

PUBLICATIONS:

BOOK Chapter

Non-Viral Delivery Systems in Gene Therapy and Vaccine Development. Azam Bolhassani and Sima Rafati. INTECH, OPEN ACCESS PUBLISHER. University Campus

ARTICLES

1. Saljoughian N, Taheri T, Zahedifard F, Taslimi Y, Doustdari F, Doroud D, Azizi H, Heidari K, Vasei M, Namvar N, Papadopoulou B, Rafati S. **Live nonpathogenic Leishmania expressing selected immunodominant parasite antigens elicit protective immunity against visceral leishmaniasis in mice.**(PLOS Neglected Tropical Diseases. 2013, submitted)
2. Bolhassani A, Rafati S. **Mini-chaperones: Potential immuno-stimulators in vaccine design.**(Hum Vaccin Immunother. 2012 Oct 29;9(1)).
3. Daemi A, Bolhassani A, Rafati S, Zahedifard F, Hosseinzadeh S, Doustdari F **Different domains of glycoprotein 96 influence HPV16 E7 DNA vaccine potency via electroporation mediated delivery in tumor mice model.**(Immunol Lett. 2012 17.: S0165- 2478(12)00215-5)
4. Salehi M, Taheri T, Mohit E, Zahedifard F, Seyed N, Taslimi Y, Sattari M, Bolhassani A, Rafati S. **Recombinant *Leishmania tarentolae* Encoding the Human papillomavirus Type 16 E7 Gene in Tumor Mice Model.** (Immunotherapy. 2012 Nov;4(11):1107-20)
5. Mohit E, Rafati S. **Chemokine-based Immunotherapy: Delivery systems and combination therapies, Review** (Immunotherapy. 2012, 4 (8) 1-34)
6. Mohit E, Bolhassani A, Zahedifard F, Seyed N, Eslamifar A, Taghikhani M, Samimirad K, Rafati S. **Enhancement of DNA vaccine potency by covalent linkage to Gp96, co-administration of IP-10 and PEI600-Tat delivery system against HPV infections.** (Mol Immunol. 2013 ,53(1-2):149-60)
7. Doroud D, Rafati S. **Leishmaniasis: focus on the design of nanoparticulate vaccine delivery systems.** (Expert Rev, 2012;75(1)27-37)

8. Stäger S, Rafati S. **CD8(+) T cells in leishmania infections: friends or foes?**(Front Immunol. 2012;3:5)
9. Mohit E, Bolhassani A, Zahedifard F, Taslimi Y, Rafati S. **The Contribution of NT-gp96 as an Adjuvant for Increasing HPV16 E7-Specific Immunity in C57BL/6 Mouse Model.**(Scand J Immunol,2012;75(1):27-37)
10. Bolhassani A, Safaiyan S, Rafati S. **Improvement of different vaccine delivery systems for cancer therapy.**(Mol Cancer. 2011 Jan 7;10:3)
11. Doroud D, Zahedifard F, Vatanara A, Najafabadi AR, Rafati S. **Cysteine proteinase type I, encapsulated in solid lipid nanoparticles induces substantial protection against Leishmania major infection in C57BL/6 mice.**(Parasite Immunol. 2011 Jun;33(6):335-48) .
12. Amani J, Mousavi SL, Rafati S, Salmanian AH. **Immunogenicity of a plant-derived edible chimeric EspA, Intimin and Tir of Escherichia coli O157:H7 in mice.**(Plant Sci. 2011;180(4):620-7)
13. Mizbani A, Taslimi Y, Zahedifard F, Taheri T, Rafati S. **Effect of A2 gene on infectivity of the nonpathogenic parasite Leishmania tarentolae.**(Parasitol Res, 2011;109(3):793-9)
14. Doroud D, Zahedifard F, Vatanara A, Najafabadi AR, Taslimi Y, Vahabpour R, Torkashvand F, Vaziri B, Rafati S. **Delivery of a cocktail DNA vaccine encoding cysteine proteinases type I, II and III with solid lipid nanoparticles potentiate protective immunity against Leishmania major infection.**(J Control Release, 2011: 30;153(2):154-62)
15. Doroud D, Zahedifard F, Vatanara A, Taslimi Y, Vahabpour R, Torkashvand F, Vaziri B, Rouholamini Najafabadi A, Rafati S. **C-terminal domain deletion enhances the protective activity of cpa/cpb loaded solid lipid nanoparticles against Leishmania major in BALB/c mice.**(PlosNegl Trop Dis,2011:5(7)1236)
16. Safaiyan S, Bolhassani A, Nylen S, Akuffo H, Rafati S. **Contribution of human neutrophils in the development of protective immune response during in vitro Leishmania major infection.** (Parasite Immunol, 2011;33(11):609-20)
17. McDowell MA, Rafati S, Ramalho-Ortigao M, Ben Salah A. **Leishmaniasis Middle East and North Africa research and development priorities.**(PlosNegl Trop Dis,2011:5(7)1219)
18. Mehrizi A.A, Zakeri S, Rafati S, Salmanian A.H, Djadid N.D. **Immune responses elicited by co-immunization of Plasmodium vivax and P.falciparum MSP-1 using prime-boost immunization strategies.**(ParasiteImmunol,2011:33(11):594-608)

