

CURRICULUM VITAE

Gayane Manukyan, MD, PhD

Personal Information

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Year of Birth: 1972
Place of Birth: Gorky, Russian Federation (RF)

Work Details

Researcher, Group Leader
Group of Molecular and Cellular Immunology
Institute of Molecular Biology
National Academy of Sciences of the Republic of Armenia (NAS RA)
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Education:

2006-2009 **Ph.D.** in Virology and Immunology.
Thesis title: "Molecular Aspects of Immune Response in Familial Mediterranean Fever".
Supervisor: Dr. K.A. Ghazaryan
Institute of Molecular Biology NAS RA

2002-2003 Residency
Specialized in Clinical Laboratory Diagnostics, National Institute of Health of
Ministry of Health, Yerevan, Armenia
Certificate (cum laude)

1996-1997 Internship
Specialized in Paediatrics, Arabkir Medical Center, Yerevan, Armenia
Certificate

1990-1996 **MD**, Graduate Study
Department of Paediatrics, Yerevan State Medical University, Yerevan, Armenia
Diploma

Professional and Teaching Experience:

2013-Present	Lecturer , Department of Molecular and Cellular Biology, International Scientific and Educational Centre of NAS RA Graduate course on Molecular Immunology.
2009-2013	Lecturer , Department of Biotechnology, International Scientific and Educational Centre of NAS RA Graduate course on Molecular Immunology.
2011-Present	Research Scientist, Head of Group of Molecular and Cellular Immunology, Institute of Molecular Biology, NAS RA
2009-2011	Postdoctoral fellow , Group of Molecular and Cellular Immunology, Institute of Molecular Biology, NAS RA
2003-2009	Lab assistant, Research assistant , Group of Molecular and Cellular Immunology, Institute of Molecular Biology, NAS RA
2001-2002	Medical Inspector , National Institute of Health of Ministry of Health, Yerevan, Armenia
1989-1990	Junior Nurse , Massiv Emergency Hospital, Yerevan, Armenia
1988-1989	Volunteer Nurse , Scientific Centre of Oncology, Yerevan, Armenia

Academic Visits:

2006 September-December	Visiting PhD student, Rowett Research Institute, Aberdeen, UK
2007 April-July	Visiting PhD student, Rowett Research Institute, Aberdeen, UK
2011 September-December	Postdoctoral fellow, Laboratory of Immunogenomics and Immunoproteomics, Palacky University, Olomouc, Czech Republic
2014 April - June	Postdoctoral fellow, Laboratory of Immunogenomics and Immunoproteomics, Palacky University, Olomouc, Czech Republic

Grants

2004-2008	International Science and Technology Centre (ISTC) project A-1055
2010-2011	Armenian National Science and Education Fund ANSEF project NS-1987 (PI)
2012 July-August	Travel award. Advanced Course in Immunology, Boston, USA
2013-2015	State Committee Science MES RA, research project № SCS 13-1F236 (PI)
2014-2015	Armenian National Science and Education Fund ANSEF project NS-3409 (PI)

Conferences Attended:

- Russian National Congress of Allergologists and Immunologists. The III Russian Conference on Immunotherapy. September 11-13, Moscow, 2006.
- Scientific Conference “Achievements and Perspectives on Development of Medical Diagnostics in Armenia”. Delta Research and Production Center. November 2-3, Yerevan, 2006.
- The Fifth International Congress on Familial Mediterranean Fever and Systemic Autoinflammatory Diseases. Rome, April 4-8, 2008.
- International Conference “Biotechnology and Health”-2 & DAAD Alumni Seminar. Yerevan, April 21-25, 2008.
- The Young Scientists Conference “Perspectives for Development of Molecular & Cellular Biology”. Yerevan, May 5-6, 2008.
- International Conference “State-of the-Art Biotechnology in Armenia & ISTC contribution”. Tsakhkadzor, Armenia, September 28 - October 02, 2008.
- International Conference “Biotechnology and Health”-3 & DAAD Alumni Seminar. Yerevan, October 15-17, 2009.
- FEBS-EMBO-2014 Conference. Paris, August 30-September 4

