

# Mikayel Martik Ginovyan

✉ mikayel.ginovyan@ysu.am



## Research Institute of Biology

Basic and Pathological Biochemistry Laboratory

Senior researcher

## Education

---

|                    |                          |
|--------------------|--------------------------|
| <b>Institution</b> | Yerevan State University |
| <b>Faculty</b>     | Faculty of biology       |
| <b>Date</b>        | 2013 - 2016              |
| <b>Degree name</b> | PhD student              |

---

|                    |                          |
|--------------------|--------------------------|
| <b>Institution</b> | Yerevan State University |
| <b>Faculty</b>     | Faculty of biology       |
| <b>Date</b>        | 2011 - 2013              |
| <b>Degree name</b> | Masters                  |

---

|                    |                          |
|--------------------|--------------------------|
| <b>Institution</b> | Yerevan State University |
| <b>Faculty</b>     | Faculty of biology       |
| <b>Date</b>        | 2005 - 2009              |
| <b>Degree name</b> | Bachelor                 |

---

## Scientific Rank/degree

---

|                              |   |
|------------------------------|---|
| <b>Institution</b>           | Yerevan State University                                      |
| <b>Date</b>                  | 2018  |
| <b>Degree name</b>           | Candidate   |
| <b>Specialty</b>             | Biological sciences   |
| <b>Scientific Supervisor</b> | Professor Armen Trchounian                                    |
| <b>Research Topic</b>        | Biochemical characteristics of some herbs from Armenian flora |

---

## Language skills

---

English Русский

---

## Work experience

---

|                       |   |
|-----------------------|---|
| <b>Institution</b>    | Laboratory of Basic and Pathological Biochemistry, Research Institute of Biology,<br>Yerevan State University |
| <b>Period of time</b> | 2025 till now   |

**Rank/degree** Senior Researcher

---

**Institution** Laboratory of Basic and Pathological Biochemistry, Research Institute of Biology,  
Yerevan State University

**Period of time** 2019 - 2024

**Rank/degree** Researcher

---

**Institution** Laboratory of Basic and Pathological Biochemistry, Research Institute of Biology,  
Yerevan State University

**Period of time** 2016 - 2019

**Rank/degree** Junior Researcher

---

## Participation in international conferences and seminars

---

**09/07/2022 - 14/07/2022** The Biochemistry Global Summit (the 25th IUBMB, 46th FEBS and 15th PABMB Congresses), Lisbon, Portugal  
Portugal

---

**18/06/2023 - 21/06/2023** ISBT Congress 2023 (33rd Regional ISBT Congress), Gothenburg, Sweden  
Sweden

---

**08/07/2023 - 12/07/2023** The 47th FEBS Congress, Tours, France  
France

---

**20/03/2024 - 21/03/2024** COST EURESTOP GENERAL MEETING, Rome, Italy  
Italy

---

**23/06/2024 - 27/06/2024** ISBT 38th Congress, Barcelona, Spain  
Spain

---

**29/06/2024 - 03/07/2024** FEBS 48th Congress, Milan, Italy  
Italy

---

**04/07/2024** COST Action CA21145 EURESTOP WG meeting, Brussels, Belgium  
Belgium

---

## Membership

---

**Institution** COST Action CA21145, European Network for diagnosis and treatment of antibiotic-resistant bacterial infections (EURESTOP) - Management committee member

**Period of time** 2023 till now

---

**Institution** International Society of Blood Transfusion (ISBT)

|                       |   |
|-----------------------|---|
| <b>Period of time</b> | 2023 till now   |
| <b>Institution</b>    | COST Action CA16112 (NutRedOx) MC Observer from COST Near neighbour Countries |
| <b>Period of time</b> | 2019 - 2021   |
| <b>Institution</b>    | The American Society for Microbiology (ASM)                                   |
| <b>Period of time</b> | 2015 till now   |
| <b>Institution</b>    | Federation of European Biochemical Societies (FEBS)                           |
| <b>Period of time</b> | 2013 till now   |

## Publications

### Article

#### **Characterization and antibacterial/cytotoxic activity of silver nanoparticles synthesized from *Dicranum scoparium* moss extracts growing in Armenia**

