

ILGIN ÇAĞNAN-ÇAKKOL

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Department of Biological Sciences
Faculty of Arts and Sciences
Eastern Mediterranean University
Famagusta, North Cyprus

EDUCATION

PhD in Stem Cell

Hacettepe University, Center for Stem Cell Research and Development, Turkey Jan 2018
Dissertation: HOX and TALE Transcription Factors in Fanconi Anemia Bone-Marrow
Mesenchymal Stem Cells: Gene Expression and Protein Interactions
Thesis Advisor: Ayşen Günel-Özcan (M.D., Ph.D.)

MSc by Research in Life Sciences

University of Edinburgh, College of Medicine and Veterinary Medicine, U.K. Nov 2009
Thesis: Gonadotropin-Releasing Hormone Receptor Expression in Human Breast Cancers
Thesis Advisor: Simon Langdon (Ph.D.)

BSc Honors in Biological Sciences (Genetics)

University of Edinburgh, College of Science and Engineering, U.K. June 2008
Final Year Project: Genetic Basis of Strain Specific Protective Immunity Against the Malaria
Parasite *Plasmodium chabaudi chabaudi* in Mice

PROFESSIONAL EMPLOYMENT

Eastern Mediterranean University, North Cyprus Feb 2020 -
Assistant Professor, Department of Biological Sciences, Faculty of Arts
and Science

Eastern Mediterranean University, North Cyprus Oct 2019 - Feb 2020
Visiting Assist. Prof., Department of Biological Sciences, Faculty of Arts
and Science

Eastern Mediterranean University, North Cyprus Feb 2019 - June 2019
Part-Time Instructor, Department of Biological Sciences, Faculty of Arts
and Science

Burhan Nalbantoğlu State Hospital, North Cyprus May 2018 - Oct 2019
Geneticist, Blood Bank

F. Hoffmann-La Roche, Switzerland Sep 2009 - Feb 2010
Internship, Pharma R&D Basel, Vascular & Metabolic Department

RESEARCH EXPERIENCE

Burhan Nalbantoğlu State Hospital, North Cyprus March - June 2020
Voluntary Work, DNA Laboratory

- Molecular diagnostic test for SARS- CoV-2, during COVID-19 pandemic

Acibadem University, Turkey Nov - Dec 2018
Researcher, Acibadem Labcell

- Quality control analysis, cryopreservation, and banking of hematopoietic stem cells prior to autologous stem cell transplantation

- Hacettepe University, Turkey** Dec 2010 - June 2018
PhD Thesis, Center for Stem Cell Research and Development
- Conducted research on HOX and TALE gene expressions and protein interactions in Fanconi anemia bone marrow derived mesenchymal stem cells
- Bilkent University, Turkey** July 2014 - Oct 2014
Researcher, Department of Molecular Biology and Genetics
- Conducted research on nicotinic cholinergic receptor alpha 5 (CHRNA5) gene expression in breast cancer
- Hacettepe University, Turkey** Dec 2010 - April 2014
Researcher, Center for Stem Cell Research and Development
- Whole genome miRNA expression profiling in Fanconi anemia bone marrow derived mesenchymal stem cells
- FIRC Institute of Molecular Oncology (IFOM), Italy** July 2013
Short Term Scientific Missions, COST Action-BM0805
- Conducted research on possible roles of MEIS and PBX family members in DNA repair
- Vrije Universiteit Amsterdam, the Netherlands** June 2012
Internship, Department of Clinical Oncogenetics
- Conducted research on identifying mutations of Fanconi anaemia patients
- Hacettepe University, Turkey** May - Dec 2010
Internship, Gene Mapping Laboratory, Department of Medical Genetics
- Conducted research on identifying novel genes by homozygosity mapping
- University of Edinburgh, U.K.** May - Sep 2009
MSc Thesis, Breakthrough Breast Cancer Research Unit
- Conducted research on Gonadotropin-Releasing Hormone Receptor expression in breast carcinomas
- University of Edinburgh, U.K.** Jan - March 2009
MSc, Genetics and Disease Theme Project, Queen's Medical Research Institute
- Conducted research on investigating the cellular basis for the pro-inflammatory effect of 11 β -HSD-1 deficiency in acute inflammation
 - Investigated whether 11 β -HSD-1 represented an endogenous anti-inflammatory mechanism engaged early during an inflammatory response
- University of Edinburgh, U.K.** Sep - Dec 2008
MSc, Cancer Biology Theme Project, Breakthrough Breast Cancer Research Unit
- Conducted research on whether nuclear morphology change in response to DNA-damaging treatments and investigated whether DNA injury induced a change in nuclear organization
- University of Edinburgh, U.K.** Sep 2007 - June 2008
BSc Honours in Biological Sciences (Genetics) Final Year Project, Department of Biological Sciences
- Conducted research on the genetic basis of Strain Specific Protective Immunity against the malaria parasite *Plasmodium chabaudi chabaudi* in mice
- Imperial College London, U.K.** June - Aug 2007
Internship funded by Undergraduate Research Opportunities Program, Department of Biological Sciences
- Conducted research on studying the anti-metastatic effects of a blocker of voltage gated sodium channels called Ranolazine
- Burhan Nalbantoğlu State Hospital, North Cyprus** June - Aug 2005
Internship, Polyclinic Laboratories

