2023	Research-Create-Innovate (Greek network)
2023-2025	Greece 2.0 Emblematic Actions (National Network on neurodegenerative diseases).

Patents:

- “ETS2 repressor factor”, 2001, USA Patent Office No: 6,194,547
- “Erf transgenic animals”, 2012, IPO, UK, Patent Application Number 1214337.6
- 2013, PCT, EP2013/066341

Scientific focus

Transcriptional regulation, oncogenesis, cell differentiation, development, *ETS* family genes and RTK/RAS/ERK signaling pathway, with special interests in the ERF-related pathologies

Full Bibliography

1. Purification and properties of three cytosolic ribonucleases of mouse liver, Mavrothalassitis GJ, Georgatsos JG, **Eur J Biochem** 142:481-486,1984, [DOI](#).
2. Molecular analysis of the mouse class II gene, E q alpha, Mavrothalassitis GJ, Thanos D, Papamatheakis J, **Immunogenetics** 27:426-430,1988, [DOI](#).
3. Multiple regulatory regions on the 5' side of the mouse E alpha gene, Thanos D, Mavrothalassitis G, Papamatheakis J, **Proc Natl Acad Sci U S A** 85:3075-3079,1988, [DOI](#).
4. Multiple control regions regulate the constitutive expression of Eα gene. Thanos, D., Mavrothalassitis, G. J., Gregoriou, M., Bygrave, A. and Papamatheakis, J *Molecular basis of immune response*. **Ann. N.Y. Acad. Sci.** 546:255-257,1988.
5. Isolation and characterization of cDNA clones encoding human liver glutamate dehydrogenase: evidence for a small gene family, Mavrothalassitis G, Tzimagiorgis G, Mitsialis A, Zannis V, Plaitakis A, Papamatheakis J, Moschonas N, **Proc Natl Acad Sci U S A** 85:3494-3498,1988, [DOI](#).
6. Molecular and functional characterization of the promoter of ETS2, the human ets-2 gene, Mavrothalassitis GJ, Watson DK, Papas TS, **Proc Natl Acad Sci U S A** 87:1047-1051,1990, [DOI](#).
7. The promoter of the human ets-2 oncogene: Structural and functional characterization. Mavrothalassitis, G. J., Watson, D. K., Ascione, R. and Papas, T.

- S.: In Papas, T.S. (Ed.): **Oncogenesis**. Houston, Gulf Publishing Co., 1990, pp. 233-247.
8. ETS family of genes in leukemia and Down syndrome, Papas TS, Watson DK, Sacchi N, Fujiwara S, Seth AK, Fisher RJ, Bhat NK, Mavrothalassitis G, Koizumi S, Jorcyk CL, et al., **Am J Med Genet Suppl** 7:251-261,1990, [DOI](#).
 9. The ETS family of genes: Structural analysis, gene products, and involvement in neoplasia and other pathologies. Papas, T. S., Blair, D. G., Watson, D. K., Yuan, C.-C., Ruscetti, S. K., Fujiwara, S., Seth, A. K., Fisher, R. J., Bhat, N. K., Mavrothalassitis, G., Koizumi, S., Jorcyk, C. L., Schweinfest, C. W. and Ascione, R.: In Patterson, D. and Epstein, C.J. (Eds.): **Molecular Genetics of Chromosome 21 and Down Syndrome**. New York, Wiley-Liss, 1990, pp. 137-168.
 10. The human ETS-2 gene promoter: molecular dissection and nuclease hypersensitivity, Mavrothalassitis GJ, Watson DK, Papas TS, **Oncogene** 5:1337-1342,1990, [PubMed](#).
 11. The ETS family of genes: structural analysis, gene products, and involvement in neoplasia and other pathologies, Papas TS, Blair DG, Watson DK, Yuan CC, Ruscetti SK, Fujiwara S, Seth AK, Fisher RJ, Bhat NK, Mavrothalassitis G, et al., **Prog Clin Biol Res** 360:137-168,1990, [PubMed](#).
 12. Molecular organization and differential polyadenylation sites of the human ETS2 gene, Watson DK, Mavrothalassitis GJ, Jorcyk CL, Smyth FE, Papas TS, **Oncogene** 5:1521-1527,1990, [PubMed](#).
 13. Defining target sequences of DNA-binding proteins by random selection and PCR: determination of the GCN4 binding sequence repertoire, Mavrothalassitis G, Beal G, Papas TS, **DNA Cell Biol** 9:783-788,1990, [DOI](#).
 14. The ets gene family as a paradigm for the study of cellular transcriptional processes. Papas, T. S., Mavrothalassitis, G., Seth, A., Watson, D. K., Lautenberger, J. A., Fisher, R. J., Bhat, N. K. and Ascione, R.: In Verna, R. and Nishizuka, Y. (Eds.): **Biotechnology of Cell Regulation**, Serono Symposia Series: **Advances in Experimental Medicine**, Vol. 4. New York: Raven Press, 1991, pp. 211-226.
 15. Positive and negative factors regulate the transcription of the ETS2 gene via an oncogene-responsive-like unit within the ETS2 promoter region, Mavrothalassitis GJ, Papas TS, **Cell Growth Differ** 2:215-224,1991, [PubMed](#).
 16. The human ETS1 gene: genomic structure, promoter characterization and alternative splicing, Jorcyk CL, Watson DK, Mavrothalassitis GJ, Papas TS, **Oncogene** 6:523-532,1991, [PubMed](#).
 17. High-affinity DNA-protein interactions of the cellular ETS1 protein: the determination of the ETS binding motif, Fisher RJ, Mavrothalassitis G, Kondoh A, Papas TS, **Oncogene** 6:2249-2254,1991, [PubMed](#).
 18. The ets gene family, Seth A, Ascione R, Fisher RJ, Mavrothalassitis GJ, Bhat NK, Papas TS, **Cell Growth Differ** 3:327-334,1992, [PubMed](#)
 19. Human ETS1 oncoprotein. Purification, isoforms, -SH modification, and DNA sequence-specific binding, Fisher RJ, Koizumi S, Kondoh A, Mariano JM, Mavrothalassitis G, Bhat NK, Papas TS, **J Biol Chem** 267:17957-17965,1992, [PubMed](#).
 20. Human ERG-2 protein is a phosphorylated DNA-binding protein--a distinct member of the ets family, Murakami K, Mavrothalassitis G, Bhat NK, Fisher RJ, Papas TS, **Oncogene** 8:1559-1566,1993, [PubMed](#).

