Bentolhuda Kuhestani-dehaghi

PERSONAL INFORMATION:

Date of birth: Jun, 11th, 1988 Gender: Female (she/her) Place of birth: Tehran, Iran Marital status: Single

CONTACT INFORMATION:

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<u>https://scholar.google.com/citations?user=qcUowaIAAAAJ&hl=en</u>

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EDUCATION:

23 July 2019 until 20 September 2024	Ph.D. in Laboratory Hematology and Transfusion Sciences Shahid Beheshti University of Medical Sciences, Tehran, Iran	
	School of allied medical sciences	
	Department of Hematology and Blood Banking	
	Supervisor: Dr. Mehdi Allahbakhshian Farsani, Professor	
Thesis Title: "Karyotype optimization with exosome derived	from HL-60 cell line in Acute Myeloblastic leukemia.	
22 September 2012 until 15 February 2015	M.Sc. in Laboratory Hematology and Transfusion Sciences	
	Mashhad University of Medical Sciences, Mashhad, Iran	
	School of Medicine	
	Department of Hematology and Blood Banking	
	Supervisors: Dr. Hosein Ayatollahi, Professor	
Thesis Title:		
"Assessing the frequency of t(12; 21)(p13; q22)) in patients with acute lymphoblastic leukemia in northeastern of Iran"	
23 September 2009 until 19 February 2012	B.Sc. in Medical Laboratory Sciences	

Shahid Beheshti University of Medical Sciences, Tehran, Iran School of allied medical sciences

RESEARCH INTRESTS:

- Molecular studies of hematological malignancies
- Cytogenetic studies of hematological malignancies
- Cancer biology
- Tumor microenvironment
- Cell cycle and cell signaling
- Stem cell transplantation

WORK EXPERIENCE:

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- Laboratory Assistant in the BMT department of Hematopoietic Stem Cell Transplantation (HSCT) lab, Taleghani Hospital, Shahid Beheshti University of Medical Sciences (2015-2017):
 - CD34⁺ cell count in stem cell grafts
 - Graft manipulation
 - RBC and plasma depletion
 - Plasma exchange
 - Graft compatibility:
 - Molecular HLA typing by Real Time PCR
 - Flow cytometry
- Laboratory Assistant in the Molecular Department of Hematopoietic Stem Cell Transplantation (HSCT) lab, Taleghani Hospital, Shahid Beheshti University of Medical Sciences (2015-2020):
 - In the hematological malignancy diagnosis department (AML panel, ALL panel, MPD panel, and CLL):
 - Primer design
 - DNA and RNA extraction
 - cDNA synthesis
 - PCR based techniques
 - Gel electrophoresis
 - MRD monitoring
 - o Analysis
 - In the diagnosis of infectious diseases department (HBV, HCV, CMV, HSV, VZV, and TB):
 - DNA and RNA extraction
 - o RT q-PCR
 - o Analysis
- 3) Researcher at Hematopoietic Stem Cell Research Center (HSCRC), Taleghani Hospital, Shahid Beheshti University of Medical Sciences (2020-2021):
 - Trained in Research Design and Method:
 - Scientific writing
 - Statistical analysis
 - Reference manager software
 - Trained the NCBI website and Bioinformatics
- Research Assistant (During PhD Studying) of Professor Mehdi Allahbakhshian Farsani, School of allied medical sciences, Shahid Beheshti University of Medical Sciences (2019-2024):
 - Trained in the cellular biology during PhD Studying:
 - Cell culture techniques
 - Cell function assays

- Trained in the cytogenetics of hematological malignancies during PhD thesis:
 - o Karyotype
 - o FISH
- Trained in the exosome processing during PhD thesis

TECHNIQUES AND SKILLS:

Graft manipulation

- Plasma exchange with serum albumin
- RBC depletion
- Plasma depletion

Molecular Techniques

- Primer design
- RNA and DNA extraction from peripheral blood, bone marrow, tissue, plasma/ serum and nasal swab

- Conventional PCR, real time PCR, nested PCR, MLPA
- Minimal Residual Disease (MRD) monitoring
- Gel electrophoresis
- Molecular HLA typing by Real Time PCR

