

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.
7. **Ghochikyan A.**, Agadjanyan M.G. Preventive cancer vaccine based on brother of regulator of imprinted sites molecule (BORIS). Application No. AU 2004268001 B2. Priority date 2003.08.25.
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

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.

3. Sakanyan V., **Kochikyan A.**, Mett I., Legrain C., Charlier D., Pierard, A. and Glansdorff N. (1992). A re-examination of the path way for ornithine biosynthesis in a thermophilic and two mesophilic *Bacillus* species. *J. Gen. Microbiology*, v. 138, 125-130.

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., **Kochikyan 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.

9. Mamikonyan G., **Ghochikyan A.**, Hovhannisyan A., Panossian A., Gabrielian E., Wikman G. "Andrographolide binding by blood proteins" *Medical Science of Armenia* XLI, 2001, N1, pp 30-34.

10. **Ghochikyan, A.** Vasilevko, V., Holterman, M.J., Agadjanyan, M.G. CD80 (B7-1) and CD86 (B7-2) are Functionally Equivalent in the Initiation and Maintenance of CD4⁺ T cell Proliferation after Activation with Suboptimal Doses of PHA. *DNA and cell Biology*, 2002, 21, 137-149.

11. Parisot J., **Ghochikyan A.**, Langlois V., Sakanyan V., Rabiller C. Exopolysaccharide lyase from *Thermotoga maritima*: cloning, characterization and organic synthesis application. *Carbohydr Res*, 2002, 337(16):1427

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.

16. Vasilevko V., **Ghochikyan A.**, Sadzikava N., Petrushina I., Tran M., Cohen E.P., Kessler P.J., Cribbs D.H., Agadjanyan M.G. Generation of tumor-specific immune responses after gene-gun immunization with plasmids, encoding MUC1 and B7 costimulatory molecules. *Clin. Exp. Metastas.* 2003,20:489-498.

17. Snappyan M., Lecocq M., Guevel L., Arnaud M-C., **Ghochikyan A.**, Sakanyan V. Dissecting DNA-protein and protein-protein interactions involved in bacterial transcriptional regulation by a sensitive protein array method combining a near-infrared fluorescence detection. *Proteomics*. 2003, 3:647-657.

18. Agadjanyan M., Vasilevko V., **Ghochikyan A.**, Berns P., Kessler P., Settineri R.A. and Nicolson G.L. Nutritional Supplement (NT Factor™) Restores Mitochondrial Function and Reduces Moderately Severe Fatigue in Aged Subjects. *Journal of Chronic Fatigue Syndrome* 2003; vol. 11, no. 23-36

19. **Ghochikyan A.**, Vasilevko V., Petrushina I., Movsesyan N., Babikyan D., Tian W., Sadzikava N., Ross T., Head L., Cribbs D. & Agadjanyan M. Generation and characterization of the humoral immune response to DNA immunization with a chimeric β -amyloid-Interleukin-4 minigene. *Eur J Immunol.* 2003, 33(12), 3232-41.

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21. Agadjanyan M.G., **Ghochikyan A.**, Petrushina I., Vasilevko V., Movsesyan N., Mkrtichyan M., Saing T., Cribbs D.H. Prototype Alzheimer's disease vaccine utilizing the immunodominant B cell epitope from beta-amyloid and promiscuous T cell epitope PADRE. *J Immunol.* 2005, 174 (3):1580-6.

22. **Ghochikyan A.**, Mkrtichyan M., Petrushina I., Movsesyan N., Karapetyan A., Cribbs D.H., Agadjanyan M.G. Prototype Alzheimer's disease epitope vaccine induced strong Th2-type anti-Abeta antibody response with Alum to Quil A adjuvant switch. *Vaccine.* 2006, 24(13):2275-82.