Gayane Semerjyan, Inesa Semerjyan, Mikayel Ginovyan, Nikolay Avtandilyan

AIMS Biophysics 2025 29–42

### Article

#### **Adapting the Cohn 6th cold ethanol fractionation method for small plasma pools: An innovative platform for developing hyperimmunoglobulin products against antibiotic-resistant infections in resource-limited settings**

Mikayel Ginovyan, Gayane Kirakosyan

Transfusion and Apheresis Science 2025 104093

### Article

#### **Ribes nigrum leaf extract downregulates pro-inflammatory gene expression and regulates redox balance in microglial cells**

Alvard Minasyan, Vivien Pires, Catherine Gondcaille, Mikayel Ginovyan, Marika Mróz, Stéphane Savary, Mustapha Cherkaoui-Malki, Barbara Kuszniereicz, Agnieszka Bartoszek, Pierre Andreoletti,

Naira Sahakyan

BMC Complementary Medicine and Therapies 2025 1-17

### Article

#### **The potential of blackcurrant, fig, and grape leaf extracts in the development of new preparations for overcoming antibiotic resistance and enhancing the efficacy of chemotherapeutic agents**

Mikayel Ginovyan, Silvard Tadevosyan, Anahit Shirvanyan, Anush Babayan, Barbara Kuszniereicz, Izabela Koss-Mikołajczyk, Marika Mróz, Agnieszka Bartoszek, Naira Sahakyan

BMC Complementary Medicine and Therapies 2025 1-54

### Article

#### **A novel approach for synthesizing silver nanoparticles with antibacterial and cytotoxic activities using the leaf extract of hydroponically grown *Moringa oleifera***

Anush Aghajanyan, Marina Timotina, Tatevik Manutsyan, Ani Harutyunyan, Mikayel Ginovyan,

*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

---

*Article*

**Hypericum alpestre extract exhibits in vitro and in vivo anticancer properties by regulating the cellular antioxidant system and metabolic pathway of L-arginine**

Mikayel Ginovyan, Hayarpi Javrushyan, Hasmik Karapetyan, Izabela Koss-Mikołajczyk,

Barbara Kusznierevicz, Anna Grigoryan, Alina Maloyan, Agnieszka Bartoszek, Nikolay Avtandilyan

Cell Biochemistry and Function 2024 1-21

---

*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 Hovhannisyanyan, Edita Nadiryan, Gohar Sevoyan,

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

Scientific Reports 2024 1-16

---

*Article*

**Royal Jelly-Mediated Silver Nanoparticles Show Promising Anticancer Effect on HeLa and A549 Cells Through Modulation of the VEGFa/PI3K/Akt/MMP-2 Pathway**

Meri Kocharyan, Syuzan Marutyan, Edita Nadiryan, Mikayel Ginovyan, Hayarpi Javrushyan,

Seda Marutyan, Nikolay Avtandilyan

Applied Organometallic Chemistry 2024 1-11

---

*Article*

**Anti-cancer effect of in vivo inhibition of nitric oxide synthase in a rat model of breast cancer**

Nikolay Avtandilyan, Hayarpi Javrushyan, Mikayel Ginovyan, Anna Karapetyan, Armen Trchounian

Molecular and Cellular Biochemistry 2023 261-275

---

*Article*

**Anti-cancer effect of Rumex obtusifolius in combination with arginase/nitric oxide synthase inhibitors via downregulation of oxidative stress, inflammation, and polyamine synthesis**

Mikayel Ginovyan, Hayarpi Javrushyan, Gayane Petrosyan, Barbara Kusznierevicz,

Izabela Koss-Mikołajczyk, Zuzanna Koziara, Monika Kuczyńska, Patrycja Jakubek, Anna Karapetyan,

Naira Sahakyan, Alina Maloyan, Agnieszka Bartoszek, Nikolay Avtandilyan

International Journal of Biochemistry & Cell Biology 2023 106396

---

*Article*

**Screening revealed the strong cytotoxic activity of Alchemilla smirnovii and Hypericum alpestre ethanol extracts on different cancer cell lines**

Mikayel Ginovyan, Svetlana Hovhannisyanyan, Hayarpi Javrushyan, Gohar Sevoyan, Zaruhi Karabekyan,

Narine Zakaryan, Naira Sahakyan, Nikolay Avtandilyan

*Article*

**The Action Mechanisms, Anti-Cancer and Antibiotic-Modulation Potential of Vaccinium myrtillus L. Extract**

Mikayel Ginovyan, Anush Babayan, Anahit Shirvanyan, Alvard Minasyan, Meri Qocharyan, Barbara Kuszniereicz, Izabela Koss-Mikołajczyk, Nikolay Avtandilyan, Anne Vejux, Agnieszka Bartoszek,