Cytogenetics Techniques*

- Conventional karyotype on peripheral blood and bone marrow
- Chromosome breakage
- FISH on peripheral blood, bone marrow and tissue

Cellular biology

- Cell culture techniques (Isolation, characterization, growth and differentiation)
- Cell function assays (killing assay, Proliferation assay, Cytotoxicity assay, MTT assay, Stem cell and PBMC isolation)
- Exosome extraction, characterization and clinical applications

Bioinformatics

• NCBI website

Statistical analysis of data using statistic software

- GraphPad Prism
- SPSS

Reference manager software

- EndNote
- Mendeley

Scientific Writing

- Review articles
- Original research articles

• Systematic search

* I have completed practical training courses in the cytogenetic laboratory of Tehran University of Medical Sciences and the cytogenetic laboratory of Kerman University of Medical Sciences, clinical courses of six months (one semester).

P U B L I C A T I O N S

- The impact of exosomes derived from B-cell acute lymphoblastic leukemia as a growth factor on bone marrow mesenchymal stromal cells. Amirpour M, Kuhestani-Dehaghi B, Kheyrandish S, Hajipirloo LK, Khaffafpour Z, Keshavarz F. Molecular Biology Reports. 2024;51(1):749.
- Identification of Prognostic Genes in Acute Myeloid Leukemia Microenvironment: A Bioinformatic and Experimental Analysis. Keshavarz A, Navidinia A, Kuhestani-Dehaghi B, Amiri V, Mohammadi M, Farsani M. Molecular Biotechnology. 2024.
- All about blinatumomab: The bispecific T cell engager immunotherapy for B cell acute lymphoblastic leukemia. Mirfakhraie R, Dehaghi BK, Ghorbi MD, Ghaffari-Nazari H, Mohammadian M, Salimi M. Hematology, Transfusion and Cell Therapy. 2024;46(2):192-200.
- Myelodysplastic Syndromes (MDS); diagnosis, classification, treatment and monitoring. Panahi M, Dehghani Ghorbi M, Amirpour M, Nayebi R, Kuhestani Dehaghi BH*. Iranian Journal of Blood and Cancer. 2022;14(3):71-83. *As the corresponding author
- 5) A New and Cost-Effective Approach to Risk Stratification for Children with Precursor B-Cell Acute Lymphoblastic Leukemia Based on Competing Outcomes. Bonakchi H, Dehaghi BK, Hosseini-Baharanchi FS, Parkhideh S, Farhangi H. Iranian Journal of Pediatrics. 2022;32(4).
- 6) Association of HScore parameters with severe COVID-19: A systematic review and meta-analysis. Kazemi MH, Dehaghi BK*, Roshandel E, Bonakchi H, Parkhideh S, Mehdizadeh M, et al. Iranian Journal of Medical Sciences. 2021;46(5):322. *As the co-first author
- Onolytic virotherapy in hematopoietic stem cell transplantation. Kazemi MH, Dehaghi BK, Roshandel E, Parkhideh S, Mehdizadeh M, Salimi M. Human Immunology. 2021;82(9):640-8.
- Effect of tamsulosin on testis histopathology and serum hormones in adult rats: Experimental study. Kohestani Y, Kohestani B, Shirmohamadi Z, Faghani M. International Journal of Reproductive BioMedicine. 2020;18(7):531.
- 9) The protective properties of hydro-alcoholic extract of Nigella sativa on male reproductive system in type 2 diabetes rats. Kohestani Y, Kohestani B, Shirmohamadi Z, Roushandeh A, Faghani M. Health Biotechnol Biopharma. 2019;3(3):45-56.
- Assessing the frequency of t (12; 21)(p13; q22) in patients with acute lymphoblastic leukemia in northeastern of Iran. Dehaghi BAK, Jalili A, Dehaghi YZK. Health Biotechnology and Biopharma. 2018.
- Acute Lymphoblastic Leukemia-derived exosomes regulate the cell cycle of mesenchymal stromal cells through the G1 phase and activation of Ras/ERK and PI3K/AKT signaling pathways, Kuhestani-Dehaghi B, Amirpour M, Navidinia A, Keshavarz A, Nabigol M, Vazifeh Shirani N, Dehghani-Ghorbi

M, Rahmani-Seraji H, Allahbakhshian Farsani M^{*}, Under Review in Journal of Advanced Biology, manuscript number: **adbi.202400217**, **2024**.

