

## CURRICULUM VITAE

Name: **Taravat Bamdad**  
**Associate Professor of virology**

Address: Department of Virology, School of Medical Sciences, Tarbiat  
Modarres University, P.O. Box 14155-4838, Tehran, Iran.

Phone & Fax: +98 (21) 82884525

e-mail : [bamdad\\_t@modares.ac.ir](mailto:bamdad_t@modares.ac.ir)

### **Education:**

*1998-2004* Ph.D. in Virology, Tarbiat Modarres University, Tehran, Iran.

*1995-1997* M.Sc. in Virology, Tarbiat Modarres University, Tehran, Iran.

*1991-1995* B.Sc. in Microbiology, Esfahan University, Esfahan, Iran.

### **Research Experiences:**

*2004-present* Basic and molecular virology, vaccinology, Tarbiat Modares University.

*2003* Genetic engineering vesicular stomatitis virus to enhance host anti-tumor response and study on different ways for enhancement the oncolytic activity of VSV and Reovirus, Ottawa Regional Cancer Centre, Ottawa, Canada.

*2001-2002* Study on virus preservation and purification methods for establishment of viral culture collection in Iran, Biotechnology Research Centre, Maleke Ashtar university, Tehran, Iran.

*1999-2004* Ph.D. project which concerned construction of expression vectors containing different epitopes of gB of HSV-1 and evaluation of their efficacy as DNA vaccine comparing with full-length of gB.

*1996-2000* Serologic tests for detection of viral antibodies, Tarbiat Modarres

University.

1995-1997 M.Sc.thesis which concerned adaptation and application of dot immunoassay (DIA) to detect and measure rubella virus antibody in human sera, in comparison with that of hemagglutination inhibition test.

### **Publications:**

- 1- [A Novel Molecular Design for a Hybrid Phage-DNA Construct Against DKK1.](#) S Khalili, MJ Rasae, T Bamdad, M Mard-Soltani, MA Ghalehni, ...Molecular biotechnology 60 (11), 833-842.
- 2- [Construction of pLLO vector encoding truncated form of Listeriolysin O as molecular adjuvant for DNA vaccine studies.](#) M Pouriayeali, T Bamdad, SM Sadat, F Sabahi, MR Aghasadeghi. Archives of Medical Laboratory Sciences 2 (3), 13581-13581.
- 3- [Combination of virotherapy with VSV and tumor vaccination significantly enhances the efficacy of antitumor therapy.](#) F Sobhanimonfared, T Bamdad, ZA Sadigh, HR Nikoo, H Choobin .Acta virologica 62 (4), 394-400.
- 4- [A Decline in Anti-Core+ 1 Antibody Titer Occurs in Successful Treatment of Patients Infected with Hepatitis C Virus.](#) T Hashempoor, AM Alborzi, J Moayed, M Ajorloo, T Bamdad, AH Sharifi, et al. Jundishapur Journal of Microbiology 11 (2), 2018.
- 5- [3D structure of DKK1 indicates its involvement in both canonical and non-canonical Wnt pathways.](#) S Khalili, MJ Rasae, T Bamdad, Molecular Biology 51 (1), 155-166, 2017.
- 6- [Lenalidomide acts as an adjuvant for HCV DNA vaccine.](#) Borhani K, **Bamdad T**, Hashempour T. Int Immunopharmacol; 48:231-240, 2017.
- 7- [Low Dose of Lenalidomide Enhances NK Cell Activity: Possible Implication as an Adjuvant.](#) Borhani K, **Bamdad T**, Hashempour T. Iran J Immunol ;14(2):151-158, 2017
- 8- [Autophagy induction regulates influenza virus replication in a time-dependent manner.](#) Feizi N, Mehrbod P, Romani B, Soleimanjahi H, **Bamdad T**, Feizi A, Jazaeri EO, Targhi HS, Saleh M, Jamali A, Fotouhi F, Nargesabad RN, Abdoli A. J Med Microbiol, 66(4):536-541,2017.