21. Structural inferences of the ETS1 DNA-binding domain determined by mutational analysis, Mavrothalassitis G, Fisher RJ, Smyth F, Watson DK, Papas TS, **Oncogene** 9:425-435,1994, [PubMed](#).
22. ets-1 in astrocytes: expression and transmitter-evoked phosphorylation, Fleischman LF, Holtzclaw L, Russell JT, Mavrothalassitis G, Fisher RJ, **Mol Cell Biol** 15:925-931,1995, [DOI](#).
23. ERF: an ETS domain protein with strong transcriptional repressor activity, can suppress ets-associated tumorigenesis and is regulated by phosphorylation during cell cycle and mitogenic stimulation, Sgouras DN, Athanasiou MA, Beal GJ, Jr., Fisher RJ, Blair DG, Mavrothalassitis GJ, **EMBO J** 14:4781-4793,1995, [PubMed](#).
24. The Gag-Myb-Ets fusion oncogene alters the apoptotic response and growth factor dependence of interleukin-3 dependent murine cells, Athanasiou M, Mavrothalassitis GJ, Yuan CC, Blair DG, **Oncogene** 12:337-344,1996, [PubMed](#).
25. Signal requirements for interleukin 4 promoter activation in human T cells, Paliogianni F, Hama N, Mavrothalassitis GJ, Thyphronitis G, Boumpas DT, **Cell Immunol** 168:33-38,1996, [DOI](#).
26. Increased expression of the ETS-related transcription factor FLI-1/ERGB correlates with and can induce the megakaryocytic phenotype, Athanasiou M, Clausen PA, Mavrothalassitis GJ, Zhang XK, Watson DK, Blair DG, **Cell Growth Differ** 7:1525-1534,1996, [PubMed](#).
27. ERF: genomic organization, chromosomal localization and promoter analysis of the human and mouse genes, Liu D, Pavlopoulos E, Modi W, Moschonas N, Mavrothalassitis G, **Oncogene** 14:1445-1451,1997, [DOI](#)
28. ETS-1 induces increased expression of erythroid markers in the pluripotent erythroleukemic cell lines K562 and HEL, Clausen PA, Athanasiou M, Chen Z, Dunn KJ, Zhang Q, Lautenberger JA, Mavrothalassitis G, Blair DG, **Leukemia** 11:1224-1233,1997, [DOI](#)
29. Transcriptional repressor ERF is a Ras/mitogen-activated protein kinase target that regulates cellular proliferation, Le Gallic L, Sgouras D, Beal G, Jr., Mavrothalassitis G, **Mol Cell Biol** 19:4121-4133,1999, [DOI](#)
30. FLI-1 is a suppressor of erythroid differentiation in human hematopoietic cells, Athanasiou M, Mavrothalassitis G, Sun-Hoffman L, Blair DG, **Leukemia** 14:439-445,2000, [DOI](#)
31. Suppression of the Ewing's sarcoma phenotype by FLI1/ERF repressor hybrids, Athanasiou M, LeGallic L, Watson DK, Blair DG, Mavrothalassitis G, **Cancer Gene Ther** 7:1188-1195,2000, [DOI](#)
32. Proteins of the ETS family with transcriptional repressor activity, Mavrothalassitis G, Ghysdael J, **Oncogene** 19:6524-6532,2000, [DOI](#)
33. ETS Family of Transcription Factors. Watson, D.K., Li, R., Sementchenko, V.I., Mavrothalassitis, G. and Seth, A.: In: *Encyclopedia of Cancer*, 2nd edition. Betino JR (Ed), Academic Press, 189-196, 2002
34. ERF, an ETS-related transcriptional repressor, can induce erythroid differentiation, Athanasiou M, Blair DG, Mavrothalassitis G, **Anticancer Res** 23:2143-2153,2003, [PubMed](#)
35. ERF nuclear shuttling, a continuous monitor of Erk activity that links it to cell cycle progression, Le Gallic L, Virgilio L, Cohen P, Biteau B, Mavrothalassitis G, **Mol Cell Biol** 24:1206-1218,2004, [DOI](#)
36. IL-2 and IL-10 production by human CD4⁺T cells is differentially regulated by p38: mode of stimulation-dependent regulation of IL-2, Veiopoulou C, Kogopoulou O, Tzakos E, Mavrothalassitis G, Mitsias D, Karafoulidou A, Paliogianni F,

