



مرتضی شاه میرزائی

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مسئولیت در مرکز تحقیقات علوم دارویی:

پژوهشگر دوره پسا دکتری مرکز تحقیقات علوم دارویی دانشگاه علوم پزشکی شهید بهشتی

تحصیلات:

دانشگاهی:

پساد دکتری - بیوتکنولوژی دارویی - مرکز تحقیقات علوم دارویی دانشگاه علوم پزشکی شهید بهشتی

عنوان پروژه: طراحی و سنتز آنتی بادی های TNF- α برای کیت اندازه گیری TNF- α به روش الیزا

دکتری تخصصی (Ph.D) - ویروس شناسی گیاهی - دانشگاه آزاد اسلامی واحد علوم و تحقیقات - تهران - ایران - سال اخذ مدرک: ۱۳۹۷

عنوان پایان نامه: مطالعه تنوع ژنتیکی و بررسی امکان توسعه سیستم های تشخیصی از طریق پروتئین نو ترکیب بر علیه مهمترین ویروس های مولد بیماری موزائیک انجیر

دبیرستان:

دبیرستان نمونه دولتی توحید - شیراز - ایران - سال اخذ مدرک ۱۳۸۲

سوابق حرفه ای:

همکاری تحقیقاتی با گروهی از محققین ایتالیایی از جمله Profs .G.P.Martelli, A.Minafra, T.Elbeaino (گروه گیاه پزشکی و میکروبیولوژی عملی، دانشگاه باری، ایتالیا - موسسه ویروس شناسی گیاهی وابسته به مرکز ملی تحقیقات (CNR) واحد باری ایتالیا - مرکز تحقیقات زراعی کشورهای حوزه مدیترانه واحد باری ایتالیا)

همکاری تحقیقاتی و پژوهشگر در قالب طرح امریه سرباز در بخش بیوتکنولوژی میکروبی و ایمنی زیستی پژوهشگاه بیوتکنولوژی کشاورزی ایران - کرج به مدت ۲ سال (۱۳۹۰-۱۳۹۲)

دستیار سردبیر (در زمینه بیوتکنولوژی دارویی) در مجله علمی (IPA) International Pharmacy Acta

پژوهشگر و مجری طرح تحقیقاتی (طراحی و سنتز آنتی بادی های TNF- α برای کیت اندازه گیری TNF- α به روش الیزا) - دانشگاه علوم پزشکی شهید بهشتی

مشاور روش شناسی در طرح تحقیقاتی (بررسی اثر نانو پارتیکل ها در بیان ژن های دخیل در بیماری تنفسی COPD) - دانشگاه علوم پزشکی شهید بهشتی

استاد مشاور در پایان نامه و طرح تحقیقاتی (بررسی تاثیر نانو پارتیکل ها در تغییر بیان ژن های کارکنان بخش های نانو) - دانشگاه علوم پزشکی شهید بهشتی

تدریس دروس عملی سم شناسی مولکولی (PCR, Real-time PCR, Electrophoresis) و اصول بیوانفورماتیک و آشنایی با پایگاه های داده های زیستی به دانشجویان دوره Ph.D سم شناسی - دانشگاه علوم پزشکی شهید بهشتی

مدرس دوره کارگاه DNA Extraction, PCR and Primer design، مرکز تحقیقات میکروبیولوژی مولکولی، دانشگاه شاهد، سال ۱۳۹۵، تهران، ایران

زمینه های تحقیقاتی:

- Recombinant protein production.
- Developing of Polyclonal antibodies.
- Developing of Monoclonal antibodies through Phage display technology.
- Homology Modeling and Molecular Docking.
- Detection and Identification of viral agents.
- Study on Phylogenetic Analysis and genetic variations of viruses.
- Gene isolation and cloning.
- Gene Expression.

