

# Behnaz Mokhtari

## Curriculum Vitae

### Personal Information

- **Place of birth:** Takab, Iran
- **Nationality:** Iranian
- **Academic Position:** Assistant Professor
- **Work Address:** Department of Physiology,  
Tabriz University of Medical Sciences,  
Tabriz, Iran
- **Phone:**
  - Mobile: +989143826286
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### Educations and Thesis

#### **Postdoctoral Research Fellowship (Funded by INSF)**

- Tabriz University of Medical Sciences, Tabriz, Iran
- Project Title: Evaluating the combinational effect of mitochondrial transplantation and coenzyme Q<sub>10</sub> on autophagy and apoptosis signaling pathways in aged rats with myocardial ischemia-reperfusion injury

#### **PhD in Medical Physiology**

- Iran University of Medical Sciences, Tehran, Iran
- Thesis Title: Evaluating the effect of human amniotic membrane mesenchymal stem cells-conditioned medium on autophagy signaling pathway and oxidative stress in cardiac ischemia-reperfusion injury in rats (Excellent Rank)

#### **MSc in Medical Physiology**

- Tabriz University of Medical Sciences, Tabriz, Iran
- Thesis Title: The effect of troxerutin on GSK-3 $\beta$  protein level and apoptosis induced by myocardial ischemia-reperfusion injury in diabetic rats (Excellent Rank)

#### **BSc in Midwifery**

- Urmia University of Medical Sciences, Urmia, Iran

### **دکتر بهناز مختاری**

دکتری تخصصی (PhD) فیزیولوژی پزشکی

پسادکتری فیزیولوژی پزشکی

استادیار گروه فیزیولوژی، دانشکده پزشکی

دانشگاه علوم پزشکی تبریز

## **Professional and Executive Experience**

1. Faculty Member and Assistant Professor, Department of Physiology, Faculty of Medicine, Tabriz University of Medical Sciences (2024 – Present)
2. Member of the Research Council, Molecular Medicine Research Center, Tabriz University of Medical Sciences (2024 – Present)
3. Faculty Advisor, Faculty of Medicine, Tabriz University of Medical Sciences (2024 – Present)

## **Scientific Memberships**

1. Member, Iranian Society of Physiology and Pharmacology (2021 – Present)
2. Member, Office of Exceptional Talents, Tabriz University of Medical Sciences (2011 – 2015)
3. Member, Research Council, Molecular Medicine Research Center, Tabriz University of Medical Sciences (2024 – Present)

## **Academic Honors**

1. Recognized as an Outstanding Young Assistant Professor by the Ministry of Health and awarded a research grant (2024)
2. Distinguished National PhD Researcher with a score of 222.45, recognized by the National Committee of Student Research, Deputy of Research and Technology, Ministry of Health and Medical Education (2022)
3. Ranked Among the Top Candidates in the National PhD Entrance Exam of the Ministry of Health and Medical Education (2016)
4. Recognized as an Exceptional Talent at all academic levels
5. Awarded Best Authored Book for "*Autophagy Function in Cardiac Ischemia*" in the first call and festival for book publication dedicated to outstanding talents, under the supervision of the National Elites Foundation (2022)
6. Recognized for Outstanding Authored Book "*Inflammatory Bowel Disease*" in the first call and festival for book publication for exceptional talents, supervised by the National Elites Foundation (2022)
7. Recognized for Outstanding Authored Book "*Research Models of Cardiac Ischemia*" in the first call and festival for book publication for exceptional talents, supervised by the National Elites Foundation (2022)
8. Recognized as the Most Active Member at the *International Congress on Targeting Mitochondria*, Berlin, Germany (2021)
9. Best Research Article Award from the American journal "*Drug Delivery and Translational Research*," published by Springer (2020)
10. Established an In Vivo Cardiac Ischemia Research Setup in the Physiology Department, Tabriz University of Medical Sciences (2020)

11. Established an In Vivo Cardiac Ischemia Research Setup in the Physiology Department, Iran University of Medical Sciences (2018)
12. Actively Participated in National and International Research Projects (2015 – Present)
13. Awarded an Official Commendation by the Head of Shohada Hospital in Takab during service in the Obstetrics and Gynecology Surgery Unit (National Medical Service Program) for immediate diagnosis and emergency intervention in saving the lives of a mother and fetus
14. Recognized as an Outstanding Student in Scientific Competitions by the Student Basij Organization
15. Awarded for Academic and Ethical Excellence at all educational levels
16. Ranked First in Academic and Ethical Performance in Pre-University Level with a GPA of 19.12 and a discipline score of 20/20
17. Ranked First in Academic and Ethical Performance in High School with a GPA of 19.45 and a discipline score of 20/20