- Moutsopoulos HM, Thyphronitis G, **Neuroimmunomodulation** 11:199-208,2004, [DOI](#)
37. Conditional up-regulation of IL-2 production by p38 MAPK inactivation is mediated by increased Erk1/2 activity, Kogkopoulou O, Tzakos E, Mavrothalassitis G, Baldari CT, Paliogianni F, Young HA, Thyphronitis G, **J Leukoc Biol** 79:1052-1060,2006, [DOI](#)
 38. The transcriptional ETS2 repressor factor associates with active and inactive Erks through distinct FXF motifs, Polychronopoulos S, Verykokakis M, Yazicioglu MN, Sakarellos-Daitsiotis M, Cobb MH, Mavrothalassitis G, **J Biol Chem** 281:25601-25611,2006, [DOI](#)
 39. Transcriptional repressor erf determines extraembryonic ectoderm differentiation, Papadaki C, Alexiou M, Cecena G, Verykokakis M, Bilitou A, Cross JC, Oshima RG, Mavrothalassitis G, **Mol Cell Biol** 27:5201-5213,2007, [DOI](#)
 40. The RAS-dependent ERF control of cell proliferation and differentiation is mediated by c-Myc repression, Verykokakis M, Papadaki C, Vorgia E, Le Gallic L, Mavrothalassitis G, **J Biol Chem** 282:30285-30294,2007, [DOI](#)
 41. Ets2 is required for trophoblast stem cell self-renewal, Wen F, Tynan JA, Cecena G, Williams R, Munera J, Mavrothalassitis G, Oshima RG, **Dev Biol** 312:284-299,2007, [DOI](#)
 42. cAMP regulates IL-10 production by normal human T lymphocytes at multiple levels: a potential role for MEF2, Liopeta K, Boubali S, Virgilio L, Thyphronitis G, Mavrothalassitis G, Dimitracopoulos G, Paliogianni F, **Mol Immunol** 46:345-354,2009, [DOI](#)
 43. EGR1 and the ERK-ERF axis drive mammary cell migration in response to EGF, Tarcic G, Avraham R, Pines G, Amit I, Shay T, Lu Y, Zwang Y, Katz M, Ben-Chetrit N, Jacob-Hirsch J, Virgilio L, Rechavi G, Mavrothalassitis G, Mills GB, Domany E, Yarden Y, **FASEB J** 26:1582-1592,2012, [DOI](#)
 44. Calcium/calmodulin-dependent protein kinase II regulates IL-10 production by human T lymphocytes: a distinct target in the calcium dependent pathway, Boubali S, Liopeta K, Virgilio L, Thyphronitis G, Mavrothalassitis G, Dimitracopoulos G, Paliogianni F, **Mol Immunol** 52:51-60,2012, [DOI](#)
 45. Semaphorin-7a reverses the ERF-induced inhibition of EMT in Ras-dependent mouse mammary epithelial cells, Allegra M, Zaragkoulias A, Vorgia E, Ioannou M, Litos G, Beug H, Mavrothalassitis G, **Mol Biol Cell** 23:3873-3881,2012, [DOI](#)
 46. Reduced dosage of ERF causes complex craniosynostosis in humans and mice and links ERK1/2 signaling to regulation of osteogenesis, Twigg SR, Vorgia E, McGowan SJ, Peraki I, Fenwick AL, Sharma VP, Allegra M, Zaragkoulias A, Sadighi Akha E, Knight SJ, Lord H, Lester T, Izatt L, Lampe AK, Mohammed SN, Stewart FJ, Verloes A, Wilson LC, Healy C, Sharpe PT, Hammond P, Hughes J, Taylor S, Johnson D, Wall SA, Mavrothalassitis G*, Wilkie AO*, **Nat Genet** 45:308-313,2013, [DOI](#)
 47. Suppression of Fgf2 by ETS2 repressor factor (ERF) is required for chorionic trophoblast differentiation, Vorgia E, Zaragkoulias A, Peraki I, Mavrothalassitis G, **Mol Reprod Dev** 84:286-295,2017, [DOI](#)
 48. The Ets2 Repressor Factor (Erf) Is Required for Effective Primitive and Definitive Hematopoiesis, Peraki I, Palis J, Mavrothalassitis G, **Mol Cell Biol** 37:e00183-17, 2017, [DOI](#)
 49. Craniofacial, orofacial and dental disorders: the role of the RAS/ERK pathway, Vogiatzi A, Mavrothalassitis G, **Expert Rev Mol Med** 21:e2,2019, [DOI](#)