- 9- [The Effect of SB431542 TGF- \$\beta\$  Receptor Inhibitor, on HCV Replication in PBMCs of Patients with Chronic Hepatitis.](#) H Choobin, T Bamdad, M Shekarabi. Iranian Journal of Virology 11 (3), 1-6.
- 10- [Pluripotency Crossroads: Junction of Transcription Factors, Epigenetic Mechanisms, MicroRNAs, and Long Non-coding RNAs.](#) Rad SM, Mohammadi-Sangcheshmeh A, **Bamdad T**, Langroudi L, Atashi A, Lotfinia M, Arefian E, Gastal EL, Soleimani M. Curr Stem Cell Res Ther;12(4):300-311, 2017.
- 11- [Assessment efficiency of the constructed minigenome of rabies virus using PV strain.](#) Ajorloo M, Bamdad T, Gholami AR, Azadmanesh K. Arch Iran Med. May;19(5):335-41, 2016.
- 12- [Construction and Immunogenicity Analysis of Hepatitis C Virus \(HCV\) Truncated Non-Structural Protein 3 \(NS3\) Plasmid Vaccine.](#) MH Pouriayevali, T Bamdad, MR Aghasadeghi, SM Sadat, F Sabahi. Jundishapur journal of microbiology 9 (3), e33909, 2016.
- 13- [Autophagy Gene Activity May Act As a Key Factor for Sensitivity of Tumor Cells to Oncolytic Vesicular Stomatitis Virus.](#) A Nabizadeh, T Bamdad, E Arefian, SHR Nikoo, Iranian Journal of Cancer Prevention, 22;9(1):e3919 ,2016.
- 14- [An EBV-based plasmid can replicate and maintain in stem cells.](#) AH Rad, S Mohammad, T Bamdad, E Arefian, M Mossahebi-Mohammadi, et al. Biotechnology progress, 31(6):1579-85, 2015.
- 15- [Insights into the role of HCV Plus-/Minus strand RNA, IFN- \$\gamma\$  and IL-29 in relapse outcome in patients infected by HCV.](#) AM Alborzi, T Bamdad, P Davoodian, T Hashempour, AA Nejatizadeh, ... Asian Pacific Journal of Allergy and Immunology 33 (3),2015.
- 16- [Stem cell and Idiopathic pulmonary fibrosis: mechanisms and treatment.](#) RSM Hosseini, T Bamdad, L Langroudi, E Arefian, A Atashi, M Soleimani, Current stem cell research & therapy;10(6):466-76, 2015.
- 17- [Pluripotency Crossroads: Junction of Transcription Factors, Epigenetic Mechanisms, MicroRNAs and Long Non-coding RNAs.](#) RSM Hosseini, T Bamdad, L Langroudi, E Arefian, A Atashi, M Soleimani. Current stem cell research & therapy ;12(4):300-311, 2017.
- 18- [Introduction of RNA virus evolution.](#) H Soleimanjahi, T Bamdad, E Ahmadi. Archives of Medical Laboratory Sciences 1 (1), 37-41, 2015.
- 19- [Detection of Specific Antibodies to HCV-ARF/CORE+ 1 Protein in Cirrhotic and Non-Cirrhotic Patients with Hepatitis C: A Possible Association with Progressive Fibrosis.](#) M Ajorloo, T Bamdad, T Hashempour, AM Alborzi, SH Mozhgani, R Asadi, et al, Archives of Iranian medicine 18 (5), 304-307, 2015.
- 20- [Transcription factor decoy: a pre-transcriptional approach for gene downregulation purpose in cancer.](#) SMAH Rad, L Langroudi, F Kouhkan, L Yazdani, AN Koupaee, et al, Tumor Biology, 1-11, 2015.

