

CURRICULUM VITAE

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Education:

1984 M.S., Biochemistry and Genetics
Yerevan State University, Armenia
1998 Ph.D., Molecular Biology, Institute of Biochemistry of the Academy
of Sciences of Armenia.
Ph.D. thesis " Molecular organization and expression of argBJ and
ama genes of *B.stearothermophilus*". Supervisor Prof. Vehary
Sakanyan.

Employment:

2000-present Institute for Molecular Medicine, Huntington Beach, CA
Research Assistant Professor at the Department of Immunology.
Development of an effective and safe vaccine against Alzheimer's
Disease. Generation of BORIS-based anti-cancer vaccine in 4T1 breast
cancer mouse model. Analyses of immunosuppressor cells, anti-cancer
immune responses in vaccinated mice, dissemination of metastases into
the distant organs.

1999-2000 University of Nantes, France.
Postdoctoral Scientist in Faculty of Science, Laboratory of Biocatalyse

1998-1999 Research Institute of Biotechnology, Armenia
Postdoctoral Scientist in Laboratory of Gene Engineering.

1996-1997 Weizmann Institute of Science, Israel
Department of Structural Biology. Visiting graduate student.

1993-1996 Research Institute of Biotechnology, Armenia.
Graduate student in Laboratory of Gene Engineering
Study of molecular organization of arginine biosynthesis genes and
aminoacylase gene of thermophilic bacterium *B. stearothermophilus*.

1984-1993 Research Institute of Biotechnology, Armenia.
Research Technician in laboratory of Gene Engineering.
Construction of strains producing arginine and aminoacylase.

Patents:

1. Mett I.L., **Kochikyan A.V.**, Mett A.L., Sakanyan V.A. (1985). Authorship certificate #1374782.
2. Sakanyan V.A., **Kochikyan A.V.**, Mett I.L., Chagchalyan A., Ter-Karapetyan V.G., Hovsepyan A.S. (1986). Authorship certificate # 1405312.
3. Mett I.L., Mett A.L., **Kochikyan A.V.**, Sakanyan V.A., Ivanov A.S. (1987). Authorship certificate # 1510360.
4. Mett I.L., Mett A.L. **Kochikyan A.V.**, Sakanyan V.A. (1989) Authorship certificate # 1639063
5. Sakanyan V., Snapyan M., **Ghochikyan A.**, Lecocq M. (2001). Improved methods of RNA and protein synthesis. EP 01402049.9, deposition 27.07.2001.
6. Sakanyan V., Snapyan M., **Ghochikyan A.**, Lecocq M., Guevel L., Weigel P., Braun F. (2001) Protein arrays, methods for their preparation and methods for the detection of intermolecular interactions. EP 01402050.7, deposition 27.07.2001.
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8. **Ghochikyan A.**, Agadjanyan M.G. Preventive cancer vaccine based on brother of regulator of imprinted sites molecule (BORIS). CA 2537161 A1 2005/03/10. Priority date 2003.08.25.
9. **Ghochikyan A.**, Agadjanyan M.G. Preventive cancer vaccine based on brother of regulator of imprinted sites molecule (BORIS). CN000001871025B. Priority date 2003.08.25.
10. **Ghochikyan A.**, Agadjanyan M.G. Preventive cancer vaccine based on brother of regulator of imprinted sites molecule (BORIS). US 8114405 B2. Priority date 2003.08.25.
11. **Ghochikyan A.**, Agadjanyan M.G. Preventive cancer vaccine based on brother of regulator of imprinted sites molecule (BORIS). US 7579452B2. Priority date 2003.08.25.
12. **Ghochikyan A.**, Agadjanyan M.G. Preventive cancer vaccine based on brother of regulator of imprinted sites molecule (BORIS). EU No. 1667711 (in Germany, Austria, Switzerland/Liechtenstein, Denmark, Italy, Netherlands). Priority date 2003.08.25.
13. **Ghochikyan A.**, Agadjanyan M.G. Preventive cancer vaccine based on brother of regulator of imprinted sites molecule (BORIS). Патент на Изобретение РФ, No 2385163. Priority date 2003.08.25.