Naira Sahakyan

Discovery Medicine 2023 590-611

---

*Article*

**The possible anti-inflammatory properties of hydro-ethanolic extract of Oregano**

Armenuhi Moghrovyan, Mikayel Ginovyan, Nikolay Avtandilyan, Lilya Parseghyan, Armen Voskanyan,

Naira Sahakyan, Anna Darbinyan

Functional Foods in Health and Disease 2023 476-486

---

*Article*

**THE CYTOTOXIC PROPERTIES OF ALCHEMILLA SMIRNOVII EXTRACT ON THE HELA CANCER CELLS VIA DOWNREGULATION OF ARGINASE ACTIVITY**

S.M. Hovhannisyan, E.E. Nadiryan, M.V. Qocharyan, G.H. Petrosyan, G.P. Sevoyan, Z.I. Karabekyan,

H.G. Javrushyan, M.M. Ginovyan, N.V. Avtandilyan

ԵՊՀ գիտական տեղեկագիր. Քիմիա և կենսաբանություն: 2023 238-247

---

*Article*

**REGULATORY EFFECTS OF RUMEX OBTUSIFOLIUS AND HYPERICUM ALPESTRE EXTRACTS ON THE QUANTITY OF IL-2 IN IN VITRO AND IN VIVO CANCER MODELS**

E.E. Nadiryan, S.M. Hovhannisyan, M. V. Qocharyan, G.H. Petrosyan, H.G. Javrushyan, M.M. Ginovyan,

N.V. Avtandilyan

ԵՊՀ գիտական տեղեկագիր. Քիմիա և կենսաբանություն: 2023 248-257

---

*Article*

**Hypericum alpestre extract affects the activity of the key antioxidant enzymes in microglial BV 2 cellular models**

Mikayel Ginovyan, Pierre Andreoletti, Mustapha Cherkaoui-Malki, Naira Sahakyan

AIMS Biophysics 2022 161-171

---

*Article*

**Ribes nigrum L. Extract-Mediated Green Synthesis and Antibacterial Action Mechanisms of Silver Nanoparticles**

Zaruhi Hovhannisyan, Marina Timotina, Jemma Manoyan, Lilit Gabrielyan, Margarit Petrosyan,

Barbara Kuszniereicz, Agnieszka Bartoszek, Claus Jacob, Mikayel Ginovyan, Karen Trchounian,

Naira Sahakyan, Muhammad Jawad Nasim

Antibiotics 2022 1-17

---

*Article*

**Growth inhibition of cultured cancer cells by Ribes nigrum leaf extract**

Mikayel Ginovyan, Agnieszka Bartoszek, Izabela Koss-Mikołajczyk, Barbara Kuszniereicz,

Pierre Andreoletti, Mustapha Cherkaoui-Malki, Naira Sahakyan

AIMS Biophysics 2022 282-293

---

Article

**EVALUATION OF THE ANTIOXIDANT ACTIVITY AND THE ANTI-CANCER PROPERTIES**

**OF FALCHEMA M. SMIRNOVII JUZ. EXTRACT ON THE HELA CANCER CELL LINE**

S. Hovhannisyan, E. NADIRYAN, M. QOCHARYAN, G. SEVOYAN, M. GINOVYAN, N. AVTANDILYAN

СТУДЕНЧЕСКАЯ ГОДИЧНАЯ НАУЧНАЯ КОНФЕРЕНЦИЯ ЯРОССИЙСКО-АРМЯНСКИЙ УНИВЕРСИТЕТА 2022

40-46

---

Article

**Antioxidant potential, biochemical activity and hypoglycemic effects of R. obtusifolius L. seed extracts used in Armenian traditional medicine**

