

# Tigran Ashot Harutyunyan

✉ tigranharutyunyan@ysu.am



## Research Institute of Biology

Genomic Instability and Molecular Mutagenesis Group

Group Leader

## Education

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<b>Institution</b>	Yerevan State University
<b>Faculty</b>	Faculty of Biology, Department of Genetics and Cytology
<b>Date</b>	2012 - 2015
<b>Degree name</b>	PhD student

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<b>Institution</b>	Yerevan State University
<b>Faculty</b>	Faculty of Biology, Department of Genetics and Cytology
<b>Date</b>	2010 - 2012
<b>Degree name</b>	Masters

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<b>Institution</b>	Yerevan State University
<b>Faculty</b>	Faculty of Biology, Department of Genetics and Cytology
<b>Date</b>	2006 - 2010
<b>Degree name</b>	Bachelor

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## Scientific Rank/degree

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<b>Institution</b>	Yerevan State University
<b>Date</b>	2021
<b>Degree name</b>	Associate professor
<b>Specialty</b>	Biological sciences

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<b>Institution</b>	Yerevan State University
<b>Date</b>	2015
<b>Degree name</b>	Candidate
<b>Specialty</b>	Biological sciences
<b>Scientific Supervisor</b>	Rouben Aroutiounian
<b>Research Topic</b>	GENOTOXIC, MOLECULAR-CYTOGENETIC AND EPIGENETIC EFFECTS OF MYCOTOXINS AND THEIR COMBINATION IN VIVO AND IN VITRO

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## Language skills

Русский English

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## Work experience

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<b>Institution</b>	Yerevan State University, Research Institute of Biology, Laboratory of General and Molecular Genetics
<b>Period of time</b>	2025 till now
<b>Rank/degree</b>	Group leader

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<b>Institution</b>	Yerevan State University, Department of Genetics and Cytology
<b>Period of time</b>	2021 till now
<b>Rank/degree</b>	Associate Professor

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<b>Institution</b>	Yerevan State University, Research Institute of Biology, Laboratory of General and Molecular Genetics
<b>Period of time</b>	2018 till now
<b>Rank/degree</b>	Researcher

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<b>Institution</b>	Institute of Human Genetics Jena (Germany)
<b>Period of time</b>	2014 - 2014
<b>Rank/degree</b>	Research Fellow

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<b>Institution</b>	Yerevan State University, Department of Genetics and Cytology
<b>Period of time</b>	2010 - 2020
<b>Rank/degree</b>	Senior Laboratory Assistant

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## Scientific interests

- Molecular mutagenesis, genome editing, mitochondrial DNA, molecular cytogenetics, genetics of aging
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## Participation in international conferences and seminars

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<b>20/12/2024 - 19/01/2025</b>	Research stay Friedrich Schiller University Jena, Institute of Human Genetics Germany
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<b>20/09/2024 - 19/10/2024</b>	Research stay Friedrich Schiller University Jena, Institute of Human Genetics Germany
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<b>05/10/2022 - 02/11/2022</b>	Research stay Friedrich Schiller University Jena, Institute of Human Genetics Germany
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<b>01/11/2021 - 31/12/2021</b>	Research stay Friedrich Schiller University Jena, Institute of Human Genetics Germany
<b>01/06/2019 - 30/08/2019</b>	Research stay Friedrich Schiller University Jena, Institute of Human Genetics Germany
<b>14/12/2018 - 14/01/2019</b>	Research stay Friedrich Schiller University Jena, Institute of Human Genetics Germany
<b>01/05/2018 - 30/06/2018</b>	Research stay Friedrich Schiller University Jena, Institute of Human Genetics Germany
<b>29/11/2016 - 05/12/2016</b>	Conference Tokyo University Japan
<b>01/08/2017 - 05/10/2017</b>	Research stay Friedrich Schiller University Jena, Institute of Human Genetics Germany
<b>11/12/2017 - 17/12/2017</b>	Research stay Southern Federal University Russian Federation (the)
<b>12/08/2014 - 12/09/2014</b>	Research stay Friedrich Schiller University Jena, Institute of Human Genetics Germany
<b>01/05/2014 - 30/06/2014</b>	Research stay Friedrich Schiller University Jena, Institute of Human Genetics Germany

## Publications

*Article*

### **Circular RNAs as key regulators in cancer hallmarks: New progress and therapeutic opportunities**

Bashdar Mahmud Hussen, Snur Rasool Abdullah, Rayan Mazin Jaafar, Mohammed Fatih Rasul, Rouben Aroutiounian, Tigran Harutyunyan, Thomas Liehr, Majid Samsami, Mohammad Taheri  
Critical Reviews in Oncology/Hematology 2025 104612