14. **Ghochikyan A.**, Agadjanyan M.G. Preventive cancer vaccine based on brother of regulator of imprinted sites molecule (BORIS). India, 312/MUMNP/2006 A. Priority date 2003.08.25
15. **Ghochikyan A.**, Agadjanyan M.G. Anti-Tau antibodies and compositions for and methods of making and using in treatment, diagnosis and monitoring of tauopathies. US 2014/0056901 A1
16. **Ghochikyan A.**, Agadjanyan M.G. Compositions and methods related to diseases associated with deposits of amyloid, Tau, and α -synuclein. WO 2014/031697 A3
17. **Ghochikyan A.**, Ataulakhanov R., Agadjanyan M.G., Pichugin A., Bagaev A. Method for the cancer treatment and prevention of metastatic disease. PCT/US15/57427

Publications:

1. Nersisyan A., Mett I., Badalyan Z., **Kochikyan A.**, Kocharyan A., Kocharyan Sh., Sakanyan V. (1986). Restriction mapping of recombinant plasmids carrying genes for arginine biosynthesis of *Escherichia coli* K-12. *Genetica*, v. 12, 1061-1065.
2. Sakanyan V.A., Hovsepyan A.S., Mett I.L., **Kochikyan A.V.**, Petrosyan P. K. (1990). Molecular cloning and structural-functional analysis of the arginine biosynthesis genes of the thermophilic bacterium *Bacillus stearothermophilus*. *Genetica*, v. 26, 1915-1925.
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4. Sakanyan V., Charlier D., Legrain C., **Kochikyan A.**, Mett I., Pierard A. and Glansdorff N. (1993). Primary structure, partial purification and regulation of key enzymes of the acetyl cycle of arginine biosynthesis in *Bacillus stearothermophilus*: dual function of ornithine acetyltransferase. *J. Gen. Microbiol.*, v. 139, 393-402.
5. Sakanyan V., Desmarez L., Legrain C., Charlier D., Mett I., **Kochikyan A.**, Savchenko A., Boyen A., Falmagne P., Pierard A. and Glansdorff N. (1993). Gene cloning, sequence analysis, purification, and characterization of a thermostable aminoacylase from *Bacillus stearothermophilus*. *Appl. Environm. Microbiology*. v. 59, 3878-3888.
6. Sakanyan V., Legrain C., Charlier D., **Kochikyan A.**, Osyna N. K., Glansdorff N. (1993). N-acetylglutamate-5-phosphotransferase of thermophilic bacterium *Bacillus stearothermophilus*: Nucleotide Sequence and Enzyme Characterization. *Genetica*, v.29, 556-569.

7. Zevin-Sonkin D., Liberzon A., **Ghochikyan A.**, Hovhannisyan H., Lvovsky L. and Ulanovsky L.(1999) DENS (Differential Extension with Nucleotide Subsets) - application to the sequencing of human genomic DNA and cDNA. *DNA Seq.*10(4-5):245-54.
8. Panossian A., **Kochikian A.**, Gabrielian E., Muradian R., Stepanian H., Arsenian F., Wagner H. (1999). Effect of *Andrographis paniculata* extract on progesterone in blood plasma of pregnant rats. *Phytomedicine.* 6(3) :157-61.
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12. **Ghochikyan A.**, Miltcheva-Karaivanova I., Lecocq M., Weigel P., Vusio P., Van Duyne G., Sakanyan V. DNA binding and gene repression *in vitro* by chimeric proteins designed from ArgR repressors of *Bacillus stearothermophilus* and *Escherichia coli* : the linker peptide can affect the operator DNA binding specificity. *J Bacteriol.*, 2002, 184 (23):6602-14.
13. **Ghochikyan A.**, Agadjanyan M.G., Cribbs D.H. Different approaches to the development of vaccine against animal model of Alzheimer's disease. *Neurobiology of Aging.* 2002, 23(1) S237-S237 888 Supl.1.
14. Petrushina I., Tran M., Sadzikava N., **Ghochikyan A.**, Vasilevko V., Cribbs H.D, and Agadjanyan G.M. Importance of detection of murine IgG2c antibodies in APP/Tg 2576 mice immunized with human β -amyloid peptide. *Neuroscience Letters.* 2003, 338(1):5-8.
15. Cribbs, D.H., **Ghochikyan A.**, Vasilevko, V., Tran, M., Petrushina, I., Sadzikava, N., Babikyan D., Kieber-Emmons, T., Agadjanyan, M.G. Adjuvant-dependent modulation of Th1 and Th2 responses to immunization with β -amyloid. *Int. Immunol.*, 2003, 15 :505-14.
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20. Gevorkian G., Petrushina I., Manucharian K., **Ghochikyan A.**, Acero G., Vasilevko V., Cribbs D.H., Agadjanyan M.G. Mimotopes of conformational epitopes in fibrillar beta-amyloid. *J. Neuroimmunol.* 2004 256(1-2): 10-20.