- Total RNA and ds-RNA extraction.
- Primer design.
- Real-time PCR
- RT-PCR assay.
- Gene isolation and cloning
- Working with Phylogenetic Analysis Software including Clustal X/W, GENEDOC, MEGA, dnasp
- ISEM (Immunosorbent Electron Microscopy)
- Gene manipulation and cloning in bacterial expression vectors
- Purification of DNA and RNA from bacterial cells
- Expression and purification of recombinant proteins in *E. coli*
- Proficient in common laboratory techniques such as tissue culture, PCR, SDS-PAGE, Gel electrophoresis, Western blotting, Dot blot, ELISA, etc
- Construction and characterization of Phage display libraries
- Generation of specific recombinant antibody fragments (scFv) against any given antigen through powerful Phage display technology
- Large scale expression and purification of recombinant antibody fragments in *E. coli*
- Immunization of Mice and Rabbits. Antiserum titration. Generation and purification of polyclonal antibodies. Preparation of immuno-conjugates and labeling antibodies
- Biosensors

دوره های گذرانده شده:

- Advanced Proposal and Research Methodology, Research Center of Environment and Sustainable Development, Tehran, IRAN, 2014.
- Real-Time PCR, Iranian Phytopathological Society, Tehran, Iran, 2021.
- Mapping genetic variations to three-dimensional protein structures, Iranian Phytopathological Society, Tehran, Iran, 2021.
- RNA Extraction Workshop, Iranian Phytopathological Society, Tehran, Iran, 2021.
- Micro RNA workshop, Iranian Phytopathological Society, Tehran, Iran, 2021.
- RNA Seq & Data analysis, Scientific Association of Biotechnology, University of Shiraz, Fars, Ira, 2021.
- Geneious Prime Software, Scientific Association of Biotechnology, University of Shiraz, Fars, Ira, 2021.
- Advance Primer Design, Scientific Association of Biotechnology, University of Shiraz, Fars, Ira, 2021.

- Pharmaceutical Quality System (PQS). Iranian Society of manufactures & Exports of Medical Biotech Products, Tehran, Iran, 2021.
- Preventing of Cross Contamination: Dedicated Manufacturing of Cleaning Validation. Iranian Society of manufactures & Exports of Medical Biotech Products, Tehran, Iran, 2020.
- Principals of Quality Control of Biological Products. Iranian Society of manufactures & Exports of Medical Biotech Products, Tehran, Iran, 2020.
- Process Validation in Biopharmaceutical Products. Iranian Society of manufactures & Exports of Medical Biotech Products, Tehran, Iran, 2020.
- Protein Impurities (HCP). Iranian Society of manufactures & Exports of Medical Biotech Products, Tehran, Iran, 2021.
- Scale up Issues, Considering the Effect of Upstream Changes on Downstream Output. Iranian Society of manufactures & Exports of Medical Biotech Products, Tehran, Iran, 2020.
- Scale up Issues, How to Overcome Challenges. Iranian Society of manufactures & Exports of Medical Biotech Products, Tehran, Iran, 2020.
- Steam Sterilization Cycle Development and Validation. Iranian Society of manufactures & Exports of Medical Biotech Products, Tehran, Iran, 2021.
- Analytical Method Validation. Iranian Society of manufactures & Exports of Medical Biotech Products, Tehran, Iran, 2020.
- Biosimilar Comparability Exercise (characterization). Iranian Society of manufactures & Exports of Medical Biotech Products, Tehran, Iran, 2021.
- Cell Culture Process from the Perspective of Engineering and Industrial Production. Iranian Society of manufactures & Exports of Medical Biotech Products, Tehran, Iran, 2020.
- Cell line Development. Iranian Society of manufactures & Exports of Medical Biotech Products, Tehran, Iran, 2020.
- Change Management. Iranian Society of manufactures & Exports of Medical Biotech Products, Tehran, Iran, 2021.
- Computer System Validation (CSV). Iranian Society of manufactures & Exports of Medical Biotech Products, Tehran, Iran, 2021.

- Data Integrity. Iranian Society of manufactures & Exports of Medical Biotech Products, Tehran, Iran, 2021.
- GMP inspection for biologicals/biosimilars. Iranian Society of manufactures & Exports of Medical Biotech Products, Tehran, Iran, 2021.
- Purification of recombinant proteins, plasma-derived proteins with a risk management approach. Iranian Society of manufactures & Exports of Medical Biotech Products, Tehran, Iran, 2020.