- 12) Enhancing Karyotyping Success: The Impact of Conditioning Media on Cell Proliferation and Apoptosis in Lymphopenic Samples, Kuhestani-Dehaghi B, Amirpour M, Navidinia A, Keshavarz A, Nabigol M, Khodayi hajipirloo L, Jafaei E, Dehghani-Ghorbi M, Rahmani-seraji H, Allahbakhshian Farsani M^{*}, Under Review in Journal of Applied Genetics, Manuscript Number: JOAG-D-24-00304, 2024.
- Effect of AML-exosomes on the cellular and molecular properties of bone marrow mesenchymal stromal cells: Expression of JAK/STAT signaling genes. Nabigol M, Khodayi Hajipirloo L, Kuhestani Dehaghi B, Allahbakhshian Farsani M*. Needing revision in Current Research in Translational Medicine journal. Manuscript number: RETRAM-D-23-00158

۱۴) سلول های B و واکنش مزمن پیوند علیه میزبان. مهدیزاده, دهقی ک, اردکانی ت, ماریا, روشندل, سلیمانی. یافته. ۲۳:۷۳;۲۰۲۱-۸۵.

RESEARCH PROJECTS

- 15) Karyotype optimization with exosome derived from HL-60 cell line in Acute Myeloblastic Leukemia, (Ethics Code: IR.SBMU.RETECH.REC.1402.014), project executor, 2023
- 16) Karyotype optimization with exosome derived from NALM-6 cell line in Acute Lymphoblastic Leukemia, (Ethics Code: IR.SBMU.RETECH.REC.1402.105), project collaborator ,2023
- 17) Evaluating the expression of Jak/Stat signaling pathway related genes in the normal human-derived mesenchymal stromal cell after co-culture with HL-60 derived exosomes (Ethics Code: IR.SBMU.RETECH.REC.1402.067), project collaborator, 2023
- 18) Evaluating the expression of NOTCH signaling pathway related genes in the normal human-derived mesenchymal stromal cell after co-culture with HL-60 derived exosomes (Ethics Code: IR.SBMU.RETECH.REC.1402.015), project collaborator, 2023
- Evaluating the expression of genes involved in cell proliferation in bone marrow cells of patients with Acute Myeloid Leukemia, (Ethics Code: IR.SBMU.RETECH.REC.1401.005), project collaborator, 2022
- 20) Comparison of clinical outcomes in patients receiving CCNU-based with Bendamustine-based conditioning in Lymphoma patients undergoing autologous stem cell transplantation, (Ethics Code: IR.SBMU.RETECH.REC.1400.036), project collaborator, 2021
- 21) The effect of High Intensity Interval Exercise and Training on hematopoietic stem cell mobilization in autologous bone marrow transplant patients, (Ethics Code: IR.SBMU.RETECH.REC.1400.017), project collaborator, 2021
- 22) Immunophenotyping identification of various dendritic cells in Bone Marrow Transplanted patients and correlation with Acute and Chronic GvHD, (Ethics Code: IR.SBMU.RETECH.REC.1397.001), project collaborator, 2019
- 23) Investigating the effect of AML-derived extracellular vesicles on the expression of stromal cell genes (ARC, ILGF, IL8, PLGF) involved in proliferation and drug resistance, project collaborator, 2018
- 24) The effect of extracellular vesicles derived from AML patients on the expression of poor prognosis genes (IL6, Galectin 3, Gas6) by mesenchymal stromal cells, project collaborator, 2018.

25) The association between the abundance of intestinal Blautia and the occurrence of GvHD in Allogeneic Stem Cell Transplantation candidates, (Ethics Code: IR.SBMU.RETECH.REC.1397.001), project collaborator, 2017.