19. Seyed N, Zahedifard F, Safaiyan SH, Gholami E, Doustdari F, Azadmanesh K, Mirzaei M, Eslami N, KhademSadegh A, Eslami far A, Sharifi I, Rafati S. **In Silico Analysis of Six Known Leishmania major Antigens and In Vitro Evaluation of Specific Epitopes Eliciting HLA-A2 Restricted CD8 T Cell Response.**(PlosNegl Trop Dis,2011:5(9)1295)
20. Abdian N, Gholami E, Zahedifard F, Safaee N, Rafati S. **Evaluation of DNA/DNA and prime-boost vaccination using LPG3 against *L.major* infection in susceptible BALB/c Mice and its antigenic properties in human *Leishmania*.**(Experimental Parasitology, 2011:127(3)627-36)
21. Bolhassani A, Gholami E, Zahedidard F, moradin N, Parsi P, Doustdari F, Papadoulou B, Rafati S. **Enhancement of DNA vaccine potency by fusion of HSV-1VP22 and EGFP to *Leishmania major* amastin antigen in BALB/c mice model.** (Experimental Parasitology, 2011:128(1):9-17)
22. Bolhassani A, Taheri T, Taslimi Y, Zamanlui S, Zahedifard F, Seyed N, Torkashvand F, Vaziri B, Rafati S. **Fluorescent *Leishmania* species: Development of stable GFP expression and its application for in vitro and in vivo studies.** (Experimental Parasitology, 2011:127(3):637-45)
23. Amani J., Salmanian A.H., Rafati S., Mousavi SL. **Immunogenic Properties of chimeric protein from espA, eae and tir genes of *Escherichia coli* O157:H7.** (Vaccine, 2010:28(42):6923-9)
24. Doroud D, Zahedifard F, Vatanara A, Najafabadi AR, Gholami E, Rafati S. **Cationic solid lipid nanoparticles loaded by cysteine proteinase Genes as a Novel anti-leishmaniasis DNA vaccine Delivery system: characterization and in vitro evaluation.** (Journal of pharmacy and pharmaceutical science, 2010, 13(3) 320-335)
25. Taheri T., Salmanian A., Gholami E., Doustdari F., Zahedifard F., Rafati S. **Disruption of *Leishmania major* signal peptidase type I and its consequences in survival, growth and infectivity rate of parasite.** (Experimental Parasitology, 2010 (126)135-145)
26. Mizbani A., Taheri T., Zahedifard F., Taslimi Y., Azizi H., Azadmanesh K., Papadoulou B., Rafati S. **Recombinant *Leishmania tarentolae* expressing the A2 Virulence gene as a novel candidate Vaccine against Visceral Leishmaniasis.** (Vaccine 28 (2010) 53-62)
27. Bolhassani A., Zahedifard F., Taslimi Y., Taghikhani. M, Nahavandian B., Rafati S. **Antibody detection against HPV16 E7 & GP96 fragments as biomarkers in cervical cancer patients.** (Indian J Med Res. 2009 Nov;130(5):533-41)
28. Arashkia A., Roohvand F., Memarnejadian A., Aghasadeghi MR., Rafati S. **Construction of HCV-polypeptide vaccine candidates harboring immune-enhancer sequences and**

primary evaluation of their immunogenicity in BALB/c mice.(Virus Genes. 2010 40(1):44-52)