- 21- [Activation of calcium/calmodulin-dependent kinase II following bovine rotavirus enterotoxin NSP4 expression.](#) H Razavinikoo, H Soleimanjahi, G Haqshenas, T Bamdad, A Teimoori, et al, Iranian Journal of Basic Medical Sciences 18 (4), 393 ,2015.
- 22- Transcription factor decoy against stem cells master regulators, Nanog and Oct-4: a possible approach for differentiation therapy. SMAH Rad, T Bamdad, M Sadeghizadeh, E Arefian, M Lotfinia, et al. Tumor Biology 36 (4), 2621-2629,2015.
- 23- Cellular Immune Response Following Neonatal Mice Immunization with Vesicular Stomatitis Virus. F Sobhanimonfared, T Bamdad, Z Azita Sadigh, H Razavi Niko, et al.,Modares Journal of Medical Sciences: Pathobiology 17 (2), 49-57,2014.
- 24- Efficient Lentiviral Transduction of Adipose Tissue-Derived Mouse esenchymal Stem Cells and Assessment of Their Penetration in Female Mice Cervical Tumor Model. A Kenarkoohi, M Soleimani, T Bamdad, H Soleimanjahi, H Estiri, Iranian journal of cancer prevention 7 (4), 225-31,2014.
- 25- Comparison of HCV Plus-and Minus-Strand RNA in PBMCs of Responders and non-Responders of Chronically Infected Patients Receiving Ribavirin and Interferon Therapy. AM Alborzi, T Bamdad, M Ghaderi, H Salimi, P Davoodian, S Merat, ...Iranian Journal of virology 6 (2), 18-25,2013.
- 26- Antigen-specific IL-10 Producing CD4+, CD25+ Regulatory T Cells in Chronically Infected HCV Patients. T Hashempoor, T Bamdad, J Arasteh, R Emamzadeh, R Asadi, S Merat, Govarehsh 18 (1), 7-15, 2013.
- 27- Expression and cloning of recombinant VP2 protein of canine parvovirus in bacterial and cell-free prokaryotic systems. R Dorostkar, T Bamdad, E Saberfar, Arak Medical University Journal 15 (10), 43-53, 2013.
- 28- Occult Hepatitis B Infection and Its Role in Blood Safety: a Review AM Alborzi, O Kiani Ghalesardi, T Bamdad, AA Pourfathollah, MA Jalalifar, et al, Iranian Journal of Blood & Cancer 5 (2), 61-75, 2013.
- 29- An Endogenous Immune Adjuvant Released by Necrotic Cells for Enhancement of DNA Vaccine Potency. R Dorostkar, T Bamdad, M Parsania, H Pouriayevali, Iran. J. Immunol 9 (4), 2013.
- 30- Induction of protective anti-CTL epitope responses against HER-2-positive breast cancer based on multivalent T7 phage nanoparticles S Pouyanfard, T Bamdad, H Hashemi, M Bandehpour, B Kazemi.Plos One, 2012

- 31- Cloning and Expression of Rabies Virus Glycoprotein Gene into Eukaryotic System. K Borhani, T Bamdad, M Ajorloo, SHR Mozhgani, N Miandehi, . مجله 6 ویروس شناسی ایران (2), 8-11, 2012
- 32- Herpes Simplex Virus Type 1 Latency-Associated Transcript Reduces Human Neuroblastoma Cell Proliferation. E Arefian, M Soleimani, T Bamdad, Z Mobarra, A Hajarizadeh, Iranian Journal of virology 5 (2), 1-8, 2012.
- 33- Evaluation of the HSV-1 LAT Transcript Expression Effects on TGF- $\beta$  Signaling Pathway in Human Neuroblastoma Cells. E Arefian, T Bamdad, M Soleimani, A Atashi, P Fallah, Modares Journal of Medical Sciences: Pathobiology 14 (4), 51-62, 2012.
- 34- Investigation in vitro expression of CatSper sub fragment followed by production of polyclonal antibody: potential candidate for the next generation of non hormonal contraceptive. M Nazari, M Mirshahi, SJ Mowla, T Bamdad, S Sarikhani, Cell Journal (Yakhteh) 14 (3), 215-222, 2012.
- 35- 33-Withdrawal from morphine reduces cell-mediated immunity against herpes simplex virus generated by natural immunization
- 36- A Jamali, H Soleimanjahi, M Moin, M Mahdavi, H Hashemi, F Sabahi, et al, Neuroimmunomodulation 19 (4), 229-234, 2012.
- 37- Full length antigen priming enhances the CTL epitope-based DNA vaccine efficacy. MH Pouriayevali, T Bamdad, M Parsania, RD Sari, Cellular immunology 268 (1), 4-8, 2011.
- 38- Effect of LIGHT adjuvant on kinetics of T-cell responses induced by HSV-1 DNA immunization. MG Mohammady, T Bamdad, M Parsania, H Soleimanjahi, S Pouyanfard, et al, Iran. J. Immunol 8 (2), 76-83, 2011.
- 39- Inactivation of herpes simplex virus type 1 & adenovirus type 5 by direct electric current at a biocompatible level in vitro. M Roohandeh, T Bamdad, Clinical laboratory 57 (7-8), 489-495, 2010.
- 40- Stable suppression of gene expression by short interfering RNAs targeted to promoter in a mouse embryonal carcinoma stem cell line. F Esmaeili, T Bamdad, S Ghasemi, In Vitro Cellular & Developmental Biology-Animal 46 (10), 834-840, 2010.