PRESENTATIONS

 The Effect of Acute Myeloid Leukemia Derived Exosome on the Expression of NOTCH Pathway Genes (NOTCH1, NOTCH2, HES-1) in Mesenchymal Stromal Cells of Healthy Donor (HD-MSCs) in the 15th International & 21st National Congress on Quality Improvement in Clinical Laboratories, Tehran, Iran, 2023 (Poster Presentation).

- The serum levels of uric acid might be a Predictive biomarker for acute GvHD in the 3rd National Festival & International Congress on Stem Cell & Regenerative Medicine, Tehran, Iran, 2018 (Oral Presentation).
- CXCL12-A Allele, an Independent Molecular Biomarker to Predict the Yield of CD34+ Progenitor Cells in the 22nd International Congress of Asia-Pacific Blood and Marrow Transplantation, Tehran, Iran, 2017 (Poster Presentation).
- Assessment of changes in White Blood Cells in patients underwent Hematopoietic Stem Cell Transplantation: Random Effects Model in the 22nd International Congress of Asia-Pacific Blood and Marrow Transplantation, Tehran, Iran, 2017 (Poster Presentation).
- 5) Assessing the frequency of t(12;21) (p13;q22) in patients with acute lymphoblastic leukemia in northeastern of Iran in 5rd Graduate students festival, Mashad, Iran, 2014 (**Poster Presentation**).
- Accuracy of Laboratory-made control blood against the commercial control blood in the 5th International Congress of Laboratory and Clinic, Tehran, Iran, 2013 (Poster Presentation).
- Participation in the 22nd International Congress of Asia-Pacific Blood and Marrow Transplantation (2017).
- 8) Participation in the 5th International Congress of Laboratory and Clinic (2013).
- 9) Participation in the 3th International Congress of Laboratory and Clinic (2010).

WORKSHOP CERTIFICATES

- "GraphPad Prism" held by School of Advanced Technologies in Medicine, Shahid Beheshti University of Medical Sciences.
- 2) "Endnote" held by Mashhad University of Medical Sciences.
- "AI" workshop held by Anesthesiology Research Center of Shahid Beheshti University of Medical Sciences.
- "Systematic Review Articles" held by Anesthesiology Research Center of Shahid Beheshti University of Medical Sciences.
- "Primer Design" held by Hematopoietic Stem Cell Research Center of Shahid Beheshti University of Medical Sciences.

- "Molecular HLA typing by Real Time PCR" held by Hematopoietic Stem Cell Research Center of Shahid Beheshti University of Medical Sciences.
- 7) "Hemovigilance" held by Shahid Beheshti University of Medical Sciences.
- 8) "Conditioning regimens for hematopoietic stem cell transplantation" held by Shahid Beheshti University of Medical Sciences.
- 9) "Bone Marrow transplantation" held by Scientific Society of Hematopoietic Stem Cell Transplantation of Iran.
- 10) "Stem Cell and Regenerative Medicine" held by Tehran University of Medical Sciences.
- 11) "Stem cells isolation" held by Shahid Beheshti University of Medical Sciences.
- 12) "Scientific Writing" held by the Iranian Pediatric Hematology and Oncology Society.
- 13) "How to read a scientific paper?" held by Shahid Beheshti University of Medical Sciences.
- 14) "Animal Lab" held by Mashhad University of Medical Sciences.

AWARDS AND HONORS

• Establishment of the "Cytogenetic Research Laboratory" under the supervision of Professor Mehdi Allahbakhshian in the comprehensive research laboratory, Department of hematology and transfusion sciences, School of Allied Medical Sciences, Shahid Beheshti University of Medical Sciences (2022).

- Contribution as an author in "From cell to cancer", winner of the 39th I.R. National Book Award of Iran 2020, (Shahid Beheshti University of Medical Sciences, ISBN: 978-622-612165-1)
- 2nd rank in the national exam for Bachelor of Laboratory Sciences (2009).
- The Top student with second rank in AD (2006-2008).
- The Top student with second rank in BA (2009-2011).
- The Top student with first rank in MSC (2012-2015).

TEACHING EXPERIENCE:

 Conducting "PCR-based techniques" training class for Master's students of Laboratory Hematology and Transfusion Sciences from Shahid Beheshti University of Medical Sciences and Tarbiat Modares University (2016-2020).