- 29.** Amani J., Mousavi SL., Rafati S. Salmanian A.H., **In silico analysis of chimeric espA, eae and tir fragments of *Escherichia coli* O157:H7 for oral immunogenic applications.** (TheorBiol Med Model. 2009 ;8;6:28)
- 30.** Bolhassani A., Mohit E., Rafati S. **Different spectra of therapeutic vaccine development against HPV infections.**(Human Vaccines2009, 5:10, 1-18)
- 31.** Bolhassani A. and Rafati S. **DNA Immunization as an Efficient Strategy for Vaccination.** (Avicenna Journal of Medical Biotechnology, 2009 vol.1, No2)
- 32.** Azizi H., Hassani K.,Taslimi Y., ShateriNajafabadi H., Papadopoulou B., Rafati S. **Searching for virulence factors in the non-pathogenic parasite to humans *Leishmania tarentolae*.** (Parasitology, 2009; 136: 723-735)
- 33.** Bolhassani A., Ghasemi N., Servis C., Taghikhani M. and Rafati S. **The Efficiency of a Novel Delivery System (PEI600-Tat) in Development of Potent DNA Vaccine Using HPV16 E7 as a Model Antigen.** (Drug Delivery, 2009; 16(4):196-204)
- 34.** Salhi A, Rodrigues, Santoro F, Dessein H, Romano A, Castellano L.R, Mathieu Sertorio, Rafati S, Chevillard C, Prata A, Alcaï's, Laurent Argiro A, Dessein A. **Immunological and Genetic Evidence for a Crucial Role of IL-10 in Cutaneous Lesions in Humans Infected with *Leishmania braziliensis*.** (J. Immunology, 2008; 180(9):6139-48.
- 35.** Bolhassani A., Taghikhani M., Ghasemi N., Soleimanjahi H., Rafati S. **Comparison of Two Delivery Systems Efficiency by Using Poly ethylenimine (PEI) for Plasmid HPV16E7 DNA Transfection into COS-7 Cells.** (Modarres Journal of Medical Sciences, 2008 Vol.11, No 1&2)
- 36.** Memarnejadian A., Roohvand F., Arashkia A., Rafati S., Shokrgozar MA., **Polytope DNA vaccine development against hepatitis C virus: A stream-lined approach from *in silico* design to *in vitro* and primary *in vivo* analyses in BALB/c mice.** (Protein & peptide letters, 2009 16(7):842-50)
- 37.** Bolhassani A., Rafati S. **Heat-shock proteins as powerful weapons in vaccine development.** (Expert Rev Vaccines, 2008; 7(8):1185-99, Review)
- 38.** Abtahi H., Salmanian A.H., Rafati S., Nejad GB., Saffari M., Ghazavi A., Mosayebi G. **The profile of cytokines and IgG subclasses in BALB/c mice after immunization with *Brucella* ribosomal gene.** (Pak J BiolSci, 2008;11(21): 2472-7)

39. Bolhassani A., Zahedifard F., Taghikhani M., Rafati S. **Enhanced immunogenicity of HPV16E7 accompanied by Gp96 as an adjuvant in two vaccination strategies.**(Vaccine,2008; 26(46):5822-9)
40. Rafati S., Zahedifard F., KakehAzari M., Taslimi Y., Taheri T. **C-terminal Extension of cysteine proteinase type I is responsible for TH2 elicitation in experimental murine *L. infantum* infection.** (Experimental Parasitology, 2008;118: 393-401)
41. Golkar M., Rafati S., Abdel-Latif MS., Brenier-Pinchart MP., Fricker-Hidalgo H., Sima BK., Babaie J., Pelloux H., Cesbron-Delauw MF., Mercier C. **The dense granule protein GRA2, a new marker for the serodiagnosis of acute *Toxoplasma* infection: comparison of sera collected in both France and Iran from pregnant women.** (DiagnMicrobiol Infect Dis, 2007;58(4):419-26)
42. Golkar M., Shokrgozar MA., Rafati S., Musset K., Assmar M., Sadaie R., Cesbron-Delauw MF. andMercier C. **Evaluation of protective effect of recombinant dense granule antigens GRA2 and GRA6 formulated in monophosphoryl lipid A (MPL) adjuvant against *Toxoplasma* chronic infection in mice.** (Vaccine,2007;25 (21):4301-11)
43. Balenga NA., Rafati S. **Innate immune system: Specific or non-specific?** (Med Hypotheses,2007;69(2):460-1)
44. Rafati S., Gholami E., Hassani N., Ghaemimanesh F., Taslimi Y., Taheri T., Soong L. ***Leishmania major* heat shock protein 70 (HSP70) is not protective in murine models of cutaneous leishmaniasis and stimulates strong humoral responses in cutaneous and visceral leishmaniasis patients.** (Vaccine, 2007;25(21) :4159-69)
45. Rafati S., Hassani N., Taslimi Y., Movassagh H., Rochette A., Papadopoulou B. **Amastin peptide-binding antibodies as biomarkers of active human visceral leishmaniasis.** (Clin Vaccine Immunol, 2006;13(10):1104-10)
46. Khamesipour A., Rafati S., Davoudi N., Maboudi F., Modabber F. **Leishmaniasis vaccine candidates for development: a global overview.** (Indian J Med Res,2006;123(3):423-38. Review)
47. Balenga NA., Zahedifard F., Weiss R., Sarbolouki MN., Thalhamer J., Rafati S. **Protective efficiency of dendrosomes as novel nano-sized adjuvants for DNA vaccination against birch pollen allergy.**(J Biotechnol, 2006;124(3):602-14)
48. Rafati S., Ghaemimanesh F., Zahedifard F. **Comparison of potential protection induced by three vaccination strategies (DNA/DNA, Protein/Protein and DNA/Protein) against *Leishmania major* infection using Signal Peptidase type I in BALB/c mice.** (Vaccine, 2006;24(16):3290-7)