- 41- Evaluation antiviral activity of aerial parts extracts of *Echinacea purpurea* from Iran against HSV-1. H Soleimanjahi, A Ghaemi, T Bamdad, M Farsbaf Mogahddam, S Zahedi, et al, *Iranian Journal of Pharmaceutical Research*, 72-72, 2010.
- 42- Development of a Recombinant Based ELISA using Specific Antibodies to F Protein in HCV Chronically Infected Patients-A Seroprevalence Study T Hashempour, M Ajorloo, T Bamdad, S Merat, H Zaer-Rezaee, et al, *Iranian Journal of virology* 4 (1), 1-6, 2010.
- 43- In vitro expansion of antigen-specific natural regulatory T cells in hepatitis C virus infection mediated by Core antigen. T Hashempoor, T Bamdad, S Merat, FS Samani, M Mahdavi, M Ajorloo. *Modares Journal of Medical Sciences: Pathobiology* 13 (3), 83-94, 2010.
- 44- Expansion of CD4+ CD25+ FoxP3+ regulatory T cells in chronic Hepatitis C virus infection. T Hashempoor, T Bamdad, S Merat, E Janzamin, L Nemati, H Jabbari, et al, *Iran J Immunol* 7 (3), 177-185, 2010.
- 45- Impact of timing strategy of LIGHT, a new TNF superfamily on immune platform induced by HSV-1 gB DNA vaccine. S Pouyanfard, T Bamdad, M Parsania, H Hashemi, MG Mohammadi, *Cytokine* 50 (1), 99-103,2010.
- 46- Evaluation of intramuscular versus intra-dermal inoculation of bacterial plasmid encoding nucleoprotein of influenza virus. A Jamali, F Sabahi, T Bamdad, HR Hashemi, F Mahboudi, *Modares Journal of Medical Sciences: Pathobiology* 13 (1), 17-23, 2010.
- 47- Evaluation of humoral and cellular immune responses against HSV-1 using genetic immunization by filamentous phage particles: a comparative approach to conventional DNA vaccine. H Hashemi, T Bamdad, A Jamali, S Pouyanfard, MG Mohammadi, *Journal of virological methods* 163 (2), 440-444,2010.
- 48- Evaluation of apoptotic and anti-apoptotic genes on efficacy of DNA vaccine encoding glycoprotein B of Herpes Simplex Virus type 1. M Parsania, T Bamdad, ZM Hassan, M Kheirandish, MH Pouriayevali, et al, *Immunology letters* 128 (2), 137-142, 2010.
- 49- Evaluation of Antibodies against Rubella Virus in a Mass Campaign Vaccination in Tehran, Iran. H Soleimanjahi, F Fotouhi, T Bamdad, *IRANIAN JOURNAL OF VIROLOGY* 4 (34), 7-11, 2010.

