



Antonis Giakountis

Assistant Professor
Molecular Biology and Genomics

Department of Biochemistry and Biotechnology
University of Thessaly

agiakountis@uth.gr
<http://www.bio.uth.gr/>

Research interests

Investigation of the molecular mechanisms through which long non-coding RNAs regulate gene expression, interactions between RNA/chromatin/proteins, transcriptional and epigenetic regulation in cancer, chromatin architecture, mammalian and plant genomics and epigenomics.

Research Experience

**Assistant Professor – University of Thessaly, Department of Biochemistry and Biotechnology Greece
2017 – Present**

Assistant Professor of Molecular Biology and Genomics. Emphasis on long non-coding mediated transcriptional regulation, promoter-enhancer 3D loop formation and RNA-chromatin interactions driving oncogenesis.

**GSRT Post-doctoral Fellow - Biomedical Sciences Research Center “Alexander Fleming”, Greece
2012 – 2017**

Post-doctoral research in the group of Pantelis Hatzis, studying the role of long non-coding RNAs in stem cell maintenance and malignant transformation of the intestine. Emphasis on promoter-enhancer 3D loop formation and RNA-chromatin interactions driving oncogenesis.

**Post-doctoral Fellow - University of Cambridge Department of Plant Sciences, United Kingdom
2009 – 2011**

Post-doctoral research in the group of David Baulcombe, studying the role of small non-coding in RNA silencing and epigenetics. Emphasis on the effect of small RNAs on heterosis and transgenerational epigenetic inheritance.

Education

**Max Planck Institute for Plant Breeding research, Germany – PhD in Genetics
2004 – 2008**

PhD in Molecular Genetics in the group of George Coupland on QTL mapping and molecular analysis of natural genetic variation determining circadian clock regulation and photoperiodic flowering in *Arabidopsis thaliana*. “**1.0 Magna cum laude Degree**”

University of Thessaly, Department of Plant Sciences, Greece – Undergraduate studies

1999 – 2004

Undergraduate studies at the Department of Plant Production and Agricultural Environment, Thessalia University. Joined Diploma thesis at the University of Thessaly and NCSR “Demokritos” Institute of Biology. “*First Honours Degree*”.

Grands and Funding

- 2019- Present** Coordinator in the competitive research grand “*Fondation Sante*” (Project title : “*Functional characterization of long-non coding RNAs that interact with transcription factors in gastrointestinal cancer*, Budget : 25.000 €).
- 2018-Present** Coordinator in the competitive EU-NSRF-GSRT research grand “ELIDEK for biomedical research (Project title “*TINCeR*”, 1407, 47894/I2/22.03.18. Budget : 180.000 €, Field : “*Life Sciences*”, Proposal score : 90 /100)
- 2012-2015** Coordinator in the competitive research European grand “Post-doc support” (EU-NSRF-GSRT) for post-doctoral research (Project title “*EPRENCRCA*”, LS 2_8, 16191/6.12.10. Budget : 150.000 €)
- 2012-2014** Associated researcher in the research European grand “*Thalis*” in collaboration with the University of Thrace (Project title “*Lentilbreed*”, 672, budget 600.000 €)
- 2009-2011** Associated researcher in the EC Framework Program 7 European core grant for post-doc research with the University of Cambridge (Project title : “*Revolution*”, EC project number : 233325).
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Awards and Fellowships

- 2005 - 2008** PhD fellowship from the Max Planck Institute fellowship in cooperation with the University of Cologne.
- 2004 - 2005** PhD fellowship from the “Graduate College” (Graduiertenkolleg) international program.
- 1999 - 2004** Two IKY (Greek State Scholarships Institution) annual scholarships and academic excellence awards and one annual scholarship by the “*Deligeorgi Bros*” private institution for academic excellence.
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Publications