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24. **Ghochikyan A.**, Petrushina, I., Lees, A., Vasilevko, V., Movsesyan, N., Karapetyan, A., Agadjanyan, M.G., Cribbs, D.H., A β -immunotherapy for Alzheimer's disease using mannan-amyloid-Beta peptide immunoconjugates 2006. *DNA Cell Biol.* 2006, 25(10):571-80.

25. **Ghochikyan A.**, Mkrtychyan M., Loukinov D., Mamikonyan G., Pack S.D., Movsesyan N., Itchim T.E., Cribbs D.H., Lobanenkov V.V., Agadjanyan M.G. Elicitation of T Cell Responses to Histologically Unrelated Tumors by Immunization with the Novel Cancer-Testis Antigen, Brother of the Regulator of Imprinted Sites. *J Immunol.* 2007, 178, 566-573.

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33. Petrushina I., **Ghochikyan A.**, Mkrtychyan M., Mamikonyan G., Movsesyan G., Ajdari R., Vasilevko V., Karapetyan A., Lees A., Agadjanyan MG, Cribbs DH. Mannan-A β_{28} conjugate prevented A β -plaque deposition, but increased microhemorrhages in the brains of vaccinated Tg2576 (APPsw) mice. *J.Neuroinflammation*, 2008 Sep 29;5:42.
34. Movsesyan N, Mkrtychyan M, Petrushina I, Ross T, Cribbs DH, Agadjanyan MG, **Ghochikyan A**. Generation of functional anti-amyloid antibodies after immunization with DNA encoding multiple copies of A β -peptide immunogen fused with C3d. *Journal of Neuroimmunology*, 2008 Dec 15;205(1-2):57-63 PMID:PMC2637203
35. **Ghochikyan A**. Rationale for peptide and DNA based epitope vaccines for Alzheimer's disease immunotherapy. *CNS Neurol Disord Drug Targets.* 2009 Apr;8(2):128-43
36. Davtyan H., Mkrtychyan M., Movsesyan N., Petrushina I., Mamikonyan G., Cribbs DH., Agadjanyan MG., **Ghochikyan A**. DNA prime/protein boost increased the titer, avidity and persistence of anti-A β antibodies in wild-type mice. *Gene Therapy*, 2010 Feb; 17, 261–271.
37. Movsesyan N, Davtyan H, Mkrtychyan M, Petrushina I, Tiraturyan T, Ross TM, Agadjanyan MG, **Ghochikyan A**, Cribbs DH. Low concentrations of anti-A β antibodies generated in Tg2576 mice by DNA epitope vaccine fused with 3C3d molecular adjuvant do not affect AD pathology. *Hum Gene Ther.*, 2010, 21(11): 1569-1576.