50. Erf affects commitment and differentiation of osteoprogenitor cells in cranial sutures via the retinoic acid pathway. Vogiatzi A, Baltsavia I, Dialynas E, Theodorou V, Zhou Y, Deligianni E, Iliopoulos I, Wilkie AOM, Twigg SRF, Mavrothalassitis G. **Mol Cell Biol.** 41: e00149-21, 2021 [DOI](#).
51. Micro-CT for Biological and Biomedical Studies: A Comparison of Imaging Techniques. Keklikoglou K, Arvanitidis C, Chatzigeorgiou G, Chatzinikolaou E, Karagiannidis E, Koletsa T, Magoulas A, Makris K, Mavrothalassitis G, Papanagnou EB, Papazoglou AS, Pavludi C, Trougkos IP, Vasileiadou K and Vogiatzi A. **J Imaging.** 7:172 2021 [DOI](#).
52. Ets2 Repressor Factor (Erf) Is Involved In T Lymphocyte Maturation Acting As Regulator Of Thymocyte Lineage Commitment. Tsiomita S, Liveri EM, Vardaka P, Vogiatzi A, Skiadaresis A, Saridis G, Tsigkas I, Michailides T, Mavrothalassitis G and Thyphronitis G. **J Leukoc. Biol.** 112:641 2022 [DOI](#)
53. Development of Erf-Mediated Craniosynostosis and Pharmacological Amelioration. Vogiatzi A, Keklikoglou K, Makris K, Argyrou D S, Zacharopoulos A, Sotiropoulou V, Parthenios N, Gkikas A, Kokkori M, Richardson M S W, Fenwick A L, Archontidi S, Arvanitidis C, Robertson J, Parthenios J, Zacharakis G, Twigg S R F, Wilkie A O M, Mavrothalassitis G. **Int J Mol Sci** 24:7961 2023 [DOI](#)
54. scRNA-Explorer: An end-user online tool for single cell RNA-seq data analysis featuring gene correlation and data filtering. Ismini Baltsavia, Anastasis Oulas, Theodosios Theodosiou, Matthieu D Lavigne, Evangelos Andreacos, George Mavrothalassitis* and Ioannis Iliopoulos* **JMB** 2024, 436:168654 [DOI](#)
55. Heterozygous variants disrupting the interaction of ERF with activated ERK1/2 cause microcephaly, developmental delay and skeletal anomalies. Lucia Micale,* Aikaterini Vourlia, Carmela Fusco, Riccardo Pracella, Dimitrios-Christoforos Karagiannis, Grazia Nardella, Lorenzo Vaccaro, Maria Pia Leone, Antonio Gramazio, Maria Lisa Dentici, Chiara Aiello, Antonio Novelli, Lydia Xenou, Yang Sui, Evan E. Eichler, Davide Cacchiarelli, George Mavrothalassitis,* and Marco Castori. **EJHG** 2024, [DOI](#)