انتشارات :

- **Shahmirzaie M**, Safarnejad MR, Rakhshandehroo F, Safarpour H, Shirazi FH, Zamanizadeh HR, Elbeaino T. Generation and molecular docking analysis of specific single-chain variable fragments selected by phage display against the recombinant nucleocapsid protein of fig mosaic virus. *Journal of Virological Methods*. 2020 Feb 1;276:113796.
- **Shahmirzaie M**, Safarnejad MR, Rakhshandehroo F, Safarpour H, Rabbani H, Zamanizadeh HR, Elbeaino T. Production of a polyclonal antiserum against recombinant nucleocapsid protein and its application for the detection of fig mosaic virus. *Journal of Virological Methods*. 2019 Mar 1;265:22-5.
- **Shahmirzaei M**, Rakhshandehroo F, Safarnejad MR, Zamanizadeh HR, ELBEAINO T. Detection and phylogenetic analysis of Iranian Fig mosaic emaravirus isolates on the basis of the gene encoding Nucleocapsid protein (NP). *Applied Entomology and Phytopathology*. 2018 Aug 23;86(1):61-74.
- Soleimani Mashhadi I, Safarnejad MR, **Shahmirzaie M**, Aliahmadi A, Ghassempour A. Conjugation of single-chain variable fragment antibody to magnetic nanoparticles and screening of fig mosaic virus by MALDI TOF mass spectrometry. *Analytical Chemistry*. 2020 Jun 2;92(15):10460-9.
- Derakhshani A, Silvestris N, Hemmat N, Asadzadeh Z, Abdoli Shadbad M, Nourbakhsh NS, Mobasheri L, Vahedi P, **Shahmirzaie M**, Brunetti O, Safarpour H. Targeting TGF- β -Mediated SMAD Signaling pathway via novel recombinant cytotoxin II: A potent protein from naja naja oxiana venom in Melanoma. *Molecules*. 2020 Nov 5;25(21):5148.

- Haji-Hashemi H, Safarnejad MR, Norouzi P, Ebrahimi M, **Shahmirzaie M**, Ganjali MR. Simple and effective label free electrochemical immunosensor for Fig mosaic virus detection. Analytical biochemistry. 2019 Feb 1;566:102-6. (38 citations).
- Safarpour H, **Shahmirzaie M**, Rezaee E, Barati M, Safarnejad MR, Shirazi FH. Isolation and Characterization of Novel Phage Displayed scFv Fragment for Human Tumor Necrosis Factor Alpha and Molecular Docking Analysis of Their Interactions. Iranian Journal of Pharmaceutical Research: IJPR. 2018;17(2):743.
- **Shahmirzaie M**, Rakhshandehroo F, Zamanizadeh HR, Elbeaino T. Current status of fig mosaic disease in Iran. Journal of Phytopathology. 2012 Aug;160(7-8):324-30.
- **Shahmirzaie M**, Rakhshandehroo F, Zamanizadeh HR, Elbeaino T, Martelli GP. First report of Fig mosaic virus from fig trees in Iran. Journal of Plant Pathology. 2010 Dec 1;92(4):S120-.
- Ilnaz Soleimani Mashhadi; Mohammad Reza Safarnejad; **Morteza Shahmirzaie**; Atousa Aliahmadi; Alireza Ghassempour, Hassan Y. ABOUL-ENEIN .Determination of the Epitopic Peptides of Fig Mosaic Virus and the Single-Chain Variable Fragment Antibody by Mass Spectrometry. Journal of Chromatography B.2023(under review)
- **Shahmirzaie, Morteza**; Safarnejad, Mohammad Reza ; Safarpour, Hossein; Ghamsari, Mahdiah Abiar; Shirazi, Farshad .Generation and characterization of a specific tumor necrosis factor-alpha (TNF- α) single chain variable fragment (scFv) antibody fused to alkaline phosphatase (AP) for one-step immunodetection applications..2023(under review)
- Safarpour H, **Shahmirzaie M**, Shirazi FH. Generation of a specific polyclonal antibody against the recombinant soluble form of human TNF- α protein for immunodiagnostic applications..2023(under review)

• شاه میرزائی، مرتضی، رخشنده رو، فرشاد، صفر نژاد، محمدرضا، زمانی زاده، حمیدرضا، البیانو، توفیک. مدل سازی برهمکنش نوکلئو کپسید پروتئین نو ترکیب عامل اصلی بیماری موزائیک انجیر، با آنتی بادی مونوکلونال به روش های *In silico*. دوفصلنامه فن آوری زیستی در کشاورزی (علمی-پژوهشی) 1399; (0): -. doi: 10.22084/ab.2018.17267.1387