49. Rafati S., Zahedifard F., Nazgouee F. **Prime-boost vaccination using cysteine proteinases type I and II of *Leishmania infantum* confers protective immunity in murine visceral leishmaniasis.** (Vaccine, 2006;24(12):2169-75)
50. Rafati S., Nakhaee A., Taheri T., Taslimi Y., Darabi H., Eravani D., Sanos S., Kaye P., Taghikhani M., Jamshidi S. and Rad MA. **Protective vaccination against experimental canine visceral leishmaniasis using a combination of DNA and protein immunization with cysteine proteinases type I and II of *L. infantum*.** (Vaccine, 2005;23(28):3716-25)
51. Nakhaee A., Rafati S., Salmanian A.H., Taghikhani M., Mohebbali M., Taheri T. **Immunological responses of naturally infected dogs to Type I and Type II recombinant cysteine proteinases of *Leishmania infantum*.**(Moddarees J. of Medical Sciences, 2005;8(1):55-66)
52. Golkar M., Shokrgozar M.A., Rafati S., Sadaie M.R., and Assmar M. **Construction, expression and preliminary immunological evaluation of a DNA plasmid encoding the GRA2 protein of *Toxoplasma gondii*.**(Iranian Biomedical Journal,2005;9(1):1-8)
53. Rafati S., Salmanian A.H., Taheri T., Masina S., Schaff C., Taslimi Y. and Fasel N. **Type I signal peptidase from *Leishmania* is a target of the immune response in human cutaneous and visceral leishmaniasis.**(MolBiochemParasitol,(2004; 135(1):13-20)
54. Zadeh-Vakili A., Taheri T., Taslimi Y., Doustdari F., Salmanian A.H. and Rafati S. **Immunization with the hybrid protein vaccine, consisting of *Leishmania major* cysteine proteinases Type I (CPB) and Type II (CPA), partially protects against leishmaniasis.**(Vaccine,2004;22(15-16):1930-40)
55. Zadeh-Vakili A., Taheri T., Taslimi Y., Doustdari F., Salmanian A.H., Rafati S. **Bivalent DNA vaccination with genes encoding *Leishmania major* cysteine proteinases type I and type II protects mice against infectious challenge.** (Iranian Journal of Biotechnology, 2004;2(1):10-15)
56. Nakhaee A., Taheri T., Taghikhani M., Mohebbali M., Salmanian A.H., Fasel N., Rafati S. **Humoral and cellular immune responses against Type I cysteine proteinase of *Leishmania infantum* are higher in asymptomatic than symptomatic dogs selected from a naturally infected population.**(Vet Parasitol,2004;119(2-3):107-23)
57. Abtahi H., Salmanian AH., Rafati S., BehzadianNejad G. Hassan ZM. **High level expression of recombinant ribosomal protein (L7/L12) from *Brucella abortus* and its reaction with infected human sera.** (Iranian Biochemical Journal 2004;8(1): 13-18)
58. Golkar M., Rafati S., Taslimi Y., Taheri T. Doustdary F. and Assmar M. **High-level expression and evaluation the M. High-level expression and evaluation the antigenicity of a recombinant *Toxoplasma gondii* GRA2 protein.** (Iranian Journal of Biotechnology, 2004;2(3))