1. Begolli E., Sideris N., and Giakountis A. “*LncRNAs as chromatin regulators in cancer: From molecular function to clinical potential*” (2019) **Cancers**, 11(10), 1524.
2. Giakountis A., (2018) “*CRISPRing or RISKing? Dangers arising from gene editing with CRISPR-Cas9*” **Medicinal and Analytical Chemistry International journal** 2,1-4.
3. Zarkou V., Galaras A., Giakountis A. And Hatzis P., (2018) “*Crosstalk mechanisms between the WNT signaling pathway and long non-coding RNAs*” **Non-coding RNA Research** 3, 42-53.
4. Giakountis A., Tsarmopoulos I. And Chatzivassiliou E., (2018) “*Cucumber mosaic virus isolates from Greek legumes are associated with satellite RNAs that are necrogenic for tomato*”. **Plant disease**, published online <https://doi.org/10.1094/PDIS-08-17-1259-RE>

5. Giakountis A., Moulos P, Zarkou V., Oikonomou C., Harokopos V., Hatzigeorgiou A., Reczko M. and Hatzis P., (2016) “A positive regulatory loop between a Wnt-regulated non-coding RNA and ASCL2 controls intestinal stem cell fate” . **Cell Reports** 15, 1-9.
 6. Giakountis A., Moulos P., Sarris M., Hatzis P., and Talianidis, I. (2016). *Smyd3-associated regulatory pathways in cancer*. **Seminars in Cancer Biology** pii: S1044-579X(16)30041-4.
 7. Sarris M.E., Moulos P., Haroniti A., Giakountis A., and Talianidis, I. (2016). *Smyd3 Is a Transcriptional Potentiator of Multiple Cancer-Promoting Genes and Required for Liver and Colon Cancer Development*. **Cancer cell** 29, 354-366.
 8. Chatzivassiliou E. K., Giakountis A., Kumari S. G., & Makkouk K. M. (2016). *Viruses affecting lentil (*Lens culinaris Medik.*) in Greece; incidence and genetic variability of Bean leafroll virus and Pea enation mosaic virus*. **Phytopathologia Mediterranea**, 55(2), 239-242.
 9. Chatzivassiliou E.K., Giakountis A., Testa A., Kienle U., and Jungbluth, T. (2016). *Natural Infection of Stevia rebaudiana by Cucumber mosaic virus in Spain and by Sclerotium rolfsii in Greece*. **Plant Disease**.
 10. de Montaigu A, Giakountis A, Rubin M, Tóth R, Cremer F, Sokolova V, Porri A, Reymond M, Weinig C, Coupland G (2015) “Natural diversity in daily rhythms of gene expression contributes to phenotypic variation” **PNAS** 112, 905-910.
 11. Giakountis A., Skoufa A., Paplomatas E.I., Tokatlidis I.S., and Chatzivassiliou E.K. (2015). *Molecular characterization and phylogenetic analysis of a Greek lentil isolate of Pea seed-borne mosaic virus*. **Phytoparasitica** 43, 615-628.
 12. Giakountis A., Cremer F., Sim S., Reymond M., Schmitt J., Coupland G. (2010) “Distinct patterns of genetic variation alter flowering responses of Arabidopsis accessions to different day lengths” **Plant Physiology** 152(1):177-91.
 13. Mavromatis A. G., A.I.S., Korkovelos A. E, Giakountis A, Chatzitheodorou V. A, Goulas C. K. (2010). *Genetic diversity among common bean (*Phaseolus vulgaris L.*) Greek landraces and commercial cultivars: nutritional components, RAPD and morphological markers*. **Spanish Journal of Agricultural Research** 8, 986-994.
 14. Wilczek A., Roe J., Knapp M., Cooper M., Gallego C., Martin L., Muir C., Sim S., Walker A., Anderson J., Egan J., Moyers B., Petipas R., Giakountis A., Charbit E., Coupland G., Welch S., Schmitt J. (2008) “Effects of genetic perturbation on seasonal life history plasticity”. **Science** 323 (5916):930-4.
 15. Giakountis A, Coupland G (2008). “Phloem transport of flowering signals”. **Current Opinion in Plant Biology** 11(6):687-94.
 16. Corbesier L., Vincent C., Jang S., Fornara F., Fan Q., Searle I., Giakountis A., Farrona S., Gissot L., Turnbull C., Coupland G. (2007). “FT Protein movement Contributes to Long-Distance Signaling in Floral Induction of Arabidopsis”. **Science**, Vol. 316. no. 5827, pp. 1030 – 1033.
 17. Korkovelos A., Mavromatis A, Huang W., Hagidimitriou M., Giakountis A., Goulas C. (2007). “Effectiveness of SSR molecular markers in evaluating the phylogenetic relationships among eight *Actinidia* species”. **Scientia Horticulturae** Vol. 116, pp. 305–310.
 18. Arvanitoyannis, I.S., and Giakountis A. (2006). *Current strategies for dairy waste management: a review*. **Critical reviews in food science and nutrition** 46, 379-390.
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Selected Invited Presentations