- Hossein Safarpour, Farshad H Shirazi, **Morteza Shahmirzaie**, Mohammad Reza Safarnejad,. Isolation and characterization of novel phage displayed scFv antibody for human Tumor necrosis factor alpha and molecular docking analysis of their interactions. The 1st International Congress on Pharmacy Updates. 7-9 Feb, (2018) Shahid Beheshti university of Medical Sciences, Razi Conference Center. Tehran,Iran. (Oral presentation).
- **Morteza Shahmirzaie** a, Farshad H. Shirazi, b, Hossein Safarpour. High throughput Purification of a Novel Anti-TNF-a Single Chain Antibody Fragment and Evaluation of its Diagnostic Properties. The 3rd International Congress on Pharmacy Updates. February 5th to 8th, (2020).Shahid Beheshti university of Medical Sciences, Razi Conference Center. Tehran,Iran. (Honored Oral presentation).
- Niloofar Rajabi, Mohamadreza Safarnejad, Farshad Rakhshandehroo, Masoud Shamsbakhsh, Hodjattallah Rabbani, **Morteza Shahmirzaie**. Production of specific recombinant antibody fused to alkaline phosphatase for direct detection of fig mosaic virus. 4th International and 16th Iranian Genetics Congress. Iran/Italy. Sep 30- Oct 2, (2020).
- Niloofar Rajabi, Mohamadreza Safarnejad, Farshad Rakhshandehroo, Masoud Shamsbakhsh, Hodjattallah Rabbani, **Morteza Shahmirzaie**. Production and Characterization of Specific Fusion scFv-AP Protein against Fig mosaic Virus. The 12th National & 4th International Biotechnology Congress of Islamic Republic of Iran. Tehran, Iran. 22nd – 24th August, (2021).
- **Morteza Shahmirzaie**, Farshad Rakhshandehroo , Hamid Reza Zamanizadeh , Angelantonio Minafra, Giovanni P. Martelli . First report of Fig latent virus 1(FLV- 1) from Fig trees in some provinces of Iran. In proceeding of 19th Iranian Plant Protection Congress. 31 July- 3Aug, (2010) Iranian Research Institute of Plant Protection (IRIPP), Tehran, Iran. Pp762. (Oral presentation).
- Saeed Soheilivand ,Gholamreza Salehi Jouzani, Mohammad Hossein Hormozi, **Morteza Shahmirzaie** and Abbas Kiyani. Design and construction of gene expression and silencing gene transfer to plants. The 17th National and 5th International Iranian Biology Conference. 4-6 Sep, (2012) Shahid Bahonar University of Kerman. Kerman. Iran.
- Saeed Soheilivand, Mohammad Reza Safarnejad , Amir Mousavi, Mohsen Mardi, Naser Farrokhi, Seyed Mehdi Alavi, Masoud Tohidfar and **Morteza Shahmirzaie**. Study on clusters of nucleic acid and aminoacid sequences which are similar to IMP of WBDL. The 17th National and 5th International Iranian Biology Conference. 4-6 Sep, (2012) Shahid Bahonar University of Kerman. Kerman. Iran. University of Kerman .Kerman. Iran.

- Saeed Soheilivand, Mohammad Reza Safarnegad , Amir Mousavi, Mohsen Mardi, Naser Farrokhi, Seyed Mehdi Alavi, Masoud Tohidfar and **Morteza Shahmirzaie**. Construction of inducible resistant construct to Candidatus "*Phytoplasma aurantifolia*" and its transformation in to Tobacco as model plant. The 8th Iranian Biotechnology congress and the 4th National Congress of Biosaftey. 6-8 July, (2013) University of Tehran. Tehran. Iran.
- Saeed Soheilivand, Amir Mousavi, Mohammad Reza Safarnegad, Masoud Tohidfar, Mohsen Mardi, Seyed Mehdi Alavi, Naser Farrokhi and **Morteza Shahmirzaie**. Study on the effects of GA3 and BAP hormones on micropropagation and proliferation of Lime (*Citrus aurantifolia*) shoots. The 8th Iranian Biotechnology congress and the 4th National Congress of Biosaftey. 6-8 July, (2013) University of Tehran. Tehran. Iran.