- 50- The Effect of Glycoprotein B DNA Immuniation on HSV-1 Lethal Infection of BALB/c Mice. T Bamdad, M Roostae, M Sadeghizadeh, F Mahboudi, A Kazemnejad, et al, IRANIAN JOURNAL OF VIROLOGY 4 (34), 47-51, 2010.
- 51- Bannazadeh Baghi H, Bamdad T, Soleimanjahi H. The effect of herpes simplex virus virion host shutoff gene- a new suicide gene- on tumor cells. Iran Biomed J. Jul;13(3):185-9, 2009,
- 52- Arefian E, Bamdad T, Soleimanjahi H, Akhoond MR, Parsania M, ghaemi A, A kinetic study of gamma interferon production in Herpes simplex virus-1 DNA prime-protein boost regimen comparing to DNA or subunit vaccination. Cell Mol Biol, 43(3): 388-393, 2009 .
- 53- Jamali A, Mahdavi M, Hassan ZM, Sabahi F, Farsani MJ, Bamdad T, Soleimanjahi H, Motazakker M, Shahabi S. A novel adjuvant the general opioid antagonist naloxone, elicits a robust cellular immune response for a DNA vaccine. Int Immunol, 21(3):217-25, 2009 .
- 54- Gorgian Mohammadi M, Bamdad T, Parsania M, Hashemi HR, Puyanfarid S. Kinetics of Primary and Memory Cytotoxic T Lymphocyte Responses to Herpes Simplex Virus 1 Infection: Granzyme B Mediated CTL Activity. Iran J Immunol. 6(1):22-7, 2009.
- 55- Mojadadi S, Jamali A, Khansarinejad B, Soleimanjahi H, Bamdad T. Acute morphine administration reduces cell-mediated immunity and induces reactivation of latent herpes simplex virus type 1 in BALB/c mice. Cell Mol Immunol, 6(2):111-6, 2009 .
- 56- Parsania M, Hassan ZM, Bamdad T, Kheirandish M, Pouriayevali MH, Dorostkar R, Sarbolouki MN, Jamali A, Mahdavi M, Pro-apoptotic gene enhances the immunogenicity of glycoprotein B gene of herpes simplex virus-1, Gene Ther Mol Biol, 12:7-14, 2008.
- 57- Parsania M, Hassan ZM, Bamdad T, Kheirandish M, Pouriayevali MH, Dorostkar R, Sarbolouki MN, Jamali A, Mahdavi M, The effect of Bax on enhancement of gB DNA vaccine of HSV-1. Yakhteh, 10 (2):93-100, 2008. (ISI) .
- 58- Kermanian M, Soleimanjahi H, Arefian E, Bamdad T, Enrichment of CSF samples on cell culture for enhancement of sensitivity of mumps and enterovirus detection by multiplex RT-PCR, Diag. Microbiol Inf Dis, 60(4):375-9, 2008 .
- 59- Jazayeri M, Soleimanjahi H, Fotuhi F, Bamdad T, Jamali A, Evaluation of cross immune response in DNA based vaccinated mice against HSV-1 and HSV-2. Gen Ther Mol Biol, 11: 263-268, 2007 .

- 60- Kermanian M, Bamdad T, Soleimanjahi H, Samiei SH, Simultaneous detection of mumps and enterovirus in CSF samples suspected to meningitis. *Daneshvar*, 76:75-80 .
- 61- Ghaemi A, Farshbaf MM, Soleimanjahi H, Omidbeigi R, Bamdad T, Hekmatpoor D, Hamidi K, Evaluation of effect of root extract from tegetes against HSV-1,2. *J Arak University of Med Sci*, 47-53, 2007.
- 62- Abbas Jamali, Taravat Bamdad, Hoorieh Soleimanjahi, Firouz Ghaderi Pakdel, Ehsan Arefian, Acute morphine administration reduces WBCs capability to induce innate resistance against HSV-1 infection in BALB/c mice. *Neuroimmunomodulation*, 14(1):16-23, 2007 .
- 63- Jamali A, Mahdavi M, Shahabi S, Hassan ZM, Sabahi F, Javan M, Farsani MJ, Parsania M, Bamdad T. Naloxone, an opioid receptor antagonist, enhances induction of protective immunity against HSV-1 infection in BALB/c mice. *Microb Pathog*. 43(5-6):217-23, 2007 .
- 64- Soleimanjahi H, Fotouhi F, Bamdad T, Evaluation of antibodies against rubella virus in a mass campaigning vaccination in Tehran, Iran. *Iranian Journal of virology*, 1(1):18-21, 2007.
- 65- Bamdad T, Roostae MH, Sadeghizadeh M, Mahboudi F., Kazemnejad A, Soleimanjahi H. The effect of glycoprotein B DNA immunization on HSV-1 lethal infection of BALB/c mice. *Iranian Journal of virology*, 1(2): 6-10, 2007.
- 66- Ghaemi A, Soleimanjahi H, Bamdad T, Soudi S, Arefian E, Hashemi SM, Ebtekar M, Induction of humoral and cellular immunity against latent HSV-1 infections by DNA immunization in BALB/c mice. *CIMID*, 30:197-210, 2007 .
- 67- Bamdad T, Bell J. Intercellular trafficking of VP22 a herpes simplex virus type 1 tegument protein. *Iranian Biomedical Journal*, 11(1): 53-57, 2007 .
- 68- Abbas Jamali, Mohammad H. Roostae, Hoorieh Soleimanjahi, Firouz Ghaderi Pakdel and Taravat Bamdad, DNA vaccine-encoded glycoprotein B of HSV-1 fails to protect chronic morphine-treated mice against HSV-1 challenge *Comparative Immunology, Microbiology and Infectious Diseases*, Volume 30, Issue 2, Pages 71-80, 2007 .
- 69- Ehsan Arefian, Taravat Bamdad, Hoorieh Soleimanjahi, Farzaneh Sabahi, Mohamad Reza Akhoond, Masoud Parsania and Amir Ghaemi, Evaluation of  $\gamma$ -interferon kinetics in HSV-1 infected mice in different days post infection (in vivo) and post re-stimulation (in vitro). *Comparative Immunology, Microbiology and Infectious Diseases*, Volume 30, Issue 1, January 2007, Pages 1-9 .