1. Giakountis A., Moulos P, Zarkou V., Oikonomou C., Harokopos V., Hatzigeorgiou A., Reczko M. and Hatzis P., (2016) “A positive regulatory loop between a Wnt-regulated non-coding RNA and ASCL2 controls intestinal stem cell fate”. EMBO Wnt signalling conference, **Brno, Czech Republic**.

2. Giakountis A., and Hatzis P. (2015) “*The Wnt-regulated long non-coding RNA WINTRLINC1 interacts with TCF4 and β -catenin to control the expression of the intestinal stem-cell factor ASCL2*”. Aegean Conference, **Chania, Greece**.
3. Giakountis A., and Baulcombe D. (2010) “*Understanding the role of small RNAs in the maintenance of telomeric heterochromatin during cell cycle in green algae*” **Fleming institute, Athens, Greece**.
4. Giakountis A., and Baulcombe D. (2010) “*The role of small RNAs in the generation and inheritance of heterosis in intraspecific hybrids*”. **University of Athens, Greece**.
5. Giakountis A., (2010). “*Applications of flow cytometry in plants: isolating plant stem cells*” **Institute for Cancer research UK - University of Cambridge, United Kingdom**.
6. Giakountis A. And Baulcombe D. (2009) “*Understanding the role of small RNA in hybrids between Arabidopsis accessions.*” 5th Annual meeting of Irish Flow Cytometry society. **Science gallery Trinity College Dublin, Ireland**.
7. Giakountis A. (2008) “*Climate change and plants-is vegetation part of the problem or the solution?*” 55th NIBB Conference – Frontiers in Plant Science in the 21st century” September, **Okazaki, Japan**.
8. Giakountis A., and Coupland G (2008) “*Molecular-genetic analysis of natural variation in photoperiodic flowering of Arabidopsis thaliana*”. “55th NIBB Conference – Frontiers in Plant Science in the 21st century”. **Okazaki, Japan**.
9. Giakountis A., Cremer F., Reymond M. and Coupland G. (2006) “*Analysis of natural genetic variation influencing photoperiodic flowering in Arabidopsis thaliana*”. 16th International Conference on Arabidopsis Research”. **University of Madison, Wisconsin. USA**.

Supervision and Academic Teaching Experience

- 2019-Present** “Applications of Molecular Biology-Molecular Genetics” **Master’s** program in Biochemistry and Biotechnology, University of Thessaly (*NGS Sequencing*).
- 2019-Present** “Toxicology” **Master’s** program in Biochemistry and Biotechnology, University of Thessaly (*NGS Sequencing, Toxicogenomics*).
- 2019-Present** “Bioentrepreneurship” Interinstitutional **Master’s** program of the Dep. Biochemistry and Biotechnology, University of Thessaly – National Hellenic Research Foundation (*CRISPR Applications*).
- 2018-Present** “Advanced Experimental and Computational Biosciences” **Master’s** program in Biochemistry and Biotechnology, University of Thessaly (*NGS Sequencing, Advanced NGS-CRISPR Applications, Advanced Experimental Models*).
- 2018-Present** Supervisor of eight undergraduate Diploma Theses, two Master’s Theses and two PhD Theses. Co-supervision, participation in the supervision of twelve undergraduate Diploma Theses, one Master’s Thesis and one PhD Thesis.
- 2018-Present** “Introduction to Genomics and Systems Biology” Undergraduate program in Biochemistry and Biotechnology, University of Thessaly.
- 2015-2014** “Applications of Molecular Biology to Virology” Undergraduate program in Virology, Agricultural University of Athens.
- 2015-2014** “Principles of molecular QTL mapping” Master Degree program in Genetics, University of Thrace.
- 2015-2012** Supervisor of three undergraduate students and three master program students from the University of Athens.
- 2014-2012** Co-supervisor of the diploma thesis of four undergraduate students from the University of Athens.
- 2011-2010** Co-supervisor of the PhD thesis of a master student as part of collaboration between the agricultural research centre Broom’s barn and the University of Cambridge.