*Article*

### **Elucidating the impact of Hypericum alpestre extract and L-NAME on the PI3K/Akt signaling**

**pathway in A549 lung adenocarcinoma and MDA-MB-231 triple-negative breast cancer cells**

Hayarpi Javrushyan, Mikayel Ginovyan, Tigran Harutyunyan, Smbat Gevorgyan, Zaruhi Karabekian,

Alina Maloyan, Nikolay Avtandilyan

PLOS ONE 2025 e0303736

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*Article*

**Knockdown of histone H1-5 gene affects the sensitivity of MRC-5 and HeLa cells to DNA damaging agents**

Tigran Harutyunyan, Anzhela Sargsyan, Gohar Tadevosyan, Lily Kalashyan, Rouben Aroutiounian,

Galina Hovhannisyan

Human Gene 2025 1-9

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*Article*

**The known unknowns of mitochondrial carcinogenesis: de novo NUMTs and intercellular mitochondrial transfer**

Tigran Harutyunyan

Mutagenesis 2024 1-12

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*Article*

**Changes in Telomere Length in Leukocytes and Leukemic Cells after Ultrashort Electron Beam Radiation**

Tigran Harutyunyan, Anzhela Sargsyan, Lily Kalashyan, Hovhannes Igityan, Bagrat Grigoryan,

Hakob Davtyan, Rouben Aroutiounian, Thomas Liehr, Galina Hovhannisyan

International Journal of Molecular Sciences 2024 6709

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*Article*

**5-fluorouracil and Rumex obtusifolius extract combination trigger A549 cancer cell apoptosis: uncovering PI3K/Akt inhibition by in vitro and in silico approaches**

Mikayel Ginovyan, Hayarpi Javrushyan, Svetlana Hovhannisyan, Edita Nadiryan, Gohar Sevoyan,

Tigran Harutyunyan, Smbat Gevorgyan, Zaruhi Karabekian, Alina Maloyan, Nikolay Avtandilyan

Scientific Reports 2024 1-16

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*Article*

**CELL-FREE MITOCHONDRIAL DNA IN DOXORUBICIN-TREATED KCL22 AND K562 CELL LINES**

Tigran A. Harutyunyan, Anzhela A. Sargsyan, Lily A. Kalashyan, Hovhannes A. Igityan,

Rouben M. Aroutiounian, Galina G. Hovhannisyan

Proceedings of the YSU B: Chemical and Biological Sciences 2024 9-16

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*Article*

**Enhancing virus inhibition in track-etched membranes through surface modification with silver nanoparticles and curcumin**

Evgeny Andreev, Hovakim Zakaryan, Tigran Harutyunyan, Ludmila Molokanova, Uliana Pinaeva,

Arnoux Rossouw, Alexander Nechaev, Pavel Apel, Rouben Aroutiounian

Surfaces and Interfaces 2024 1-8

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*Article*

**DNA Damage in Moderate and Severe COVID-19 Cases: Relation to Demographic, Clinical, and Laboratory Parameters**

Tigran Harutyunyan, Anzhela Sargsyan, Lily Kalashyan, Naira Stepanyan, Rouben Aroutiounian,

*Article*

**ANALYSIS OF DOXORUBICIN-INDUCED MITOCHONDRIAL DNA DELETIONS IN HUMAN BLOOD LEUKOCYTES AND THP-1 CELL LINE BY PCR**

Tigran A. Harutyunyan

Proceedings of the YSU B: Chemical and Biological Sciences 2023 32-40

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*Article*

**EVALUATION OF GENOTOXIC EFFECTS IN COVID-19 PATIENTS AS A POTENTIAL MARKER OF VIRUS-HOST ADAPTATION**

Tigran Harutyunyan, Anzhela Sargsyan, Nara Stepanyan, Galina Hovhannisyan, Rouben Aroutiounian

ARMENIAN MEETING "Climate Changes: Adaptation" Yerevan, March 27-28, 2023 ABSTRACTS PAPERS BY YOUNG SCIENTISTS  
2023 8-10

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*Article*

**DNA DAMAGE INDUCED BY ULTRASHORT PULSED ELECTRON BEAM IRRADIATION IN HUMAN CANCER AND NORMAL CELLS**

Alisa Manukyan, Nelly Babayan, Lusine Khondkaryan, Ruzanna Grigoryan, Natalya Sarkisyan,

Tigran Harutyunyan, Bagrat Grigoryan, Rouben Aroutiounian

ARMENIAN MEETING "Climate Changes: Adaptation" Yerevan, March 27-28, 2023 ABSTRACTS PAPERS BY YOUNG SCIENTISTS  
2023 11-14