### **Cultural Honors and Achievements**

1. Memorization of the Holy Quran (Hafiz al-Quran)
2. National Selection in the Field of Quranic Tarteel (Recitation)
3. National Award in the Interpretation of the Holy Quran at the 22nd National Quranic and Nahj al-Balagha Competitions
4. Provincial and District-Level Awards in Quranic Memorization
5. Expert in Monitoring and Evaluation for the 38th National Quran and Ahl al-Bayt Festival for University Students
6. First-Place Provincial Awards in the 2nd Quran and Ahl al-Bayt Competitions of the Student Basij Organization (For Three Consecutive Years)
7. Top Awards in School, District, and Provincial Competitions in Visual Arts, Quran Interpretation, Quran Memorization, Islamic Law, and Essay Writing (Over 20 Instances)
8. Regular Member of the Basij Organization for 18 Years and Active Member for 4 Years
9. Active Member of the Representation of the Supreme Leader at Tabriz University of Medical Sciences for 3 Years
10. Certified Quranic Instructor with an Excellent Rating
11. Completed Advanced and Specialized Tajweed Certification Levels 1-3 with Excellent Distinction

## **Teaching Experiences**

1. Medical Physiology (Theory and Applied Courses), Tabriz University of Medical Sciences and its International Branch
  - PhD Level: PhD students of Physiology
  - Doctoral Level: Students of Medicine, Dentistry, and Pharmacy
  - Master's Level: MSc students of Physiology
  - Bachelor's Level: Students from the Faculties of Nursing and Midwifery, Nutrition and Health, Rehabilitation, Paramedicine, and Laboratory Sciences
2. Medical Physiology (Applied Courses), Iran University of Medical Sciences
  - Doctoral Level: Students of Medicine
3. "Myocardial Infarction Modeling" and "Working with Laboratory Animals" (Applied Courses), Iran University of Medical Sciences
  - PhD Level: PhD students of Physiology
  - Doctoral Level: Students of Medicine
  - Master's Level: MSc students of Physiology
4. "Myocardial Infarction Modeling" and "Working with Laboratory Animals" (Applied Courses), Tabriz University of Medical Sciences
  - PhD Level: PhD students of Physiology
  - Master's Level: MSc students of Physiology

## **Research Experience and Skills**

1. Isolated Perfused Heart in Langendorff Setup
2. Myocardial Infarction Induction Models in Rats
3. In Vivo and Ex Vivo Modeling of Myocardial Ischemia-Reperfusion Injury in Rodents
4. Stem Cell and Mitochondrial Transplantation into Ischemic Myocardium
5. Mitochondrial Staining Techniques
6. Electrophoresis, Real-Time PCR, Western Blotting, and Immunoblotting
7. Enzyme-Linked Immunosorbent Assay (ELISA)
8. Histological Staining: Hematoxylin and Eosin, Masson's Trichrome
9. Research Methodology and Scientific Writing
10. Statistical Analysis

## **Innovative Activities**

1. Setup of Animal Ventilator System, Physiology Department, Tabriz University of Medical Sciences, 2020
2. Establishment of In Vivo Cardiac Ischemia Modeling Research Setup, Physiology Department, Tabriz University of Medical Sciences, 2020

3. Setup of Animal Ventilator System, Physiology Department, Iran University of Medical Sciences, 2018
4. Establishment of In Vivo Cardiac Ischemia Modeling Research Setup, Physiology Department, Iran University of Medical Sciences, 2018

## **Publications**

### **1. Books**

1. Writing the book "**Autophagy Function in Cardiac Ischemia**," National Elites Foundation, Tabriz University of Medical Sciences, and Jahad Daneshgahi Publications, 2022.
2. Writing the book "**Inflammatory Bowel Disease**," National Elites Foundation, Tabriz University of Medical Sciences, and Jahad Daneshgahi Publications, 2022.
3. Writing the book "**Research Models of Cardiac Ischemia**," National Elites Foundation, Tabriz University of Medical Sciences, and Jahad Daneshgahi Publications, 2022.