Published Articles (SCI/SCI-E)

- Swift B, Taneri B, **Cagnan I**, Becker CM, Zondervan KT, Quigley MA, Rahmioglu N (2022). Predictors and trends of Caesarean section and breastfeeding in the Eastern Mediterranean region: data from the cross-sectional Cyprus Women's Health Research (COHERE) Initiative. *PLoS One*. doi: 10.1371/journal.pone.0287469.
- **Cagnan I**, Keles M, Keskus AG, Tombaz M, Sahan OB, Aerts-Kaya F, Uckan-Cetinkaya D, Konu O, Gunel-Ozcan A (2021). Global miRNA expression of bone marrow mesenchymal stem/stromal cells derived from Fanconi anemia patients. *Human Cell*. doi: 10.1007/s13577-021-00626-9.
- Shehwana H, Keskus AG, Ozdemir ES, Acikgoz AA, Sit RB, **Cagnan I**, Jahja E, Cihangir-Koker S, Olmezer G, Sucularli C, Konu O (2021). CHRNA5 belongs to the secondary estrogen signaling network exhibiting prognostic significance in breast cancer. *Cellular Oncology*. doi: 10.1007/s13402-020-00581-x.
- Aerts-Kaya FSF, Kilic E, Köse S, Aydin G, **Cagnan I**, Kuskonmaz B, Uçkan-Çetinkaya D (2021). G-CSF treatment of healthy pediatric donors affects their hematopoietic microenvironment through changes in bone marrow plasma cytokines and stromal cells. *Cytokine*. doi: 10.1016/j.cyto.2020.155407.
- Karaderi T, Bareke H, Kunter I, Seytanoglu A, **Cagnan I**, Balci D, Barin B, Hocaoglu MB, Rahmioglu N, Asilmaz E, Taneri B (2020). Host genetics at the intersection of autoimmunity and COVID-19: A potential key for heterogeneous COVID-19 severity. *Frontiers in Immunology*. doi: 10.3389/fimmu.2020.586111.
- **Cagnan I**, Cosgun E, Konu O, Uckan D, Gunel-Ozcan A (2019). *PKNOX2* expression and regulation in the bone marrow mesenchymal stem cells of Fanconi anemia patients and healthy donors. *Molecular Biology Reports*. doi: 10.1007/s11033-018-4522-z.
- Kopru CZ, **Cagnan I**, Akar I, Esendagli G, Korkusuz P, Gunel-Ozcan A (2018). Dual effect of glucocorticoid-induced tumor necrosis factor-related receptor ligand carrying mesenchymal stromal cells on small cell lung cancer: an in vitro preliminary study. *Cytotherapy*. doi: 10.1016/j.jcyt.2018.05.002.
- **Cagnan I**, Gunel-Ozcan A, Aerts-Kaya F, Ameziane A, Kuskonmaz B, Dorsman J, Gumruk F, Uckan D (2018). Bone marrow mesenchymal stem cells carrying FANCD2 mutation differ from the other Fanconi anemia complementation groups in terms of TGF- β 1 production. *Stem Cell Reviews and Reports*. doi: 10.1007/s12015-017-9794-5.
- **Cagnan I**, Aerts-Kaya F, Uckan D, Gunel-Ozcan A (2017). Stably expressed reference genes during differentiation of bone marrow derived mesenchymal stem cells. *Turkish Journal of Biology*, 41:88-97.
- Morgan K, Meyer C, Miller N, Sims AH, **Cagnan I**, Faratian D, Langdon SP, Harrison DJ, Millar RP (2011). GnRH receptor activation competes at a low level with growth signaling in stably transfected human breast cell lines. *BMC Cancer*. doi: 10.1186/1471-2407-11-476.