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*Article*

**The Diagnostic, Prognostic, and Therapeutic Potential of Cell-Free DNA with a Special Focus on COVID-19 and Other Viral Infections**

Galina Hovhannisyan, Tigran Harutyunyan, Rouben Aroutiounian, Thomas Liehr

International Journal of Molecular Sciences 2023 14163

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*Article*

**Increase in the Level of Doxorubicin-Induced DNA Damage in HeLa Cells with CRISPR/Cas9 Mediated HIST1H1B Gene Knockout**

E. T. Kuchukyan, A. A. Sargsyan, T. A. Harutyunyan

Physics of Particles and Nuclei Letters 2022 287-288

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*Article*

**Analysis and pharmacological modulation of senescence in human epithelial stem cells**

Vanessa Barbaro, Antonio Orvieto, Gualtiero Alvisi, Marina Bertolin, Filippo Bonelli, Thomas Liehr,

Tigran Harutyunyan, Stefanie Kankel, Gordana Joksic, Stefano Ferrari, Elena Daniele, Diego Ponzin,

Daniela Bettio, Leonardo Salviati, Enzo Di Iorio

JOURNAL OF CELLULAR AND MOLECULAR MEDICINE 2022 3977-3994

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*Article*

**Can age related mosaic loss of Y chromosome really cause cardiac damage in men?**

Tigran Harutyunyan, Thomas Liehr

Science, AAAS 2022 297

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Article

**Non-Invasive Prenatal Testing in Germany**

Thomas Liehr, Tigran Harutyunyan, Heather Williams, Anja Weise

Diagnostics 2022 1-11

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Manual

**Cytogenomics: Approaches for studying epigenetic aspects of the human genome**

Harutyunyan Tigran, Hovhannisyan Galina

2021 54

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Article

**IDENTIFICATION OF CYTOGENETICALLY VISIBLE mtDNA IN INTERPHASE NUCLEI OF HUMAN BLOOD LYMPHOCYTES EXPOSED TO DOXORUBICIN**

T. A. HARUTYUNYAN, G. G. HOVHANNISYAN, A. A. SARGSYAN, T. LIEHR, A. AL-RIKABI,

R. M. AROUTIOUNIAN

Proceedings of the YSU B: Chemical and Biological Sciences 2020 63-67

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Article

**Doxorubicin-induced translocation of mtDNA into the nuclear genome of human lymphocytes detected using a molecular-cytogenetic approach**

Tigran Harutyunyan, Ahmed Al-Rikabi, Anzhela Sargsyan, Galina Hovhannisyan, Rouben Aroutiounian,

Thomas Liehr

International Journal of Molecular Sciences 2020 1-11

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Manual

**Մարդու գենետիկայի հիմունքները**

Լիր Թոմաս, Հարությունյան Տիգրան, Հովհաննիսյան Գալինա

2020 170

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Article

**Analysis of copy number variations induced by ultrashort electron beam radiation in human leukocytes in vitro**

Tigran Harutyunyan, Galina Hovhannisyan, Anzhela Sargsyan, Bagrat Grigoryan, Ahmed H. Al-Rikabi,

Anja Weise, Thomas Liehr, Rouben Aroutiounian

Molecular Cytogenetics 2019 18 (1-6)

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Article

**DNA Copy Number Variations as Markers of Mutagenic Impact**

Hovhannisyan Galina, Harutyunyan Tigran, Aroutiounian Rouben, Liehr Thomas

International Journal of Molecular Sciences 2019 1-19

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Article

**Micronuclei and what they can tell us in cytogenetic diagnostics**

Hovhannisyan Galina, Harutyunyan Tigran, Aroutiounian Rouben

Current Genetic Medicine Reports 2018 144-154

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Article

**Effect of Glutathione S-transferase mu 1 (GSTM1) gene polymorphism on chronic myeloid leukemia risk and Imatinib treatment response**

Walid Al-Achkar, Faten Moassass, Rouben Aroutiounian, Tigran Harutyunyan, Thomas Liehr,

Abdulsamad Wafa

Meta Gene 2017 113-117

<https://www.journals.elsevier.com/meta-gene/>

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*Manual*

**Micronucleus FISH, Fluorescence In Situ Hybridization (FISH) Application Guide, Second Edition**

Galina Hovhannisyan, Tigran Harutyunyan, Thomas Liehr

2017 379-383

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*Article*

**Interphase Molecular Cytogenetic Detection Rates of Chronic Lymphocytic Leukemia-Specific Aberrations Are Higher in Cultivated Cells Than in Blood or Bone Marrow Smears**

