



Dr. Akram Abouie Mehrizi B.Sc., M.Sc., Ph.D.

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Background:

Akram Abouie Mehrizi is an assistant professor in MVRG at Pasteur Institute of Iran. She received a B.Sc. degree in Biology from Shahid Beheshti University in 1999 and a M.Sc. degree in Microbiology from Tehran University in 2004. She awarded her Ph.D in Molecular Genetics from the National Institute for Genetic Engineering and Biotechnology in 2010. Then she was Post-Doc in MVRG for 1 year under supervision Prof. Zakeri, followed by starting her career as faculty member of MVRG since 2011-onward.

Current main Activities:

Dr. Abouie Mehrizi has started her academic activity on malaria vaccine development as her main field of interest. To achieve this, she focused on molecular analysis of vaccine candidate genes, immuno-informatic and bio-informatic analysis of antigens, cloning and expression of recombinant antigens and immunological and biological evaluation of the target antigens. Her strategies in vaccine development are to improve the vaccines by using different expression systems (Bacteria and microalgae), nanoparticles and adjuvants. The sero-epidemiology of malaria as her second field of activity is relying on the natural acquired antibody responses to target antigens in the patient's sera of malaria endemic areas. She is also active in the field of drug discovery, testing anti-plasmodial activity of both natural products and synthetic derivatives.

Current Main Activity (Malaria Vaccine Development):

- Evaluation of the Immunogenicity of *Plasmodium falciparum* Generative Cell Specific 1 antigen as TBV candidate in combination with poly(I:C) adjuvant in BALB/c mice
- Evaluation of Advax to increase cellular and humoral immune responses to PfMSP-1₄₂ in Balb/c mice.

Field Activities:

In synergy with laboratory-based methods, fieldwork is an essential aspect of her work and often undertaken in malaria endemic areas of Iran.



Teaching Experiences:

- Lecturer, Cellular and Molecular Biology
- Lecturer, Bio-informatics
- Lecturer, Structure and Function of Macromolecules
- Lecturer, Genetics
- Lecturer, Malaria vaccine

Supervision of M. Sc. and PhD Thesis

- Supervisor of 10 M.Sc. thesis
- Advisor of more than 15 M.Sc. and PhD thesis

Administrative Experiences:

- Member, Biotechnology Research Center Council, Pasteur Institute of Iran (2011-onwards)

Teaching and Training:

- Immuno-informatic workshop at Pasteur Institute of Iran
- Malaria Workshop at Pasteur Institute of Iran

- Bio-informatic analysis for optimized expression of genes in expression host
- Immuno-informatic analysis in vaccine development
- DnaSP program
- "Genetic engineered and protein expression in prokaryotic expression system" workshop at Pasteur Institute of Iran



Recent Publications (Since 2015):

- Mehrizi AA**, Ameri Torzani M, Zakeri S, Jafary Zadeh A, Babaeekhou L (2018). Th1 immune response to *Plasmodium falciparum* recombinant thrombospondin-related adhesive protein (TRAP) is enhanced by TLR3-specific adjuvant, poly(I:C) in BALB/c mice. *Parasite Immunology*. In press.
- Nazeri S, Zakeri S, **Mehrizi AA**, Djadid ND, Snounou G, Andolina C, Nosten F (in press). Vaccine adjuvants CpG (oligodeoxynucleotides ODNs), MPL (3-O-decylated monophosphoryl lipid A) and naloxone enhanced Th1 immune response to the *Plasmodium vivax* recombinant thrombospondin-related adhesive protein (TRAP) in mice. *Med Microbiol Immunol*. In press, 2018
- Pirahmadi S, Zakeri S, **Mehrizi AA**, Djadid ND (2018). Analysis of genetic diversity and population structure of gene encoding cell-traversal protein for ookinetes and sporozoites (CelTOS) vaccine candidate antigen in global *Plasmodium falciparum* populations. *Infect Genet Evol*. 59:113-125. doi: 10.1016/j.meegid.
- Mehrizi AA**, Rezvani N, Zakeri S, Gholami A, Babaeekhou L. (2018). Poly(I:C) adjuvant strongly enhances parasite-inhibitory antibodies and Th1 response against *Plasmodium falciparum* merozoite surface protein-1 (42-kDa fragment) in BALB/c mice. *Med Microbiol Immunol*. 207(2):151-166. doi: 10.1007/s00430-018-0535-4.
- Nazeri S, Zakeri S, **Mehrizi AA**, Djadid ND (2017). Naturally acquired immune responses to thrombospondin-related adhesion protein (TRAP) of *Plasmodium vivax* in patients from areas of unstable malaria transmission. *Acta Trop*. 173:45-54. doi: 10.1016/j.actatropica.
- Afrouzan H, Zakeri S, **Abouie Mehrizi A**, Molasalehi S, Tahghighi A, Shokrgozar MA, Es-Haghi A, Dinparast Djadid N. (2017). Anti-Plasmodial Assessment of Four Different Iranian Propolis Extracts. *Arch Iran Med*. 20(5):270-281. doi: 0172005/AIM.004.
- Shabani SH, Zakeri S, Salmanian AH, Amani J, **Mehrizi AA**, Snounou G, Nosten F, Andolina C, Mourtaazavi Y, Djadid ND (2017). Biological, immunological and functional properties of two novel multi-variant chimeric recombinant proteins of CSP antigens for vaccine development against *Plasmodium vivax* infection. *Mol Immunol*. 90:158-171. doi: 10.1016/j.molimm.
- Mehrizi AA**, Torabi F, Zakeri S, Djadid ND. (2017). Limited genetic diversity in the global *Plasmodium vivax* Cell traversal protein of Ookinetes and Sporozoites (CelTOS) sequences; implications for

