

# Nikolay Vladimir Avtandilyan

## Research Institute of Biology

Basic and Pathological Biochemistry Laboratory  
Head of laboratory

☎ 45-25

✉ nv.avtandilyan@ysu.am



## 🎓 Education

<b>Institution</b>	Yerevan State University
<b>Faculty</b>	Faculty of Biology/Department of Biochemistry
<b>Date</b>	2008 - 2010
<b>Degree name</b>	Masters

<b>Institution</b>	Yerevan State University
<b>Faculty</b>	Faculty of Biology/Department of Biochemistry
<b>Date</b>	2004 - 2008
<b>Degree name</b>	Bachelor

## 🎓 Scientific Rank/degree

<b>Institution</b>	Yerevan State University
<b>Date</b>	2013
<b>Degree name</b>	Candidate
<b>Specialty</b>	Biological sciences
<b>Scientific Supervisor</b>	Դավթյան Միսակ Արշամի
<b>Research Topic</b>	Ուրեոթելիկ և ոչ ուրեոթելիկ արգինազների դերը պոլիամինների կենսասինթեզում

## 🌐 Language skills

English Русский

## 📁 Work experience

<b>Institution</b>	Yerevan State University
<b>Period of time</b>	2022 till now
<b>Rank/degree</b>	Head of The Laboratory of Basic and Pathological Biochemistry, Institute of Biology

## 🔬 Scientific interests

- Biochemistry, Medical biochemistry, Molecular biology, Animal model, Experimental biology, Experimental pathology

---

## Membership

---

<b>Institution</b>	European Association for Cancer Research
<b>Period of time</b>	2021 till now

---

<b>Institution</b>	Federation of European Biochemical Societies (FEBS)
<b>Period of time</b>	2010 till now

---

## Publications

*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*

**The role of oxidative stress and neuroinflammatory mediators in the pathogenesis of high-altitude cerebral edema in rats**

Ruzanna A. Shushanyan, Nikolay V. Avtandilyan, Anna V. Grigoryan, Anna F. Karapetyan

Respiratory Physiology and Neurobiology 2024 104286

---

*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

AIMS Biophysics 2023 12-22

---

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 Kusznerewicz, 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. Թիմիա 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. Թիմիա և կենսաբանություն: 2023 248-257

---

Article

**ALTERATION OF TOTAL AND MITOCHONDRIAL ATPASE ACTIVITY IN THE BREAST AND LIVER IN BREAST CANCER-INDUCED RATS**

Seda V. Marutyan, Gayane A. Petrosyan, Anna R. Muradyan, Lilit A. Marutyan, Syuzan A. Marutyan, Nikolay V. Avtandilyan  
Proceedings of the YSU B: Chemical and Biological Sciences 2022 151-160

---

Article

**Antihyperglycemic activity of L-norvaline and L-arginine in high-fat diet and streptozotocin-treated male rats**

Hayarpi Javrushyan, Edita Nadiryan, Anna Grigoryan, Nikolay Avtandilyan, Alina Maloyan  
Experimental and Molecular Pathology 2022 104763

---

Article

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

**The effects of NO on the urea cycle pathway in short-term intermittent hypobaric hypoxia in rats**

Hayarpi Javrushyan, Nikolay Avtandilyan, Armen Trchounian

Respiratory Physiology and Neurobiology 2021 103598

---

*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*

**The potential therapeutic effect of NG-hydroxy-nor-L-arginine in 7,12-dimethylbenz(a)anthracene-induced breast cancer in rats**

Nikolay Avtandilyan, Hayarpi Javrushyan, Anahit Mamikonyan, Anna Grigoryan, Armen Trchounian

Experimental and Molecular Pathology 2019 1-10

---

*Article*

**The Involvement of Arginase and Nitric Oxide Synthase in Breast Cancer Development: Arginase and NO Synthase as Therapeutic Targets in Cancer**

Nikolay Avtandilyan, Hayarpi Javrushyan, Gayane Petrosyan, Armen Trchounian

BioMed Research International 2018 8696923,9

<https://www.hindawi.com/journals/bmri/2018/8696923/>

---

*Article*

**THE CHANGE OF POLYAMINES AND NITRIC OXIDE QUANTITIES IN HUMAN BLOOD SERUM OF PROSTATE AND BLADDER CANCER**

H. Javrushyan, N. Avtandilyan, A. Mamikonyan, A. Trchounian

Biological Journal of Armenia 2017 125-132

<http://biology.asj-oa.am/view/year/2017.html>

---

*Article*

**CHANGES OF ARGINASE ACTIVITY AND ARGINASE ISOENZYME SPECTRUM IN HUMAN SERUM DURING DIFFERENT STAGES OF BREAST CANCER BEFORE SURGERY AND AFTER CHEMOTHERAPY**

Mariam Sargsyan, Hermine Gevorgyan, Nikolay Avtandilyan, Susanna Karapetyan

ԵՊՀ ՌԻԳԸ գիտական հոդվածների ժողովածու 2017 176-183

---

*Article*

**The change of arginase activity in blood serum during breast and prostate cancers**

Avtandilyan N.V., Karapetyan S.A., Alexanyan K. A.

Electronic Journal of Natural Sciences of NAS RA 2016 12-14

<http://ejns.sci.am>

---

*Article*

**The relationship between arginase activity and change of polyamines quantity in human blood serum during breast cancer.**

Avtandilyan N. V., Karapetyan S. A., Aleksanyan K. A.

Biological Journal of Armenia 2016 92-99

<http://www.flib.sci.am/eng/Biology/>

---

Article

**Relationship between liver polyamines quantity and arginase isoenzymes activity after arginase inhibition by NG-hydroxy-L-arginine**

Avtandilyan N.V., Karapetyan S.A.