Publications

Articles

1. LS Hovsepyan, KA Ghazaryan, MV Tatyán, **GP Manukyan**, LG Budaghyán, VA Mkrtychyan. Investigation of cytokine network in pathologies with antiphospholipid syndrome. *Globe of Science* 2007;7: 65-68.
2. **Manukyan G.P.**, Ghazaryan K.A., Ktsoyan Zh.A., Tatyán M.V., Khachatryan Z.A., Hakobyan G.S., Mkrtychyan V.A., Kelly D., Coutts A., Aminov R.I. Cytokine profile of Armenian patients with familial Mediterranean fever. *Clin Biochem* 2008; 41, N 10-11: 920-922.
3. Khachatryan Z.A., Ktsoyan Zh.A., **Manukyan G.P.**, Ghazaryan K.A., Kelly D., Aminov R.I. Predominant role of host genetics in controlling the composition of gut microbiota. *PLoS ONE* 2008; 3(8):e3064:1-16.
4. **Manukyan G.P.**, Ghazaryan K.A., Ktsoyan Zh.A., Khachatryan Z.A., Arakelova K.A., Kelly D., Grant G., Aminov R.I. Elevated systemic antibodies towards commensal gut microbiota in autoinflammatory condition. *PLoS ONE* 2008; 3(9):e3172:1-10.
5. **Manukyan GP.** Specific antibacterial antibodies in sera of patients with familial Mediterranean fever. *Medical Science of Armenia* 2008; 3(48):67-76
6. **G.P. Manukyan**, K.A. Ghazaryan, Zh.A. Ktsoyan, Z.A. Khachatryan, D. Kelly, M.V. Tatyán, M.L. Agababova, R.I. Aminov. Comparative analysis of cytokine profiles in autoinflammatory and autoimmune conditions. *Cytokine* 2010;50:146-151.
7. A. Martirosyan, **G. Manukyan**, K. Ghazaryan, Zh. Ktsoyan, Z. Khachatryan, M. Tatyán, R. Aminov. Multivariate analysis of cytokines as a potential meta-biomarker of disease. *Biological Journal of Armenia* 2010;LXII, (suppl.1):59-62.
8. ZA Ktsoyan, NV Beloborodova, AM Sedrakyan, GA Osipov, ZA Khachatryan, D Kelly, **GP Manukyan**, KA Arakelova, AI Hovhannisyán, AY Olenin, AA Arakelyán, KA Ghazaryán, RI Aminov. Profiles of microbial fatty acids in the human metabolome are disease-specific. *Frontiers in Microbiology* 2011;1(148):1-9.
9. Ktsoyan ZA, Beloborodova NV, Sedrakyan AM, Osipov GA, Khachatryan ZA, **Manukyan GP**, Arakelova KA, Hovhannisyán AI, Arakelyán AA, Ghazaryán KA, Zakaryán MK, Aminov RI. Management of familial Mediterranean fever by colchicine does not normalize the altered profile of microbial long chain fatty acids in the human metabolome. *Front Cell Infect Microbiol* 2013;3:2 .
10. **Manukyan G**, Petrek M, Kriegova E, Ghazaryán K, Fillerova R, Boyajyan A. Activated phenotype of circulating neutrophils in familial Mediterranean fever. *Immunobiology* 2013; 218(6):892-898.
11. **Manukyan G**, Petrek M, Tomankova T, Martirosyan A, Tatyán M, Navratilova Z, Paulu D, Kriegova E. Colchicine modulates expression of pro-inflammatory genes in neutrophils from patients with familial Mediterranean fever and healthy subjects. *J Biol Regul Homeost Agents* 2013; 27:329-336.
12. Ktsoyan Zh, Ghazaryán K, **Manukyan G**, Martirosyan A, Mnatsakanyán A, Arakelova K, Gevorgyan Z, Sedrakyan A, Asoyan A, Boyajyan A, Aminov R. Inflammatory Responses to Salmonella Infections Are Serotype-Specific. *International Journal of Bacteriology* 2013; ID 168179, 1-7.
13. **Manukyan G.** Autoinflammation and NLRP3 inflammasome. *Biology Bulletin Reviews* 2015; 135(1):64-73.
14. Martirosyan A, Petrek M, Navratilova Z, Blbulyan A, Boyajyan A, **Manukyan G.** Differential regulation of proinflammatory mediators following LPS- and ATP-induced activation of monocytes from patients with Antiphospholipid Syndrome. *Biomed Res Int* 2015; 2015:292851. doi: 10.1155/2015/292851.
15. **Manukyan G**, Petrek M, Navratilova Z, Margaryán S, Boyajyan A. Transcriptional activity of neutrophils exposed to high doses of colchicine. *J Biol Regul Homeost Agents* 2015; 29(1):125-30.
16. **Manukyan G**, Aminov R, Hagobyan G, Davtyán T. Accelerated apoptosis of neutrophils in familial Mediterranean fever. *Front Immunol* 2015; V 6; A. 239; P. 1-7.
17. Martirosyan A, Petrek M, Kishore A, **Manukyan G.** The immunomodulatory effects of therapeutic plasma exchange on monocytes in Antiphospholipid syndrome. *Clin Biochem* 2015 (submitted).