23. Loukinov D., **Ghochikyan A.**, Mkrtichyan M., Itchim T.E., Lobanenkov V.V., Cribbs D.H., Agadjanyan M.G. Antitumor efficacy of DNA vaccination to the epigenetically acting tumor promoting transcription factor BORIS and CD80 molecular adjuvant. *J Cell Biochem.* 2006, 98(5):1037-43.

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

25. **Ghochikyan A.**, Mkrtichyan 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.

26. Mamikonyan G, Necula M, Mkrtichyan M, **Ghochikyan A**, Petrushina I, Movsesyan N, Mina E, Kiyatkin A, Glabe C, Cribbs DH, Agadjanyan MG. Anti-Abeta 1-11 antibody binds to different beta-amyloid species, inhibits fibril formation, and disaggregates preformed fibrils, but not the most toxic oligomers. *J Biol Chem.* 2007 282:22376-86.

27. Petrushina I, **Ghochikyan A**, Mkrtichyan M, Mamikonyan G, Movsesyan N, Davtyan H, Patel A, Head E, Cribbs DH, Agadjanyan MG. Alzheimer's disease peptide epitope vaccine reduces insoluble but not soluble/oligomeric Abeta species in amyloid precursor protein transgenic mice. *J Neurosci.* 2007 Nov 14;27(46):12721-31.

28. Mkrtichyan M, **Ghochikyan A**, Loukinov D, Davtyan H, Itchim TE, Cribbs DH, Lobanenkov VV, Agadjanyan MG. DNA, but not protein vaccine based on mutated BORIS antigen significantly inhibits tumor growth and prolongs the survival of mice. *Gene Ther.* 2008 Jan;15(1):61-4.

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31. Movsesyan N, **Ghochikyan A**, Mkrtychyan M, Petrushina I, Davtyan H, Olkhanud PB, Head E, Biragyn A, Cribbs DH, Agadjanyan MG. Reducing AD-like pathology in 3xTg-AD mouse model by DNA epitope vaccine - a novel immunotherapeutic strategy. *PLoS ONE.* 2008 May 7;3(5):e2124.
32. Mamikonyan G, Kiyatkin A, Movsesyan N, Mkrtychyan M, **Ghochikyan A**, Petrushina I, Hwang J, Ichim TE, Keledjian H, Agadjanyan MG. Detection of the active components of calf thymus nuclear proteins (TNP), histones that are binding with high affinity to HIV-1 envelope proteins and CD4 molecules. *Curr HIV Res.* 2008 Jun;6(4):318-26.
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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.
40. Davtyan H, **Ghochikyan A**, Cadagan R, Zamarin D, Petrushina I, Movsesyan N, Martinez-Sobrido L, Albrecht RA, García-Sastre A, Agadjanyan MG. The immunological potency and therapeutic potential of a prototype dual vaccine against influenza and Alzheimer's disease. *J Transl Med.* 2011 Aug 1;9:127.
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).
44. Davtyan, H., **Ghochikyan, A.**, Petrushina,I., Hovakimyan, A., Davtyan, A., Poghosyan, A., Marleau, A.M., Movsesyan, N., Kiyatkin, A., Rasool, S., Larsen, S.A., Madsen, P.J., Wegener, K.M., Ditlevsen, D.K., Cribbs, D.H., Pedersen, L.O., Agadjanyan, M.G. Immunogenicity, Efficacy, Safety, and Mechanism of Action of Epitope Vaccine (Lu AF20513) for Alzheimer's Disease: Prelude to a Clinical Trial. *J. Neuroscience* 2013, Mar 13; 33(11):4923-34.
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46. **Ghochikyan A.**, Petrushina I., Davtyan H., Hovakimyan A., Saing T., Davtyan A., Cribbs D.H., Agadjanyan M.G., Immunogenicity of epitope vaccines targeting different B cell antigenic determinants of human α -synuclein: Feasibility study. *Neurosci Lett.* 2014 Feb 7;560:86-91. doi: 10.1016/j.neulet.2013.12.028. Epub 2013 Dec 19.
47. Davtyan H., Bacon A., Petrushina I., Zagorski K., Cribbs D.H., **Ghochikyan A.**, Agadjanyan M.G., Immunogenicity of DNA- and recombinant protein-based Alzheimer Disease Epitope Vaccines. *Hum Vaccin Immunother.* 2014 Feb 13;10(5):1-8. [Epub ahead of print].
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. doi: 10.1007/s10585-013-9619-0. Epub 2013 Oct 6.