Mikayel Ginovyan, Naira Sahakyan, Anush Aghajanyan, Armen Trchounian

BIO Web of Conferences 2021 1-6

---

Article

**NEW THERAPEUTIC APPROACHES IN BREAST ANTICANCER TREATMENT USING ARMENIAN HERBAL EXTRACTS**

H.G. JAVRUSHYAN, N.V. AVTANDILYAN, M.M. GINOVYAN, A.H. TRCHOUNIAN

Biological Journal of Armenia 2021 32-38

---

Article

**ANTIOXIDANT POTENTIAL OF SOME HERBS REPRESENTED IN ARMENIAN FLORA AND CHARACTERIZATION OF PHYTOCHEMICALS**

M. M. Ginovyan, N. Zh. Sahakyan, M.T. Petrosyan, A. H. Trchounian

Proceedings of the YSU B: Chemical and Biological Sciences 2021 25-38

---

Article

**Phytochemical Screening and Detection of Antibacterial Components from Crude Extracts of Some Armenian Herbs Using TLC-Bioautographic Technique**

Ginovyan Mikayel, Ayvazyan Arpine, Nikoyan Armine, Tumanyan Lilit, Trchounian Armen

Current Microbiology 2020 1223-1232

---

Article

**ANTIBACTERIAL AND ANTI-PHAGE ACTIVITY OF PLANTAGO MAJOR L. RAW MATERIAL**

N.Zh. Sahakyan, M. M. Ginovyan, M. T. Petrosyan, A. H. Trchounian

Proceedings of the YSU B: Chemical and Biological Sciences 2019 59-64

---

Article

**Herbs Extracts in the Treatment and Prevention of Experimental Metabolic Disorders: Synergistic Hypoglycemic Activity of Ethanol Extracts of Hypericum alpestre and Rumex obtusifolius**

Anush Aghajanyan, Mikayel Ginovyan, Armen Trchounian

Proceedings MDPI 2019 1-3

---

Article

**Novel approach to combat antibiotic resistance: evaluation of some Armenian herb crude extracts for their antibiotic modulatory and antiviral properties**

M. Ginovyan, A. Trchounian

JOURNAL OF APPLIED MICROBIOLOGY 2019 472-480

---

Article

**Novel approach to combat antibiotic resistance: Evaluation of some Armenian herb crude extracts for their antibiotic modulatory and antiviral properties**

M. Ginovyan, A. Trchounian

JOURNAL OF APPLIED MICROBIOLOGY 2019 472-480

---

*Article*

**Antimicrobial activity of some plant materials used in Armenian traditional medicine**

Mikayel Ginovyan, Margarit Petrosyan, Armen Trchounian

BMC Complementary and Alternative Medicine 2017 1-9

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

---

*Article*

**SCREENING OF SOME PLANT MATERIALS USED IN ARMENIAN TRADITIONAL MEDICINE FOR THEIR ANTIMICROBIAL ACTIVITY**

M. Ginovyan, A. Trchounian

Proceedings of the YSU B: Chemical and Biological Sciences 2017 44-53

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

---

*Article*

**Effect of heat treatment on antimicrobial activity of crude extracts of some Armenian herbs**

Ginovyan M.M.

Proceedings of the YSU B: Chemical and Biological Sciences 2017 113-117

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

---

*Article*

**Antibiotic resistance of Pseudomonas species isolated from Armenian fish farms**

M. Ginovyan, V. Hovsepyan, M. Sargsyan, K. Grigoryan, A. Trchounian

Труды ВНИРО 2017 163-173

<http://www.vniro.ru/ru/periodicheskie-izdaniya/trudy-vniro/trudy-vniro-nauchnyj...>

---

*Article*

**Возбудители бактериальных инфекций форели в рыбоводческих хозяйствах Беларуси и Армении.**

К.М. Григорян, Г.В. Слободницкая, Е.И. Гребнева, Н.А. Бенецкая, А.В. Беспалый, Е.В. Максимьюк, С.М. Дегтярик, В.В. Овсепян, М.П. Саргсян, М. Гиновян, Р.Л. Асадчая

ВОПРОСЫ РЫБНОГО ХОЗЯЙСТВА БЕЛАРУСИ 2016 262-274

---

*Article*

**The large scale antibacterial, antifungal anti-phage efficiency of Petamcin-A: new multicomponent preparation for skin diseases treatment**

Mikayel Ginovyan, Andranik Keryan, Inga Bazukyan, Petros Ghazaryan, Armen Trchounian