Published Abstracts

- **Cagnan I**, Gunel-Ozcan A, Aerts-Kaya F, Ameziane N, Kuskonmaz B, Dorsman J, Gumruk F, Cetinkaya D. (2017). TGF- β 1 production by bone marrow mesenchymal stem cells of FANCD2 differs from other Fanconi anemia complementation groups. *Blood*, 130, Supplement 1: 2464.
- **Cagnan I**, Aerts Kaya F, Cosgun E, Konu O, Uckan-Cetinkaya D, Gunel-Ozcan A. (2017). PKNOX2 regulated by TGFbeta is a new candidate to explain bone marrow failure in Fanconi anemia. *Experimental Hematology*, 53: S136.
- **Cagnan I**, Uckan D, Gunel-Ozcan A. (2016). PBX/Knotted 1 Homeobox 2 is an activator and a downstream target of transforming growth factor beta-1. *The FEBS Journal*, 283, Supplement 1: 59-60.
- Gunel-Ozcan A, **Cagnan I**, Kansu E, Uckan D. (2014). miRNA expression profiling in mesenchymal stromal/stem cells derived from G-CSF primed bone marrows. *Blood*, 124: 5140.
- **Cagnan I**, Uckan D, Gunel-Ozcan A. (2015). Genome-wide non-coding RNA expression profile indicates upregulation of hsa-miR-761 in the bone marrow mesenchymal stromal cells of Fanconi Anemia patients. *Human Gene Therapy*, 26(10):A86-A87, DOI: 10.1089/hum.2015.29008.abstracts.
- Kopru C Z, **Cagnan I**, Akar Soycon I, Esendagli G, Korkusuz P, Gunel-Ozcan A. (2015). Mesenchymal stem cells induce proliferation of NCI-H82 small cell lung cancer. *Human Gene Therapy*, 26(10):A49-A50, DOI: 10.1089/hum.2015.29008.abstracts.
- Kopru C Z, Korkusuz P, **Cagnan I**, Akar Soycon I, Esendagli Gunel-Ozcan A. (2015). PCR3::GITRL transfected MSCs induce apoptotic cell death and *SIVA1* expression in SCLC-21H lung cancer cell line. *Human Gene Therapy*, 26(10):A49, DOI: 10.1089/hum.2015.29008.abstracts.
- Aydin G, Aerts-Kaya F, **Cagnan I**, Gunel-Ozcan A, Uckan-Cetinkaya D. (2014). Gene expression of Notch receptors and ligands by plastic adherent and prospectively isolated MSCs. *Human Gene Therapy*, 25:A2-A121, DOI: 10.1089/hum.2014.2536.abstracts.

- Aerts-Kaya F, **Cagnan I**, Aydin G, Kose S, Semerci A, Kuskonmaz B, Uckan D. (2013). Assessment of human bone marrow plasma samples suggests a different role for mesenchymal stromal cells in distinct areas mediated by PDGF-BB/PDGF-R. **Experimental Hematology**, 41(8):S61.
- Gunel-Ozcan A, Cagnan I, Konu O, Aerts-Kaya F, Kuskonmaz B, Uckan D. (2013). Differential miRNA expression profile of bone marrow derived mesenchymal stem cells in Fanconi anaemia patients and healthy donors. *Experimental Hematology*, 41(8):S61.
- Aerts-Kaya F, Kilic E, Aydin G, Kose S, **Cagnan I**, Gultekin O, Kuskonmaz B, Uckan D. (2013). Differential expression profile of healthy human bone marrow plasma samples from the endosteal and vascular region. *Experimental Hematology*, 41(8):S61.
- Aerts-Kaya F, Kose S, Aydin G, **Cagnan I**, Bocutcu S, Kuskonmaz B, Uckan D. (2013). Effects of *in-vivo* G-CSF stimulation on cytokine levels in bone marrow plasma samples from healthy donors. *Experimental Hematology*, 41(8):S61.