- 70- Ghaemi A, Soleimanjahi H, Bamdad T, Roostaei MH, Arefian E, PCR detection of thymidine kinase gene of latent herpes simplex virus type 1 in mice trigeminal ganglia. *Archive of Razi Institute*. 61(3): 137-141, 2006.
- 71- Bamdad T, Roostae MH, Sadeghizadeh M, Kazemnejad A, Mahboudi F, Soleimanjahi H. Immunogenicity and protective effect of DNA construct encoding certain epitopes of herpes simplex virus type-1 glycoprotein B. *Folia Biol (Praha)*. 2005;51(4):109-13 .
- 72- Soleimanjahi H., Bamdad T, Footouhi F, Roostae MH, Faghihzadeh S. Prevalence of HI antibody titer against rubella virus to determine the effect of mass vaccination in Tehran. *J Clin Virol*. 2005 Oct;34(2):153-4
- 73- Soleimanjahi H., Roostae M.H., Rassae M.J., Mahboodi F., Kazemnejad A, Bamdad T. The Effect of DNA Priming-Protein Boosting in Enhancing the Humoral Immunity and Protecting the Mice against Lethal HSV Infections. *FEMS Immunol Med Microbiol*. 2006 Feb;46(1):100-6 .
- 74- Astani A., Roostae M.H., Soleimanjahi H., Mamishi F., Bamdad T., Kazemnejad A. Isolation of parainfluenza virus from patients suffering from respiratory illness. *Modarres Journal of Medical Sciences*., 7(2): 1-9, 2005.
- 75- Bamdad T, Roustai M, Sadeghizadeh M, Mahboodi F, Construction of an expression vector containing HSV-1 gB gene to express in mammalian cell lines, *Modarres Journal of Medical Sciences*. 7 (1): 13-21, 2004
- 76- Pishraft Sabet L, Roostae MH, Zandi K, Bamdad T, Restriction enzyme analysis of thymidine kinase gene in four Iranian isolates of herpes simplex virus type 1. *Archives of Razi Institute*, 56: 1-10, 2003.
- 77- Soleimanjahi H., Roostae M.H., Rassae M.J., Mahboodi F., Bamdad T. Immunogenicity and Efficacy of Baculovirus Derived Glycoprotein D of Herpes Simplex Virus Type 1 in Mice. *Arch. Razi*, 55: 19-28, 2003.
- 78- Bamdad T, Roustai M, H, Solimandjahi H, Malekaneh M., Application and adaptation of dot immunoassay to detect and measure rubella virus antibody, *Medical of Islamic Republic of Iran*. 15(3):171-174, 2001.

### **Research Interest:**

- 1- Oncolytic viruses and viral therapy of cancer.
- 2- Study on different ways to improve recombinant vaccine efficacy against infections and cancer.
- 3- Viral pathogenesis and treatment (HCV) .

### **Selected Research Projects:**

2005-2009 Immunodominance CD8 T-cell response induced by DNA Vaccine encoding a single HSV-1 CTL epitope and improving vaccine potency by linking VP22 gene to the pitope .

2004-2008 Evaluatin of HSV-1 latency after DNA immunization.

2000-2003 Construction of expression vectors containing gpB& gpD& gpG of HSV-1 for use as DNA vaccine.

2015-2017 The effect of lenalidomide as an adjuvant to enhance cellular immunity against HCV DNA vaccine.

2014-2016 Evaluation of response to treatment or relapes of HCV in interfron \_ribavirin treated patients in relation to the existence of HCV RNA in PBMCs and the levels of serum IFN- $\gamma$  and IL-29.

2012-2015 Growth inhibition of human tumor cells by Transcription Factor Decoys for blocking the specific factors of cancer stem cells, Nanog and oct-4.

2017-present Combination of virotherapy and immunotherapy in colorectal cancer treatment.