Annals of Clinical Microbiology and Antimicrobials 2012 2-7

<https://ann-clinmicrob.biomedcentral.com/>

---

*Conference*

**Antibacterial, Antifungal and Anti-Phage Activity of Di**

M. Ginovyan, M. Petrosyan, A. Trchounian

---

*Conference*

**Antimicrobial activity of some plant materials used in Armenian folk medicine**

M. Ginovyan, M. Petrosyan, A. Trchounian

---

*Conference*

**A Novel Anti-bacterial, Anti-fungal, and Anti-phage Preparation for the Treatment of Skin Infections**

M. Ginovyan, S. Daghbashyan, P. Ghazaryan, A. Trchounian

---

*Conference*

**The large scale antimicrobial efficiency of a new multicomponent preparation for skin diseases treatment**

M. Ginovyan, P. Ghazaryan, I. Bazukyan, A. Trchounian

---

*Conference*

**Antibiotic modulatory effect of the methanolic extracts from Armenian herbs against several gram-negative and gram-positive bacteria**

Ginovyan M., Petrosyan M., Trchounian A.

---

*Conference*

**Gc-MsA nalysis of Bio-ActiveC ompoundsfr om Methanol Extractso f R. ObtusifoliusLa.n d A. EupatoridL . Possessnig Anti m icrobial Activity**

M. Ginovyan, M. Petrosyan, N. Sahakyan, A. Trchounian

---

*Conference*

**Antibacterial and Anti-phage Activity of Raw Material Plantago major L., a Medicinal plant Grown in Armenia**

A. Trchounian, N. Sahakyan, M. Ginovyan, M. Petrosyan

---

*Conference*

**THE NATURE OF COMPOUNDS RESPONSIBLE FOR ANTIRADICAL ACTIVITY OF METHANOL AND ACETONE EXTRACTS OF SOME ARMENIAN HERBS**

A.AYVAZYAN, M.GINOVYAN, A.NIKOYAN, A.TRCHOUNIAN

---

*Conference*

**RUMEX OBTUSIFOLIUS AND HIPERICUM ALPESTRE HERBS AS SOURCES FOR NEW ANTIOXIDANT COMPOUNDS**

Sahakyan N, Ginovyan M., Andreoletti P., Cherkaoui-Malki M., Petrosyan M., Trchounian A.

---

*Conference*

**ANTIMICROBIAL, ANTIOXIDANT AND ANTI-HYPERGLYCEMIC ACTIVITY OF SOME PLANTS FROM ARMENIAN FLORA AND GROWING IN HYDROPONIC CONDITIONS: MODERN STUDIES AND FURTHER APPLICATIONS**

Sahakyan N., Ginovyan M., Aghajanyan A., Petrosyan M., Trchounian A.

---

*Conference*

**Nature of active phytochemicals of crude extracts of some herbs from Armenian flora responsible for their antimicrobial activity**

Ginovyan M., Ayvazyan A., Nikoyan A., Trchounian A.

---

*Conference*

**Antioxidant properties of some herbal extracts from Armenian flora, evaluation of their**

**cytotoxicity and genotoxicity on HT29 cell line**

Mikayel Ginovyan, Zuzanna Koziara, Monika Baranowska, Klaudia Suliborska, Patrycja Jakubek, Barbara Kuszniereicz, Nikolay Avtandilyan, Naira Sahakyan, Agnieszka Bartoszek

---

*Conference*

**High antioxidant and cytotoxic activity of Rumex obtusifolius seed extract and metabolomic characterization of its bioactive phytochemicals.**

M. Ginovyan, Z. Koziara, M. Baranowska, I. Koss-Mikolajczyk, K. Suliborska, P. Jakubek, B. Kuszniereicz, N. Avtandilyan, N. Sahakyan, A. Bartoszek

---

*Conference*

**Antimicrobial and antioxidant potential of some plant crude extract**

Margarit Petrosyan, Alvard Minasyan, Anahit Shirvanyan, Anush Babayan, Mikayel Ginovyan, Naira Sahakyan

---

*Conference*

**Hypericum alpestre combined with arginase and NOS inhibitors shows antiproliferative activity in the rat breast cancer model**

H.Javrushyan, N.Avtandilyan, S.Hovhannsiyan, M.Qocharyan, M.Ginovyan, A.Maloyan

---

*Conference*

**Anti-inflammatory and immunostimulatory effect of Hypericum alpestre combined with arginase and NOS inhibitors in the rat breast cancer model**