Outlines:

- DNA and RNA Extraction from peripheral blood, bone marrow, tissue, serum/plasma, nasal swab, cDNA synthesis, Conventional PCR, RT q-PCR, nested PCR, MLPA, Minimal Residual Disease (MRD) monitoring, Gel electrophoresis and analysis in hematological malignancies and Infectious diseases, HSCT laboratory, Taleghani hospital, Shahid Beheshti University of Medical Sciences.
- Diagnosis of hematological malignancies using PCR-based techniques, flow cytometry, peripheral blood slides and patient history. HSCT laboratory, Taleghani hospital, Shahid Beheshti University of Medical Sciences.

- Holding a "Cytogenetic technique" training workshop for pathology assistants of Shahid Beheshti University of Medical Sciences (2023).
- Teaching "hematology and transfusion sciences" to candidates for the master's exam in Hematology and Transfusion Sciences (2013).

Other educational activities:

- Cooperation in "training and setting up the molecular techniques" of students' projects in comprehensive research laboratory, School of allied medical sciences, Shahid Beheshti University of Medical Sciences (2020-2024).
- 5) Conducting weekly journal clubs on "GvHD" for HSCT team members, Taleghani hospital, Shahid Beheshti University of Medical Sciences (2015-2016).

PROFESSIONAL MEMBERSHIPS:

• **Executive committee member** of the first symposium on hematopoietic stem cell transplantation in Iran and France.

- Executive committee member of the 3rd National Festival & International Congress on Stem Cell & Regenerative Medicine.
- **Reviewer** of the research project entitled "Evaluation of the relationship between different units of injectable G-CSF after transplantation and rapid engraftment in neutrophils and platelets in patients undergoing Allo-HSCT", (2021).
- **Reviewer** of the research project entitled "Comparison of the adjuvant effect of interferon in severe COVID-19 patients who received Remdesivir and Tocilizumab", (2021).
- **Reviewer** of the research project entitled "Investigating the effect of serum ferritin level before transplantation on transplant outcome in Allo-HSCT patients", (2020).
- **Reviewer** of the research project entitled "Investigating the prevalence and outcome of covid-19 infection in bone marrow transplant patients in Taleghani Hospital, Tehran, 1399-1400". (2020)
- **Reviewer** of the research project entitled "Investigating the relationship between the level of parathyroid hormone and the number of CD34-positive cells released into the peripheral blood in Auto-HSCT patients", (2020).
- **Reviewer** of the research project entitled "Investigating the relationship between CD34+ cell dose of transplantation and neutrophil and lymphocyte counts before and after Allo-HSCT and post-transplantation complications", (2020).
- **Reviewer** of the research project entitled "Evaluating the relationship between patients' H score at the beginning of hospitalization and the outcomes of covid-19 disease", (2020).
- **Reviewer** of the research project entitled "The effect of zinc supplementation on appetite, body mass index (BMI), and quality of life in Auto-HSCT patients", (2020).
- **Reviewer** of the research project entitled "The relationship between HLA and the occurrence of GVHD in Allo-HSCT from siblings compatible with HLA (2020).

- **Reviewer** of the research project entitled "a case report of a rare hematological disease: a man with hemophagocytic lymphohistocytosis", (2020).
- **Reviewer** of the research project entitled "Evaluation of the clinical outcome of Germ cell tumor patients undergoing tandem autologous stem cell transplantation", (2020).

REFERENCES:

 Dr. Mehdi Allahbakhshian Farsani, Ph.D., Professor of Laboratory Hematology and Transfusion Sciences, Shahid Beheshti University of Medical Sciences. Mailing Address: School of allied medical sciences, Darband St, Qods Sq, Tehran, Iran. Email: <u>Mbakhshian1360@gmail.com</u>

 Dr. Nader Vazifeh-shiran, PhD., Assistant Professor of Laboratory Hematology and Transfusion Sciences, Shahid Beheshti University of Medical Sciences. Mailing Address: School of allied medical sciences, Darband St, Qods Sq, Tehran, Iran. Email: <u>nadershirani@yahoo.com</u>