AWARDS AND GRANTS

Publication Award by EMU For the article published in , PLoS One, 10.1371/journal.pone.0287469.	2023
Publication Award by EMU For the article published in <i>Human Cell</i> , 10.1007/s13577-021-00626-9.	2022
Publication Award by EMU For the article published in <i>Frontiers in Immunology</i> , doi: 10.3389/fimmu.2020.586111.	2021
Publication Award by EMU For the article published in <i>Cellular Oncology</i> , doi: 10.1007/s13402-020-00581-x.	2021
Publication Award by EMU For the article published in <i>Cytokine</i> , doi: 10.1016/j.cyto.2020.155407.	2021
Meliha Terzioğlu Ödülü For the article published in <i>Cytotherapy</i> , doi: 10.1016/j.jcyt.2018.05.002.	Oct 2018
Funding for registration to FEBS Congress 2016 Provided by Turkish Biochemical Society	Sep 2016
2nd Prize for Poster Presentation 1st Congress on Stem Cell and Cell Therapies	March 2014
Short Term Scientific Missions Awarded by the Management Committee of the COST Action BM0805	July 2013
COST Training School Awarded by the Management Committee of the COST Action BM0805	Oct 2011

SCIENTIFIC PROJECTS

Project Name	Project No.	Start Date	End Date
Cyprus Dysmenorrhea (CypDy) Project (Position: Researcher)	EuropeAid/173620/DH/ACT/CY programme awarded to KISAD (Number of proposal: TCC/2022/173620-1/5)	01.06.2023	-
HOX and TALE Transcription Factors in Fanconi Anemia Bone-Marrow Mesenchymal Stem Cells: Gene Expression and Protein Interactions (Position: Scholarship holder)	TUBITAK 1001; project no: 214Z033	01.05.2015	01.02.2018

Expression, Control and Diagnostic Role of the Cholinergic Receptor Nicotinic Alpha 5 (CHRNA5) Gene in Breast Cancer (Position: Scholarship holder)	TUBITAK 1001; project no: 111T316	01.12.2011	01.12.2014
Effect of Glucocorticoid-Induced TNFR Protein Ligand (GITRL) Transfected Mesenchymal Stem Cells (MSCs) on Lung Cancer (Position: Researcher)	TUBITAK 1001; project no: 112T474	15.10.2012	15.10.2014
<i>HOX/TALE</i> Gene Expression Profiling of the Bone Marrow Derived Mesenchymal Stem Cells from Fanconi anemia Patients and Searching the Correlation Between the whole Genome miRNA Expression Microarray that have the Role on <i>HOX/TALE</i> Gene Regulation (Position: Scholarship holder)	TUBITAK; project no: 110S021 in conjunction with EU COST Action BM0805 designated as 'HOX and TALE transcription factors in Development and Disease'	01.10.2010	01.04.2014