H.Javrushyan, E.Nadiryanyan, G.Petrosyan, M.Ginovyan, A.Maloyan, N.Avtandilyan

---

*Conference*

**New therapeutic approach in breast anti-cancer treatment using a combination of Rumex obtusifolius extract and L-arginine pathway inhibitors**

N. Avtandilyan, H. Javrushyan, A. Karapetyan, M. Ginovyan

---

*Conference*

**Evaluation of immunostimulatory effect of combination of herbal extracts and chemotherapeutic drugs by quantitative alteration of interleukin-2**

H. Javrushyan, G. Sevoyan, M. Ginovyan, Z. Karabekian, N. Avtandilyan

---

*Conference*

**Occurrence of potential pathogenic Pseudomonas spp. in trout farms of Armenia**

Grigoryan K., Sargsyan M., Hovsepyan V., Badalyan G., Ginovyan M.

---

*Conference*

**The combination of herbs and chemotherapeutic agents inhibits tumor progression via down-regulation of the TNF $\alpha$ -VEGF $\alpha$ /PI3K/Akt/NOS/COX-2-MMP-2 pathway in DMBA-induced breast cancer in rats**

N. Avtandilyan, M. Kocharyan, S. Hovhannisiyan, S. Gevorgyan, H. Javrushyan, M. Ginovyan, A. Maloyan

---

*Conference*

**From metabolomics to medicine: exploiting the functional potential of plant extracts in human health, with emphasis on Ribes nigrum, Ficus carica and Vitis vinifera**

S. Tadevosyan, M. Ginovyan, N. Avtandilyan, A. Shirvanyan, A. Bartoszek, N. Sahakyan

---

Conference

**From agro-bio-waste to application: the power of bilberry aerial part extract as anti-cancer and antibiotic-modulating agent**

N. Sahakyan, M. Ginovyan, A. Babayan, A. Shirvanyan, A. Minasyan, B. Kusznierevich,  
I. Koss-Mikołajczyk, N. Avtandilyan, A. Bartoszek

---

Conference

**Harnessing plant extracts to overcome antibiotic resistance: leaf extracts of *Ribes nigrum*, *Ficus carica*, and *Vitis vinifera* as resistance modifiers of *E. coli* strains**

M. Ginovyan, A. Shirvanyan, S. Tadevosyan, A. Babayan, B. Kusznierevich, N. Avtandilyan, A. Bartoszek,  
N. Sahakyan

---

Conference

**The cytotoxicity and antibacterial activity of *Moringa oleifera*-mediated silver nanoparticles**

M. Timotina, T. Manutsyan, M. Ginovyan, K. Trchounian, L. Gabrielyan, A. Aghajanyan

---

Conference

**ANTI-CANCER PROPERTIES AND POTENTIAL MOLECULAR MECHANISMS OF COMBINATIONS OF HERBAL EXTRACTS AND CHEMOTHERAPEUTIC AGENTS**

N. Avtandilyan, H. Javrushyan, H. Karapetyan, A. Grigoryan, E. Nadiryan, G. Sevoyan, M. Ginovyan,  
A. Maloyan

---

Conference

**Investigating the anticancer advantages of pairing *Rumex obtusifolius* herb extract with 5-fluorouracil against breast cancer in vivo**

S. Hovhannisyanyan, M. Ginovyan, N. Avtandilyan

---

Conference

**Cytotoxic and prooxidant properties of ethanolic extract from *Hypericum alpestre* and metabolomic profiling of its bioactive phytochemicals**

M. Ginovyan, I. Koss-Mikołajczyk, B. Kusznierevich, N. Avtandilyan, A. Bartoszek

---

Conference

**Modulating antibiotic efficacy: the role of *Teucrium polium* in disrupting bacterial resistance mechanisms**

Silvard Tadevosyan, Anush Babayan, Mikayel Ginovyan, Naira Sahakyan

---

Conference

**Emodin inhibits HIF-1 $\alpha$  expression in MDA-MB- 231 cells via suppression of the PI3K/Akt/mTOR pathway**

S. Hovhannisyanyan, M. Ginovyan, N. Avtandilyan

---

Conference

***Hypericum alpestre* Extract and L-NAME Suppress PI3K/Akt Pathway and Enhance Apoptosis in Lung and Breast Cancer Cells**

Svetlana Hovhannisyanyan, Gayane Petrosyan, Hayarpi Javrushyan, Mikayel Ginovyan, Nikolay Avtandilyan

---