Eyad Alhourani, Rouben Aroutiounian, Tigran Harutyunyan, Anita Glaser, Cordula Schlie, Beate Pohle,

Thomas Liehr

Journal of Histochemistry & Cytochemistry 2016 495-501

<http://jhc.sagepub.com/>

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*Article*

**Comparative analysis of individual chromosome involvement in micronuclei induced by mitomycin C and bleomycin in human leukocytes.**

Hovhannisyan G, Aroutiounian R, Babayan N, Harutyunyan T, Liehr T

Molecular Cytogenetics 2016 7

<https://molecularcytogenetics.biomedcentral.com/>

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*Article*

**Cell viability and DNA damage in MRC5 and HeLa cell lines after histone H1 knockout by CRISPR-Cas9 genome editing technology**

Hovhannisyan G, Aroutiounian R, Harutyunyan T, Babayan N

Proceedings of the YSU B: Chemical and Biological Sciences 2016 64-66

<http://www.y-su.am/science/hy/journals>

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*Article*

**Influence of aflatoxin B1 on copy number variants in human leukocytes in vitro.**

Harutyunyan T, Hovhannisyan G, Babayan N, Othman MA, Liehr T, Aroutiounian R

Molecular Cytogenetics 2015 25; 5

<https://molecularcytogenetics.biomedcentral.com/>

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*Article*

**APOPTOSIS-INDUCING EFFECT OF AFLATOXIN B1, OCHRATOXIN A AND ZEARALENONE COMBINATION IN RAT HEPATOCYTES**

T A Harutyunyan

Proceedings of the YSU B: Chemical and Biological Sciences 2015 50-52

<http://www.y-su.am/science/hy/journals>

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*Article*

**Influence of Glutathione S-transferase (GSTT1 and GSTM1) gene polymorphism on imatinib failure in chronic myeloid leukemia patients**

Al Achkar W, Moassass F, Aroutiounian R, Harutyunyan T, Liehr T, Wafa A

*Article*

**LEVELS OF DNA DAMAGE IN CRAYFISH HEMOCYTES**

Simonyan AE, Harutyunyan TA, Gevorgyan AL, Tadevosyan EH, Gabrielyan BK, Badalyan NS,

Aroutiounian RM

Proceedings of the YSU B: Chemical and Biological Sciences 2014 58-60

<http://www.y-su.am/science/hy/journals>

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*Article*

**Combined Genotoxic Effects of Aflatoxin B1, Ochratoxin A and Zearalenone in Rat Bone Marrow and Blood Leukocytes**

Harutyunyan Tigran, Karapetyan Anna, Hovhannisyan Galina, Aroutiounian Rouben

Korean Journal of Environmental Biology 2013 189-191

<http://www.ebr.or.kr/AboutUs/01.php>

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*Conference*

**ЭКОГЕНОТОКСИКОЛОГИЧЕСКОЕ ИССЛЕДОВАНИЕ БАСЕЙНА ОЗЕРА СЕВАН С ПРИМЕНЕНИЕМ РЕЧНЫХ РАКОВ (ASTACUS LEPTODACTYLUS) И ТРАДЕСКАНЦИИ**

А.Э. Симонян, Г.Г. Оганесян, Б.К. Габриелян, С.Г. МИНАСЯН, Т.А. Арутюнян, А.Л. Геворкян,

Р.М. Арутюнян

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*Conference*

**Изучение мутагенеза методами молекулярной цитогенетики.**

Арутюнян Р.М., Арутюнян Т.А., Симонян А.Э., Оганесян Г.Г.

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*Conference*

**PROTECTIVE EFFECTS OF SCHIFF BASE CYCLIC AMINO ACID DERIVATIVES AGAINST MYCOTOXINS GENO- AND CYTOTOXICITY**

Tigran HARUTYUNYAN, Galina HOVHANNISYAN, Nelli BABAYAN, Thomas LIEHR, Arsen ARAKELYAN,

Rouben AROUTIOUNIAN, Margarita MALAKYAN

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*Conference*

**New doxorubicin nanosize composites' anticancer activity in vitro and in vivo**

Babayan N, Apresyan L, Harutyunyan T, Grigoryan S, Arakelova E

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*Conference*

**Investigation of genotoxic effects of mycotoxins in vivo**

Harutyunyan T, Aroutiounian R, Karapetyan A

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*Conference*

**Genetic effects: DNA radiation damage and repair**

R. Aroutiounian, G. Hovhannisyan, B. Grigoryan, G. Tsakanova, S. Haroutiunian, T. Harutyunyan,

N. Babayan

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*Conference*

**The genotoxic and cytotoxic effects of ochratoxin a and t-2 toxin in rats bone marrow and**

## **blood cells**

Harutyunyan Tigran, Hovhannisyan Galina, Babayan Nelli, Arakelyan Arsen, Aroutiounian Rouben

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### *Conference*

#### **Оценка повреждений и репарации ДНК при облучении сверхкороткими импульсами ускоренных электронов.**

Арутюнян Р.М., Оганесян Г.Г., Григорян Б.А., Цаканова Г.В., Арутюнян С.Г., Арутюнян Т.А.,

Бабаян Н.С.