38. Robert R, Lefranc MP, **Ghochikyan A**, Agadjanyan MG, Cribbs DH, Van Nostrand WE, Wark KL, Dolezal O. Restricted V gene usage and VH/VL pairing of mouse humoral response against the N-terminal immunodominant epitope of the amyloid β peptide. *Mol Immunol*. 2010 Nov-Dec;48 (1-3):59-72.
39. Mkrtychyan M, **Ghochikyan A**, Davtyan H, Movsesyan N, Loukinov D, Lobanenkov V, Cribbs DH, Laust AK, Nelson EL, Agadjanyan MG. Cancer-testis antigen, BORIS based vaccine delivered by dendritic cells is extremely effective against a very aggressive and highly metastatic mouse mammary carcinoma. *Cell Immunol*. 2011, 270(2):188-97.
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41. de Necochea-Campion R, **Ghochikyan A**, Josephs SF, Zacharias S, Woods E, Karimi-Busheri F, Alexandrescu DT, Chen CS, Agadjanyan MG, Carrier E. Expression of the epigenetic factor BORIS (CTCF) in the human genome. *J Transl Med*. 2011 Dec 14;9:213.
42. Davtyan H, **Ghochikyan A**, Movsesyan N, Ellefsen B, Petrushina I, Cribbs DH, Hannaman D, Evans CF, Agadjanyan MG. Delivery of a DNA vaccine for Alzheimer's disease by electroporation or gene gun generates potent and similar immune responses. *Neurodegenerative Diseases*. 2012;10(1-4):261-4.
43. **Ghochikyan A**, Davtyan H., Petrushina, I, Hovakimyan, A., Movsesyan, N., Davtyan, A., Kiyatkin, A., Cribbs, D.H., Agadjanyan, M.G. Refinement of a DNA based Alzheimer's disease epitope vaccine in rabbits, *Hum Vaccin Immunother*. 2013 Feb 11;9(5).
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48. **Ghochikyan A.**, Davtyan A, Hovakimyan A, Davtyan H, Poghosyan A, Bagaev A, Ataullakhanov RI, Nelson EL, Agadjanyan MG. Primary 4T1 tumor resection provides critical "window of opportunity" for immunotherapy. *Clin Exp Metastasis.* 2014 Feb;31(2):185-98.
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51. Davtyan H, Petrushina I, **Ghochikyan A.** Immunotherapy for Alzheimer's disease: DNA- and protein-based epitope vaccines. *Methods Mol Biol.* 2014; 1143:259-81.
52. Davtyan H, Hovakimyan A., Zagorski K., Davtyan A., Petrushina I., Agdashian D., Murthy V., Cribbs D.H., Agadjanyan M.G., **Ghochikyan A.** BTX AgilePulse^{MT} System is an Effective Electroporation Device for Intramuscular and Intradermal Delivery of DNA Vaccine. *Curr Gene Ther.* 2014;14(3):190-9.
53. **Ghochikyan A.**, Pichugin A, Bagaev A, Davtyan A, Hovakimyan A, Tukhvatulin A, Davtyan H, Shcheblyakov D, Logunov D, Chulkina M, Savilova A, Trofimov D, Nelson EL, Agadjanyan MG, Ataullakhanov RI. Targeting TLR-4 with a novel pharmaceutical grade plant derived agonist, Immunomax®, as a therapeutic strategy for metastatic breast cancer. *J Transl Med.* 2014 Nov 29;12:322.
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Conference presentations:

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3. Zevin-Sonkin D., **Ghochikyan A.**, Liberzon A., Lvovsky L. and Ulanovsky L. Sequencing of Human Telomeric Region DNA by Differential Extension with Nucleotide Subsets (DENS). in: DOE Human Genome Program, Contractor-Grantee Workshop VI, Santa Fe, NM, Nov 9-13, 1997, p.18.
4. Zevin-Sonkin D., Mugasimangalam R.C., Liberzon A., **Ghochikyan A.**, Hovhannisyan H., Lvovsky L., Ben-Asher E., Glusman G., Lancet D. and Ulanovsky L. DNA Sequencing Using Differential Extension with Nucleotide Subsets (DENS): Application to the Sequencing of Human Genomic DNA. In: Abstracts of papers presented at the 1998 meeting on "Genome mapping, Sequencing and Biology", Cold Spring Harbor Laboratory, Cold Spring Harbor, NY, 1998, p.242.
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9. Gevorkian G., Petrushina I., **Ghochikyan A.**, Manoutcharian K.G., Acero G., Cribbs D.H., and Agadjanyan M.G. Anti-A β polyclonal sera from wildtype mice recognized predominantly EFRH epitope. Publication of the Proceedings of the 6th International Conference on Progress in Alzheimer's and Parkinson's Disease AP / DP (Seville, Spain, May 8-12, 2003).
10. Cribbs D.H., Lees A., **Ghochikyan A.**, Vasilevko V., Petrushina I., Babikyan D., Movsesyan N., Tran M., DeVolger A. and Agadjanyan M.G. Mannan as a Molecular Adjuvant for Ab- Immunotherapy. Publication of the Proceedings of the 6th International Conference on Progress in Alzheimer's and Parkinson's Disease AP / DP (Seville, Spain, May 8-12, 2003).

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