CONFERENCE ACTIVITY

Conference Proceedings

- Gunel-Ozcan A, Ayhan N, Sahan OB, **Cagnan I**, Warashe K, Uckan-Cetinkaya D. PKNOX2 proteomics reveals novel interactions with ATM and RPS3A in bone marrow-derived mesenchymal stem cells. EMBO Workshop (RNA and Genome Maintenance: Cooperation and Conflict Management), Mainz, Germany, 10-13 October 2018.
- Gunel-Ozcan A, **Cagnan I**, Aerts-Kaya F, Kuskonmaz B, Uckan D. *HOXA1*, *HOXA7* and *HOXB7* gene expression are deregulated in mesenchymal stromal/stem cells derived from G-CSF primed bone marrows. ISSCR 12th Annual Meeting, Vancouver, Canada, 18-21 June 2014.
- Aerts-Kaya F, **Cagnan I**, Kose S, Aydın G, Kuskonmaz B, Uckan D. Sağlıklı insan kemik iliği endosteal ve santral bölgelerinde sitokin ekspresyonları ve G-CSF etkisi. 39th National Hematology Congress, Antalya, Turkey, 23-26 October 2013.
- **Cagnan I**, Konu O, Cosgun E, Aerts-Kaya F, Kuskonmaz B, Uckan D, Gunel-Ozcan A. HOX-TALE expression patterns in Fanconi anaemia. EU COST Action BM0805 Annual Meeting, Egmond aan Zee, the Netherlands, 2-4 October 2013. (Programme and abstract book pg. 51)
- Kopru CZ, Korkusuz P, **Cagnan I**, Akar-Soycan I, Esendagli G, Uckan-Cetinkaya D, Gunel-Ozcan A. Human bone marrow derived mesenchymal stem cells show heterogeneous mRNA levels of glucocorticoid induced tumor necrosis factor receptor (*GITR*) and its ligand (*GITRL*). ISSCR 11th Annual Meeting, Boston, MA, USA, 12-15 June 2013.
- Gunel-Ozcan A, **Cagnan I**, Kuskonmaz B, Aerts-Kaya F, Uckan-Cetinkaya D. Expression of Hox genes in the bone marrow derived mesenchymal stromal/stem cells from Fanconi anaemia patients changes following bone marrow transplantation. ISSCR 10th Annual Meeting, Pacifico Yokohama, Yokohama-Japan, 13-16 June 2012.
- Gunel-Ozcan A, **Cagnan I**, Kuskonmaz B and Uckan-Cetinkaya D. HOX-TALE expression in bone marrow derived mesenchymal stromal cells of Fanconi anaemia patients. EU COST Action BM0805 Annual Meeting, Carry-Le-Rouet, France, 28 September-01 October 2011. (Programme and abstract book pg. 42)
- Keupp K, Li Y, Alanay Y, Thiele H, Uz E, Frommolt P, Utine E, **Cagnan I**, Boduroglu K, Nürnberg P, Akarsu N, Wollnik B. Whole-exome sequencing in combination with simultaneous analysis of homozygous stretches of exome variants identified causative mutations in two genes in Malpuech syndrome. 22nd Meeting of German Human Genetics Society, Regensburg, Germany, 16-18 March 2011.
- Mihci E, Uz E, Akman S, Yücel S, **Cagnan I**, Akarsu NA. Homozygosity mapping and mutation analysis of the HPSE2 gene support genetic homogeneity in Urofacial Syndrome. 9th National Medical Genetics Congress, Istanbul, Turkey, 01-05 December 2010.

Poster Presentations

- **Cagnan I**, Aerts Kaya F, Uckan-Cetinkaya D, Gunel-Ozcan A. High *PKNOX2* level of mesenchymal stem cells prompts hematopoietic stem cell differentiation towards myeloid lineages in coculture experiments. 2nd International Conference on Stem Cells and Cancer, Lyon, France, 15-16 November 2016.
- **Cagnan I**, Cosgun E, Konu O, Aerts Kaya FS, Kuskonmaz B, Uckan D, Gunel-Ozcan. Fankoni anemili hastaların kemik iliği mezenkimal kök hücrelerinde *PREP2* gen ifadesi donörlere oranla düşüş göstermektedir. 1st Congress on Stem Cell and Cell Therapies, Kocaeli, Turkey, 20-23 March 2014.