- 2011-2010** Co-supervisor of the diploma thesis of an undergraduate student from the University of Cambridge”.
- 2010:** Supervision of an undergraduate student from the University of Heidelberg in the University of Cambridge.
- 2010:** Part II student lecturing of the lecture series “Physiology of Organisms” at the department of Plant Sciences, University of Cambridge.
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Administrative experience

- 2019-Present** Member of OMEA-Internal Assessment Group – Department of Biochemistry and Biotechnology, University of Thessaly.
- 2019-Present** Member in the coordinative committee of the Master’s program “Toxicology” – Department of Biochemistry and Biotechnology, University of Thessaly.
- 2019-Present** Member in the coordinative committee of the Master’s program “Applications of Molecular Biology-Molecular Genetics” – Department of Biochemistry and Biotechnology, University of Thessaly.
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Scientific and Organizing Visibility

- 2018-present** Invited reviewer – MDPI Journals (**Cancers, Computation, Cells**).
- 2018-present** Invited reviewer - Journal of **Oxidative Medicine and Cellular Longevity**.
- 2018-present** Invited editor - Medicinal and Analytical Chemistry International Journal.
- 2017-present** Invited expert reviewer - Alexander von Humboldt Foundation.
- 2013-present** Reviewer - International Scholars Journals – Journal of Agricultural research.
- 2014** Organiser of the XVI IS-MPMI congress <http://www.mpmi2014rhodes-hellas.gr/>
- 2011-2009** Supervisor of a high-throughput semi-automated pipeline for histochemistry at the Department of Plant Sciences, University of Cambridge.
- 2011-2009** Organiser of the departmental seminars at the University of Cambridge, Department of Plant Sciences.
- 2010** Trainer at the European SIROCCO small RNA cloning and deep sequencing library preparation course. University of Cambridge.
- 2010-2009** Organiser of the “Erevnitis2010” career conference addressing the establishment of a research career in the UK and Greece.
- 2009** Organiser of a training course on histology (wax embedding, RNA *in situ*, immunolocalizations, LCM) for the research personnel of the University of Cambridge.
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Specialized Laboratory Skills

- CRISPR** CRISPR-a /dCas9 for *in cis* transcriptional activation, CRISPR/Cas9 nickase editing for SNP correction
- ncRNAs** ChIRP and ChIRP-seq (Chromatin Immunoprecipitation by RNA purification), RIP (RNA Immunoprecipitation), RNA Pull-down and Mass Spec analysis, 3C (Chromosome Conformation Capture), ChIP and ChIP-seq (Chromatin Immunoprecipitation), Xenographs, shRNA stable cell line construction, Antisense oligonucleotides (ASOs), siRNAs.

Genomics	sRNA cloning and Solexa deep sequencing library preparation, Illumina ChIP sequencing library preparation, SNP Tilling microarrays.
Histochemistry	RNA and protein <i>in situ</i> localization in tissue sections, whole mount immunofluorescence, Laser Capture Microdissection, paraffin embedding and tissue sectioning.
Microscopy and FACS	smRNA FISH (ViewRNA) , Confocal microscopy , FACS , cell cycle profiling with flow cytometry, chemical cell cycle synchronization, Luciferase assays.
Clinomics and Bioinformatics	Bash (Linux) and R scripting based applications for NGS analysis (Tophat, bowtie, MetaseqR), Kaplan-Meier analysis, Cox Regression / HR calculation, Relative Risk Ratio analysis and patient stratification analysis (RTCGA, survminer, TCGAbiolinks, etc), miRNA analysis, (micro-T, miR-Path, mir-Extra), -omics analysis software (Proteome discoverer, MaxQuant, Perseus, Galaxy, Genepattern, Cytoscape, Genomica), statistical packages (Sigmastat v3.5, Sigmaplot v10, SPSS v19) hierarchical clustering (Cluster v3, Treeview, Philip, BinGO), cis-element analysis (MEME, Jaspar).

Additional Skills

Excellent knowledge of the English language.

Basic knowledge of the German language.

Excellent computational skills in Windows and Linux environment