Abstracts, poster and oral presentations

1. Karageuzyan K.G., Ktsoyan Zh.A., Hovakimyan S.S., Elbakyan G.V., Sarkisyan N.N., Khachatryan Z.A., Arakelova K.A., **Manukyan G.P.**, Kazaryan K.A., Sedrakyan A.M., Hovhannessian A.I., Tatyán M.V. Lyzophosphatidilcholines of blood as an possible ethiopathogenic factor at Familial Mediterranean fever (Periodic disease). X International Congress on Rehabilitation in Medicine and Immunorehabilitation, International Journal on Immunorehabilitation, Athens, Greece 2005, Vol. 7, N 2, P. 102-103
2. Z.A. Khachatryan, R.I. Aminov, Z.A. Ktsoyan, N.N. Sargsyan, K.A. Arakelova, A.M. Sedrakyan, **G.P. Manukyan**, A.I. Hovhannisyán, G.S. Hakobyan, K.G. Karageusyan. Assessment of Gut Microflora in Familial Mediterranean Fever Patients Using Molecular-Genetic Techniques. Proceedings of the VI Congress of CIS Allergologists and Immunologists. Russian National Congress of Allergologists and Immunologists. The III Russian Conference on Immunotherapy. Allergy Clinical Immunology International – Journal of the World Allergy Organization Russian Edition. September, 11-13, Moscow, 2006; P. 381 (Russian)
3. **G.P. Manukyan**, K.A. Ghazaryán, Zh.A. Ktsoyan, M.V. Tatyán, L.G. Budaghyan, Z.A. Khachatryan, M.G. Galustyan, G.S. Hakobyan, K.G. Karageusyan. Alteration of Cytokine Balance in Different Stages of Familial Mediterranean Fever. Proceedings of the VI Congress of CIS Allergologists and Immunologists. Russian National Congress of Allergologists and Immunologists. The III Russian Conference on Immunotherapy. Allergy Clinical Immunology International – Journal of the World Allergy Organization Russian Edition. September, 11-13, Moscow, 2006; P. 382 (Russian)
4. **G.P. Manukyan**, K.A. Ghazaryán, Zh.A. Ktsoyan, M.V. Tatyán, L.G. Budaghyan, Z.A. Khachatryan, M.G. Galustyan, G.S. Hakobyan, K.G. Karageusyan. Serum Cytokines in Familial Mediterranean Fever and Their Prognostic Value. Collected articles, Scientific Conference “Achievements and Perspectives on Development of Medical Diagnostics in Armenia”. Delta Research and Production Center. November 2-3, Yerevan, 2006; P. 88-91(Russian)
5. Z.A. Khachatryan, R. Aminov, Zh.A. Ktsoyan, N.N. Sargsyan, K.A. Arakelova, A.M. Sedrakyan, **G.P. Manukyan**, A.I. Hovhannisyán, G.S. Hakobyan, K.G. Karageusyan. Assessment of Gut Microflora in Familial Mediterranean Fever Patients by Fluorescent In Situ Hybridization. Collected articles, Scientific Conference “Achievements and Perspectives on Development of Medical Diagnostics in Armenia”. Delta Research and Production Center. November 2-3, Yerevan, 2006; P. 128-131(Russian)
6. K.A. Arakelova, Z.U. Gevorgyan, Zh.A. Ktsoyan, N.N. Sargsyan, Z.A. Khachatryan, R. Aminov, A.V. Asoyan, A.M. Sedrakyan, **G.P. Manukyan**. Diversity of Gut Microflora in Healthy Armenians. Collected articles, Scientific Conference “Achievements and Perspectives on Development of Medical Diagnostics in Armenia”. Delta Research and Production Center. November 2-3, Yerevan, 2006; P. 34-37 (Russian)
7. L. Hovsepyán, **G.P. Manukyan**, M.V. Tatyán, L. Budaghyan, V.A. Mkrtychyan, K.A. Ghazaryán. “Cytokine network in patients with antiphospholipid syndrome.” The 9th Iranian Congress of Biochemistry and the 2nd International Congress of Biochemistry and Molecular Biology. Shiraz-Iran, Oct 29-Nov 1, 2007. Archives of Iranian Medicine, Vol. 10, N 4 (Suppl 1), P. S135
8. **Manukyan G.P.**, Ghazaryán K.A., Ktsoyan Zh.A., Tatyán M.V., Khachatryan Z.A., Hakobyan G.S., Mkrtychyan V.A., Kelly D., Coutts A., and Aminov R.I. Cytokine Network Alterations in Sera of Armenian patients with Familial Mediterranean fever. Clinical and Experimental Rheumatology: The Fifth International Congress on Familial Mediterranean Fever and Systemic Autoinflammatory Diseases, Rome 2008, Vol 26, N 2, P. 189
9. Khachatryan Z.A., Ktsoyan Zh.A., **Manukyan G.P.**, Ghazaryán K.A., Kelly D., and Aminov R.I. Familial Mediterranean fever affects the composition of intestinal microbiota. Clinical and Experimental Rheumatology: The Fifth International Congress on Familial Mediterranean Fever and Systemic Autoinflammatory Diseases, Rome 2008, Vol 26, N 2, P. 189
10. **Manukyan G.P.**, Ghazaryán K.A., Ktsoyan Z.A., Khachatryan Z.A., Tatyán M.V., Arakelova K.A., Kelly D., and Aminov R.I. Specific immune responses to commensal microbiota in FMF. Clinical and Experimental Rheumatology: The Fifth International Congress on Familial Mediterranean Fever and Systemic Autoinflammatory Diseases, Rome 2008, Vol. 26, N 2, P. 190
11. **Manukyan G.P.**, Ghazaryán K.A., Ktsoyan Zh.A., Khachatryan Z.A., and Aminov R.I. Serological expression cloning of bacterial antigens in familial Mediterranean fever. International Conference “Biotechnology and Health”-2 & DAAD Alumni Seminar, Yerevan 2008, P. 149-150