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### *Conference*

#### **Кинетика репарации ДНК и эпигенетические изменения при облучении сверхкороткими импульсами ускоренных электронов**

Арутюнян Р.М., Оганесян Г.Г., Григорян Б.А., Арутюнян Т.А., Бабаян Н.С.

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### *Conference*

#### **DOXORUBICIN-INDUCED MTDNA INSERTIONS IN NUCLEAR GENOME OF HUMAN LYMPHOCYTES**

Aroutiounian R, Hovhannisyan G, Sargsyan A, Al-Rikabi A, Liehr T, Harutyunyan T

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### *Conference*

#### **Genetic effects of ultrashort pulsed electron beam irradiation - 7 years of joint experience**

Rouben Aroutiounian, Tigran Harutyunyan, Andrean Osipov, Natalya Vorobyeva, Galina Hovhannisyan,

Anzhela Sargsyan, Bagrat Grigoryan, Samvel Haroutiounian, Thomas Liehr, Nelly Babayan

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### *Conference*

#### **ԳԵՆԵՏԻԿԱԿԱՆ ԱՆԿԱՅՈՒՆՈՒԹՅԱՆ ԿԵՆՍԱՍԱՐԿԵՐՆԵՐԻ ԿԻՐԱՌՈՒՄԸ ՄԻՋԻՆ ԵՎ ԾԱՆԻ ԸՆԹԱՑՔՈՎ COVID-19 ՀԻՎԱՆԴՆԵՐԻ ԽՄԲԵՐՈՒՄ**

Հարությունյան Ռ., Հովհաննիսյան Գ., Սարգսյան Ա., Ստեփանյան Ն., Ղուկասյան Լ., Առաքելյան Ա.,

Հարությունյան Տ.

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### *Conference*

#### **GENOTOXICOLOGICAL AND MOLECULAR-GENETIC RESEARCH OF CORONAVIRUS IN ARMENIA**

Tigran Harutyunyan, Anzhela Sargsyan, Nara Stepanyan, Galina Hovhannisyan, Lilit Ghoukasyan,

Arsen Arakelyan, Rouben Aroutiounian

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### *Conference*

#### **Genotoxic effects of low LET irradiation by electron pulses in human cells**

R.M. Aroutiounian, G.G. Hovhannisyan, N. S. Babayan, A.A. Sargsyan, B.A. Grigoryan, T. Liehr,

T.A. Harutyunyan

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### *Conference*

#### **Telomere Lengths of Human Chromosomes as Potential Biomarkers of Genomic Instability Induced by Electron Beam Radiation**

L.A. Kalashyan, A.A. Sargsyan, B.A. Grigoryan, H.D. Davtyan, R.M. Aroutiounian, T. Liehr,

G.G. Hovhannisyan, T.A. Harutyunyan

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### *Conference*

#### **8-OHdG Elevation in Hypoxic COVID-19: A Potential Link to Inflammation and Disease Severity**

Tigran Harutyunyan, Gohar Tadevosyan, Anzhela Sargsyan, Lily Kalashyan, Naira Stepanyan,

Rouben Aroutiounian, Galina Hovhannisyan

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*Conference*

**Leukocyte Telomere Length Changes in Hypoxic COVID-19 patients**

Tigran Harutyunyan, Anzhela Sargsyan, Lily Kalashyan, Naira Stepanyan, Thomas Liehr,

Rouben Aroutiounian, Galina Hovhannisyan

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*Conference*

**Micronuclei levels in doxorubicin- and mitomycin C-treated MRC-5 and HeLa cells with knockdown of the histone H1-5 gene**

T. Harutyunyan, A. Sargsyan, G. Tadevosyan, L. Kalashyan, R. Aroutiounian, G. Hovhannisyan

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*Conference*

**Hybrid Track-Etched Membranes as Antiviral Filters**

Rouben Aroutiounian, Tigran Harutyunyan, Anzhela Sargsyan, Evgeny Andreev, Alexander Nechaev,

Pavel Apel, Galina Hovhannisyan, Hovakim Zakaryan

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