Electronic Journal of Natural Sciences of NAS RA 2015 3-6

<http://ejns.sci.am>

---

Article

**Պոլիամինների քանակության փոփոխության ուսումնասիրումը լյարդի արգինազի իզոֆերմենտների արգելակման ժամանակ**

Մարիամ Սարգսյան, Նիկոլայ Ավթանդիլյան, Սուսաննա Կարապետյան

ԵՊՀ ՌԻԳԸ գիտական հոդվածների ժողովածու 2015 75 - 81

<http://www.ysu.am/sss/hy>

---

Article

**The relationship of blood serum arginase activity and polyamines quantity during human breast cancer**

Avtandilyan N.V., Karapetyan S.A., Aleksanyan K.A.

New Armenian Medical journal 2015 10 - 10

[http://www.ysmu.am/index.php?option=com\\_content&view=article&id=111&Itemid=638&...](http://www.ysmu.am/index.php?option=com_content&view=article&id=111&Itemid=638&...)

---

Article

**Polyamines quantity change after inhibition of rats kidney and brain arginase isoenzymes by NG-hydroxy-L-arginine.**

Karapetyan S. A., Avtandilyan N. V.

Issues in theoretical and clinikal medicine 2014 20-24

<http://pananarm.info/>

---

Article

**The change of the activity of arginase isoenzymes after the intravenous injection of polyamines**

Avtandilyan N.V., Karapetyan S.A., Davtyan M.A.

Electronic Journal of Natural Sciences of NAS RA 2014 9-12

<http://ejns.sci.am>

---

Article

**The research of the role of nonureotelic arginases in polyamines biosynthesis in brain and kidney in vitro**

Avtandilyan N.V.

Biological Journal of Armenia 2013 26-32

<http://www.flib.sci.am/eng/Biology/>

---

Article

**Polyamines are noncompetitive inhibitors for nonureotelic arginases in the different tissues of rats**

Avtandilyan N.V., Karapetyan S.A., Davtyan M.A.

Electronic Journal of Natural Sciences of NAS RA 2013 7-10

<http://ejns.sci.am>

---

Article

**The change of kinetics of nonureotelic arginase under influence of exogenous polyamines in**

## **rat brain and kidney**

Avtandilyan N.V., Karapetyan S.A., Davtyan M.A.

Perspectives for development of molecular and cellular biology - 3. International young scientists conference  
2012 48-52

<http://www.molbiol.sci.am>

---

*Conference*

### **Serum arginase activity during women breast and men prostate cancers.**

Nikolay V. Avtandilyan, Susanna A. Karapetyan, Knarik A. Alexanyan

---

*Conference*

### **The change of arginase activity in the serum of patients diagnosed with breast cancer.**

Sargsyan M.S., Avtandilyan N.V., Karapetyan S.A.

---

*Conference*

### **Изменение аргиназной активности и количества полиаминов в сыворотке крови при злокачественных опухолях предстательной железы**

Геворгян Э.Р., Автандилян Н.В., Карапетян С.А.

---

*Conference*

### **Arginase and NO-synthase are target enzymes in breast anticancer therapy**

N. Avtandilyan, A. Trchounian

---

*Conference*

### **INHIBITION OF NOS ACTIVITY AS AN EFFECTIVE ANTICANCER THERAPY AGAINST 7,12-DMBA RAT MODEL OF BREAST CANCER**

Mamikonyan A., Avtandilyan N., Javrushyan H., Trchounian A.

---

*Conference*

### **Arginase is an enzyme with real tricks in antitumor treatment of 7,12-dimethylbenz(a)anthracene induced breast cancer in rats**

G.Petrosyan, N. Avtandilyan, H. Javrushyan, A. Trchounian

---

*Conference*

### **The potential therapeutic effect of nor-NOHA and L-NAME in breast cancer treatment**

N. Avtandilyan, A. Trchounian

---

*Conference*

### **Oxidative stress in the 7,12-dimethylbenz[a]anthracene rat model of breast cancer: suppression by a NO-synthase inhibitor NG- nitro-L-arginine methyl ester**

N.Avtandilyan, G.Petrosyan, A.Trchounian

---

*Conference*

### **Effect of L-arginine catabolic enzymes inhibitors on 7,12-dimethylbenz(a)anthracene-induced mammary tumors in rats**

NIKOLAY AVTANDILYAN, HAYARPI JAVRUSHYAN, ANAHIT MAMIKONYAN, ARMEN TRCHOUNIAN

---

*Conference*

### **Suppression of tumor progression by arginase and NO-synthase combined inhibition in 7,12-**

**dimethylbenz(a)anthracene-induced breast cancer in rats**

A. Mamikonyan, H. Javrushyan, N. Avtandilyan, A. Trchounian

---

*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 Kusznierevicz, 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. Kusznierevicz, N. Avtandilyan, N. Sahakyan, A. Bartoszek

---

*Conference*

**Deamination of adenine compounds in different organs of rats with DMBA-induced cancer**

G.Petrosyan, N.Avtandilyan, S.Marutyian

---

*Conference*

**Upregulation of nitric oxide quantity by L-norvaline and L-arginine in high-fat diet and Streptozotocin-treated male rats**

E. Nadiryan, H. Javrushyan, N. Avtandilyan, A. Maloyan

---

*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.Nadiryan, 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*

**BIOLOGICAL ACTIVITY OF ARMENIAN HONEY BEES' VENOM AND LACTIC ACID BACTERIA ISOLATED FROM HONEYBEES' GUT**

Anahit Sahakyan, Nelli Vardazaryan, Mery Qocharyan, Nikolay Avtandilyan, Inessa Semerjyan,

Inga Bazukyan

---