49. Davtyan H., **Ghochikyan A.**, Hovakimyan A., Petrushina I., Yu J., Flyer D., Madsen P.J., Pedersen L.O., Cribbs D.H., Agadjanyan M.G., Immunostimulant patches containing *Escherichia coli* LT enhance immune responses to DNA- and recombinant protein-based Alzheimer's disease vaccines. *J Neuroimmunol*. 2014 Jan 15. pii: S0165-5728(14)00005-8. doi: 10.1016/j.jneuroim.2014.01.002. [Epub ahead of print].

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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. doi: 10.1007/978-1-4939-0410-5_16.

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Conference presentations:

1. Charlier D., Sakanyan V., **Kochikyan A.**, Mett I., Legrain C., Pierard A. and Glansdorff N. (1992). Organization and expression of arginine biosynthetic genes of *Bacillus stearothermophilus*. International Conference "Thermophiles: Science and Technology" Reikjavik.

2. Sakanyan V., Mett I., **Kochikyan A.**, Savchenko A., Desmarez L., Legrain C., Charlier D., Pierard A. and Glansdorff N. (1992). Isolation, sequence and expression in *Escherichia coli* of the aminoacylase gen from *Bacillus stearothermophilus*. International Conference "Thermophiles: Science and Technology" Reikjavik.

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.

5. Cribbs, D.H., **Ghochikyan, A.**, Tran, M., Vasilevko, V., Petrushina, I., Sadzikava, N., Patrick Kessler, Kieber-Emmons, T., Agadjanyan, M.G. Detection of conformational antigenic determinant in wildtype & APP/TG mice immunized with A β 42 peptide. Presentation on the 8th International Conference on Alzheimer's Disease and Related Disorders. Stockholm, Sweden, 2002.

6. **Ghochikyan, A.**, Cribbs, D.H., Agadjanyan, M.G. Different approaches to the development of vaccine against animal model of Alzheimer's disease. Presentation on the 8th International Conference on Alzheimer's Disease and Related Disorders. Stockholm, Sweden, 2002.

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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).

11. Cribbs D., Lees A., Vasilevko V., **Ghochikyan A.**, Petrushina I., Movsesyan N., Agadjanyan M. Alternative strategies for A β Immunotherapy using Active Immunization. 12th International Congress of Immunology and 4th Annual Conference on FOCIS.

12. **Ghochikyan A.**, Petrushina I., Vasilevko V., Movsesyan N., Mkrtychyan M., Oddo S., LaFerla F., Cribbs D. H., Agadjanyan M. G. Peptide epitope vaccine for A β immunotherapy. Presentation on the 10th National Symposium : Basic Aspects of Vaccines. Bethesda, April 28-30, 2004.

13. **Ghochikyan A.**, Mkrtychyan M., Loukinov D., Mamikonyan G. , Lobanenkov V., Cribbs D. H., Agadjanyan M. G. BORIS, Controlling Other Cancer Testis Genes, Induces Cytotoxic T Cell Responses and Protection Against Poorly Immunogenic, Very Aggressive, and Highly Metastatic 4T1 Mammary Carcinoma Cells. Translational Imm. cancer conference. Bethesda, 2005.

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Induces Cytotoxic T Cell Responses and Protection Against Poorly Immunogenic, Very Aggressive, and Highly Metastatic 4T1 Mammary Carcinoma Cells. Presentation on the Annual Meeting of The American Association of Immunologists (AAI), Immunology Boston, May 12-16, 2006.

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