PvCelTOS-based vaccine development. *Infect Genet Evol.* 53:239-247. doi: 10.1016/j.meegid.2017.06.005.

Afrouzan H, **Zakeri S**, Abouie Mehrizi A, Molasalehi S, Tahghighi A, Shokrgozar MA, Es-Haghi A, Dinparast Djadid N. (2017). [Anti-Plasmodial Assessment of Four Different Iranian Propolis Extracts](#). *Arch Iran Med.* 20(5):270-281. doi: 0172005/AIM.004.

Zakeri S, van den Hoogen LL, **Mehrizi AA**, Karimi F, Raeisi A, Drakeley C. (2016). Anti-malarial seroprevalence assessment during an elimination programme in Chabahar District, south-eastern Iran. *Malar J.* 2016 Jul 22;15(1):382.

Mehrizi AA, Dodangeh F, Zakeri S, Djadid ND. (2016). Worldwide population genetic analysis and natural selection in the *Plasmodium vivax* Generative Cell Specific 1 (PvGCS1) as a transmission-blocking vaccine candidate. *Infect Genet Evol.* 43: 50-7.

Shabani SH, Zakeri S, **Mehrizi AA**, Mortazavi Y, Djadid ND. (2016). [Population genetics structure of Plasmodium vivax circumsporozoite protein during the elimination process in low and unstable malaria transmission areas, southeast of Iran](#). *Acta Trop.* 160:23-34. doi: 10.1016/j.actatropica.2016.04.006.

Salavatifar M, Zakeri S, **Abouie Mehrizi A**, Mirkhazemi S, Dinparast Djadid N. (2015). Evaluation of Naturally Acquired Antibody Responses to Two Variant Forms of *Plasmodium vivax* Apical Membrane Antigen-1 in Individuals Living in Areas of Low and Unstable Malaria Transmission of Iran. *Arch Iran Med.* 18(12):834-43.

Nazeri S, **Mehrizi AA**, Djadid ND, Zakeri S. (2015). A comparative study on worldwide genetic diversity and population structure analysis of *Plasmodium vivax* thrombospondin-related adhesive protein (PvTRAP) and its implications for the vivax vaccine design. *Infect Genet Evol.* 36:410-23.

Valizadeh V, Zakeri S, **Mehrizi AA**, Mirkazemi S, Djadid ND. (2016). Natural acquired inhibitory antibodies to *Plasmodium vivax* Duffy binding protein (PvDBP-II) equally block erythrocyte binding of homologous and heterologous expressed PvDBP-II on the surface of COS-7 cells. *Med Microbiol Immunol.*

Someabozorg MA, Mirkazemi S, **Mehrizi AA**, Shokri F, Djadid ND, Zakeri S. (2015). Administration of naloxone in combination with recombinant *Plasmodium vivax* AMA-1 in BALB/c mice induces mixed Th1/Th2 immune responses. *Parasite Immunol.*

Talha AA, Pirahmadi S, **Mehrizi AA**, Djadid ND, Nour BY, Zakeri S. (2015). Molecular genetic analysis of *Plasmodium vivax* isolates from Eastern and Central Sudan using pvcsp and pvmsp-3 α genes as molecular markers. *Infect Genet Evol.* 32:12-22.

Rouhani M, Zakeri S, **Mehrizi AA**, Djadid ND. (2015). Comparative analysis of the profiles of IgG subclass-specific responses to *Plasmodium falciparum* apical membrane antigen-1 and merozoite surface protein-1 in naturally exposed individuals living in malaria hypoendemic settings, Iran. *Malar J.* 14(1):58