59. Rafati S., Fasel N. Masina S. ***Leishmania* cysteine proteinases: from gene to putative subunit vaccine.**(Review, Current Genomic. 2003; 4:109-121)
60. Mahmoodi M., Khamesipour A., Dowlati Y., Rafati S., Momeni AZ., Emamjomeh M., Hejazi H. and Modabber F. **Immune response measured in human volunteers vaccinated with autoclaved *Leishmania major* vaccine mixed with low dose of BCG.** (ClinExpImmunol. 2003;134(2):303-8)
61. Rafati S., Nakhaee A., Taheri T., Ghashghaii A., Salmanian AH., Jimenez M., Mohebbali M., Masina S. and Fasel N. **Expression of cysteine proteinase type I and II of *Leishmania infantum* and their recognition by sera during canine and human visceral leishmaniasis.**(ExpParasitol.2003;103(3-4):143-51)
62. Pascalis H., Lavergne A., Bourreau E., Prévot-Linguet G., Kariminia A., Pradinaud R., Rafati S. and Launois P. **Th1 cell development induced by cysteine proteinases A and B in localized cutaneous leishmaniasis due to *Leishmania guyanensis*.** (Infect Immun. 2003;71(5):2924-6)
63. Farzaneh P., Ebtekar M., Hassan ZM. and Rafati S. **Murine cytokine patterns following rubella vaccination.** (Iran J Allergy Asthma Immunol. 2003;2(2):89-93)
64. Rafati S., Kariminia A., Seyde-Eslami S., Narimani M., Taheri T. Lebbatard M. **Recombinant cysteine proteinases-based vaccines against *Leishmania major* in BALB/c mice: the partial protection relies on interferon gamma producing CD8(+) T lymphocyte activation.** (Vaccine. 2002;20(19-20):2439-47)
65. Rafati S., Salmanian A.H., Taheri T., Vafa M. and Fasel N. **A protective cocktail vaccine against murine cutaneous leishmaniasis with DNA encoding cysteine proteinases of *Leishmania major*.**(Vaccine. 2001;19(25-26):3369-75)
66. Rafati S., Salmanian A.H., Hashemi K., Schaff C., Belli S. Fasel N. **Identification of *Leishmania major* cysteine proteinases as targets of the immune response in humans.** (MolBiochemParasitol, (2001;113(1):35-43)
67. Rafati S., Abraham Baba A., Bakhshayesh M. and Vafa M. **Vaccination of BALB/c mice with *Leishmania major* mastigote-specific cysteine proteinase.**(ClinExpImmunol. 2000;120(1):134-8)
68. Solioz N., Blum-Tirouvanziam U., Jacquet R., Rafati S., Corradin G., Mauël J. Fasel N. **The protective capacities of histone H1 against experimental murine cutaneous leishmaniasis.** (Vaccine. 1999;18(9-10):850-9)

- 69.** Rafati S., Couty-Jouve S., Alimohammadian M.H. Louis JA. **Biochemical analysis and immunogenicity of *Leishmania major* amastigote fractions in cutaneous leishmaniasis.** (ClinExpImmunol. 1997;110(2):203-11)

- 70.** Rafati S., Couty-Jouv S., Dowlati Y. and Alimohammadian M.H. **Evaluation of cellular immune responses of recovered human cutaneous leishmaniasis to amastigote soluble *L. major* antigen.** (Medical Journal of the Islamic Republic of Iran. 1997;11(1):33-38)

Leishmaniasis is a disease caused by an intracellular protozoa parasite transmitted by the bite of a female sandfly (Phlebotomus species) (see the following images). The clinical spectrum of leishmaniasis ranges from a self-resolving, localized cutaneous ulcer to widely disseminated progressive lesions of the skin, to a mutilating mucocutaneous... Leishmaniasis is a disease caused by an intracellular protozoan parasite (genus Leishmania) transmitted by the bite of a female phlebotomine sandfly. The clinical spectrum of leishmaniasis ranges from a self-resolving cutaneous ulcer to a mutilating mucocutaneous disease and even to a lethal systemic illness. Leishmania expressing selected immunodominant parasite antigens elicit protective immunity against visceral leishmaniasis in mice. (PLOS Neglected Tropical Diseases. M Salehi, T Taheri, E Mohit, F Zahedifard, N Seyed, Y Taslimi, M Sattari, ACKNOWLEDGEMENTS ACKNOWLEDGEMENTS. R Akhurst, G Aksu, L Antonicelli, J Auletta, K Bendtzen, B Bilo, The system can't perform the operation now. Try again later. Articles 17. Inflammatory response - local, eliminates antigen without extensively damaging the host's tissue. Hypersensitivity - immune & inflammatory responses that are harmful to the host (von Pirquet, 1906). - Type I. Produce effector molecules. Capable of ingesting foreign Particles. Association with parasite infection. Modified from Abbas, Lichtman & Pillai, Table 19-1. Type I hypersensitivity response. Abstract: Leishmaniasis is a neglected tropical disease caused by members of the Leishmania genus of parasitic protozoa that cause different clinical manifestations of the disease. Current treatment options for the cutaneous disease are limited due to severe side effects, poor efficacy, limited availability or accessibility, and developing resistance. Essential oils may provide low cost and readily available treatment options for leishmaniasis. In-vitro screening of a collection of 52 commercially available essential oils has been carried out against promastigotes of Leishmania amazonensis. In a