- **Cagnan I**, Dardaei L, Uckan D, Blasi F, Gunel-Ozcan A. PREP1 overekspresyonu eden kemik iliği kaynaklı mezenkimal kök hücrelerinde TALE homeodomain protein düzeyleri. 1st Congress on Stem Cell and Cell Therapies, Kocaeli, Turkey, 20-23 March 2014.
- **Cagnan I**, Ameziane N, Floor K, Kuskonmaz B, Uckan D, Gunel-Ozcan A. Fankoni anemili hastalardan elde edilen mezenkimal kök hücrelerin proliferasyon ve yaşlanma özellikleri. 4. Ulusal Hücresel Tedavi ve Rejeneratif Tıp Kongresi, Kapadokya, Turkey, 28 February-2 March 2014.
- **Cagnan I**, Konu O, Aerts-Kaya F S, Kuskonmaz B, Uckan-Cetinkaya D, Gunel-Ozcan A. Expression of *hsa-miR-3065-3p* was significantly downregulated in Fanconi anaemia patient bone marrow derived mesenchymal stem cells following bone marrow transplantation. ISSCR Regional Forum Series 2013: Stem Cells in Translation, Florence, Italy, 15-18 September 2013.
- **Cagnan I**, Konu O, Aerts-Kaya SFF, Kuskonmaz B, Uckan-Cetinkaya D, Gunel-Ozcan A. Hox-TALE genes show highly conserved yet heterogeneous expression profiles among Fanconi anaemia patients and healthy donors. COST Action-BM0805: Symposium on HOX and TALE Transcription Factors in Development and Disease, Madrid, Spain, 28 November-01 December 2012.

Oral Presentations

- **Cagnan I**, Uckan D, Gunel-Ozcan A. Fankoni anemisi mezenkimal kök hücrelerinde miRNA profili. Hacettepe Üniversitesi Kök Hücre Günü, Ankara, Turkey, 19 November 2014.
- **Cagnan I**, Cosgun E, Konu O, Aerts Kaya FS, Kuskonmaz B, Uckan D, Gunel-Ozcan A. HOX and TALE gene expression profile of bone marrow derived mesenchymal stem/stromal cells from Fanconi anaemia patients and donors. 3rd International Molecular Biology Congress, İzmir, Turkey, 10-12 September 2014.
- **Cagnan I**, Cosgun E, Konu O, Aerts Kaya F, Kuskonmaz B, Uckan D, Gunel-Ozcan A. Fankoni anemisi kemik iliği mezenkimal kök hücrelerinde HOX/Tale gen ekspresyonları. Hacettepe Üniversitesi Kök Hücre Günü, Ankara, Turkey, 8 November 2013.
- **Cagnan I**, Cosgun E, Konu O, Kuskonmaz B, Uckan D, Gunel-Ozcan A. Random forest and support vector machines analyses of HOX-TALE gene expressions of Fanconi anaemia patient's bone marrow mesenchymal stem cells. HIBIT 2013: The 8th International Symposium on Health Informatics and Bioinformatics, Ankara, Turkey, 25-27 September 2013.

CAMPUS/DEPARTMENTAL TALKS

- Recent Developments in COVID-19 Vaccines. Medical Biotechnology Master's Program Spring 2021 Webinar Series, Eastern Mediterranean University, Cyprus, 22nd of April 2021.
- Application of Stem Cells in Cancer Therapy. 5th Molecular Biology & Genetics Career Day, Eastern Mediterranean University, Cyprus, 8th of November 2019.
- Stem Cell Applications. 4th Molecular Biology & Genetics Career Day, Eastern Mediterranean University, Cyprus, 2nd of November 2018.

COURSES TAUGHT

UNDERGRADUATE COURSES

BIOL111 - Tıbbi Biyoloji ve Genetik I
 BIOL112 - Tıbbi Biyoloji ve Genetik II
 BIOL211 - Molecular Cell Biology I
 BIOL212 - Molecular Cell Biology - II
 BIOL412 - Immunology
 BIOL417 - Microbiology
 BIOL456 - Stem Cell Biology

GRADUATE COURSES

BIOL502 - Fundamentals of Biotechnology
 BIOL506 - Molecular and Medical Biotechnology
 BIOL507 - Medical Biotechn. in Diagnostics and Ther.
 BIOL521 - Molecular Biotech. Laboratory Applications
 BIOL581 - Final Project I
 BIOL582 - Final Project II
 BIOL599 - Term Projects

RELATED PROFESSIONAL SKILLS

IT

Microsoft Office Applications, GraphPad Prism, SPSS

Languages

English (Fluent, spoken and written), Turkish (Mother Tongue)