12. **Manukyan GP.** Specific IgG and IgA response towards commensal bacteria in FMF. The Young Scientists Conference “Prespectives for Development of Molecular & Cellular Biology”. Proceedings of the Conference. Yerevan, May 5-6, 2008; P. 105
13. **Manukyan G. P.,** Ghazaryan K. A., Ktsoyan Zh. A., Khachatryan Z.A., Tatyán M.V., Arakelova K.A., Kelly D., Aminov R. I. Commensal bacteria and host immune system in familial Mediterranean fever. International Conference, State-of-the-Art Biotechnology in Armenia & ISTC contribution. Tsakhkadzor 2008, P. 174
14. Khachatryan Z.A., Ktsoyan Zh.A., **Manukyan G.P.,** Ghazaryan K.A., Kelly D., Aminov R.I. Phylogenetic analysis of gut microbiota in familial Mediterranean fever. International Conference, State-of-the-Art Biotechnology in Armenia & ISTC contribution. Tsakhkadzor 2008, P. 169
15. Khachatryan Z.A., Sedrakyan A.M., Arakelova K.A., Hovhannisyan A.I., **Manukyan G.P.,** Beloborodova N.V., and Ktsoyan Zh.A. Specific Modulation of Host Metabolome by Its Microbiome in Familial Mediterranean Fever. International Conference “Biotechnology and Health”-3 & DAAD Alumni Seminar, Yerevan, Armenia, October 15-17, 2009, P. 97-106
16. **G.P. Manukyan,** K.A. Ghazaryan, Zh.A. Ktsoyan, M.V. Tatyán, Z.A. Khachatryan, L.G. Budaghyán, D. Kelly, A. Coutts, R.I. Aminov. The role of T helper and regulatory T cells in familial Mediterranean fever. International Conference “Biotechnology and health-3” & DAAD Alumni seminar, Yerevan, Armenia, October 15-17, 2009, P. 91-97
17. R. Aminov, Z. Khachatryan, **G. Manukyan,** G. Osipov, G. Grant, A. Coutts, D. Kelly, N. Beloborodova, K. Ghazaryan, A. Sedrakyan, K. Arakelova, A. Hovhannisyan, Zh. Ktsoyan. Host-microbe interaction in the gut in autoinflammatory disease. In: Gut Microbiology: new insights into gut microbial ecosystems. 7th Joint Symposium Rowett-INRA 2010: Aberdeen, 23-25 June, 2010, P. 135
18. **G. Manukyan,** K. Ghazaryan, Zh. Ktsoyan, Z. Khachatryan, M. Tatyán, R. Aminov. Increased immune reactivity towards bacterial antigens in familial Mediterranean fever. The new Armenian medical journal, Yerevan, Armenia, March 2010, Vol. 4 (N 1), P. 78-79.
19. **Khachatryan ZA,** Ktsoyan ZhA, Manukyan GP, Sedrakyan AM, Arakelova KA, Hovhannisyan AI, Beloborodova NV, Aminov RI. Broken Relationship between Host and Microbes in Familial Mediterranean Fever. The new Armenian medical journal. International Congress of Young Scientists. Yerevan, Armenia, March, 2010, Vol. 4, No. 1, P. 72-73.
20. Martirosyan A, **Manukyan G,** Ghazaryan K, Tatyán M, Hagobyan G, Davtyán T. Accelerated apoptosis and Ca²⁺ homeostasis in neutrophils from patients with familial Mediterranean fever. International Young Scientists Conference “Perspectives for Development of Molecular and Cellular Biology III”, Yerevan, Armenia, September 26-29, 2012, P153-156.
21. **Manukyan G,** Kriegova E, Martirosyan A, Tomankova T, Ghazaryan K, Petrek M. Activated state of circulating neutrophils from patients with familial Mediterranean fever. European Academy of Allergy and Clinical Immunology Congress, Geneva, Switzerland, 16-20 June, 2012, N 1704.
22. **Manukyan G,** Kriegova E, Martirosyan A, Fillerova R, Tatyán M, Petrek M. LPS-induced gene expression of inflammation-related genes in neutrophils from familial Mediterranean fever patients. Journal of Translational Medicine 2012, 10 (Suppl 3):P56. doi:10.1186/1479-5876-10-S3-P56.
23. **Manukyan G,** Petrek M, Martirosyan A, Navratilova Z, Kriegova E. Effect of colchicine on expression of inflammation-related genes in neutrophils from healthy subjects and patients with familial Mediterranean fever. 15th International Congress of Immunology, Milan, Italy, August 22-27, 2013, P217.
24. **Manukyan G,** Martirosyan A, Hagobyan G, Aminov R, Davtyán T. Accelerated spontaneous apoptosis of neutrophils in patients with familial Mediterranean fever. 15th International Congress of Immunology, Milan, Italy, August 22-27, 2013, P810.
25. Margaryan S, Petrek M, **Manukyan G.** Phenotype of unstimulated and stimulated by lipopolysaccharide neutrophils from patients with familial Mediterranean fever. Biolog. Journal of Armenia 2013, LXV, Supplement 1 (65): P101-102.
26. **G. Manukyan,** Z. Khachatryan, A. Hyusyan, S. Margaryan, A. Martirosyan, K. Ghazaryan. Serum from patients with familial Mediterranean fever does not induce apoptosis. FEBS Journal 281 (Suppl. 1), 2014, P167.
27. A. Martirosyan, M. Petrek, Z. Navratilova, A. Blbulyan, **G. Manukyan.** Altered activation of monocytes from the patients with antiphospholipid syndrome induced by LPS and ATP. FEBS Journal 281 (Suppl. 1), 2014, P94.

28. Ktsoyan ZA, Ghazaryan KA, Khachatryan ZA, **Manukyan GP**, Sedrakyan AM, Arakelova KA et al. The role of microbiota in inflammation. 4th International meeting: New concepts on the mechanisms of inflammation, autoimmunity and tumorigenesis, 2014, Kazan, Armenia.

Methodology brochure:

1. **Manukyan G**, Ghazaryan K, Akopyan V, Tatyana M. Cytokines. 2008; 62 pages (in Armenian and Russian)