### **2. Articles in International Journals**

1. **Behnaz Mokhtari**, Mitra Delkhah, Reza Badalzadeh, Samad Ghaffari (2025) Mitochondrial transplantation combined with mitoquinone and melatonin: A survival strategy against myocardial reperfusion injury in aged rats. *Experimental Physiology*, 1-13. <https://doi.org/10.1113/EP092292>.
2. Soleyman Bafadam, **Behnaz Mokhtari**, Alireza Alihemmati, Reza Badalzadeh (2025) Effects of combo therapy with coenzyme Q<sub>10</sub> and mitochondrial transplantation on myocardial ischemia/reperfusion-induced arrhythmias in aged rats. *Iranian Journal of Basic Medical Sciences*, <https://doi.org/10.22038/ijbms.2024.80092.17348>.
3. **Behnaz Mokhtari**, Reza Badalzadeh, Saeideh Ghaffarifard (2024) The next generation of physician-researchers: undergraduate medical students' and residents' attitudes, challenges, and approaches towards addressing them. *BMC Medical Education*, <https://doi.org/10.1186/s12909-024-06166-8>.
4. Samira Nemati, Zohreh Zavvari-Oskuye, Soleyman Bafadam, **Behnaz Mokhtari**, Reza Badalzadeh, Abedin Vakili (2024) Impact of combined alpha-lipoic acid and mitoquinone supplementation on myocardial infarction in aged rats: heart

performance and molecular mechanisms. *Experimental Gerontology*. <https://doi.org/10.1016/j.exger.2024.112402>.

5. Zohreh Zavvari Oskuye, Keyvan Mehri, **Behnaz Mokhtari**, Soleyman Bafadam, Samira Nemati, Reza Badalzadeh (2024) Cardioprotective effect of antioxidant combination therapy: a highlight on mitoQ plus alpha-lipoic acid beneficial impact on myocardial ischemia-reperfusion injury in aged rats. *Heliyon*. <https://doi.org/10.1016/j.heliyon.2024.e28158>.
6. Soleyman Bafadam, **Behnaz Mokhtari**, Manoucheher Seyedi Vafae, Zohreh Zavvari Oskuyi, Samira Nemati, Reza Badalzadeh (2024) Mitochondrial transplantation combined with coenzyme Q<sub>10</sub> induces cardioprotection and mitochondrial improvement in aged male rats with reperfusion injury. *Experimental Physiology*. <https://doi.org/10.21203/rs.3.rs-2939538/v1>.
7. **Behnaz Mokhtari**, Amirhossein Jessri, Samad Ghaffari, Reza Badalzadeh (2024) Superior anti-arrhythmogenic effect of combined conditioning with nicotinamide mononucleotide and ubiquinol in myocardial ischemia/reperfusion injury in aged rats. *Advanced Pharmaceutical Bulletin*, <https://doi.org/10.34172/apb.2024.044>.
8. **Behnaz Mokhtari**, Leila Hosseini, Poul Flemming Højlund-Carlsen, Raheleh Salehinasab, Mojgan Rajabi, Reza Badalzadeh (2023) The additive effects of nicotinamide mononucleotide and melatonin on mitochondrial biogenesis and fission/fusion, autophagy, and microRNA-499 in the aged rat heart with reperfusion injury. *Naunyn-Schmiedeberg's Archives of Pharmacology*. 10.1007/s00210-023-02383-y.
9. Kazem Nejati-Koshki, **Behnaz Mokhtari**<sup>#</sup>, Reza Badalzadeh, AmirAhmad Arabzadeh, Alireza Mohammadzadeh (2023) Mitoprotective effect of mesenchymal stem cells-derived conditioned medium in myocardial reperfusion injury of aged rats: role of SIRT-1/PGC-1 $\alpha$ /NRF-2 network. *Molecular Biology Reports*. <https://doi.org/10.1007/s11033-023-08499-x>.
10. **Behnaz Mokhtari**, Arezou Abdi, Seyed Zanyar Athari, Hojjatollah Nozad-Charoudeh, Alireza Alihemmati, Reza Badalzadeh (2023) Effect of troxerutin on the expression of genes regulating mitochondrial biogenesis and microRNA-140 in doxorubicin-induced testicular toxicity. *Journal of Research in Medical Sciences*. 10.4103/jrms.jrms\_120\_22.
11. **Behnaz Mokhtari**, Reza Badalzadeh (2023) Mitochondria-targeted combination treatment strategy counteracts myocardial reperfusion injury of aged rats by modulating autophagy and inflammatory response. *Molecular Biology Reports*. 10.1007/s11033-023-08318-3.
12. **Behnaz Mokhtari**, Farid Masoud, Aniseh Javadi, Reza Badalzadeh (2023) The role of mitochondrial ATP-sensitive potassium channels in cardioprotective and anti-

inflammatory effects of troxerutin in myocardial reperfusion injury. *Iranian Journal of Pharmaceutical Sciences*. 18 (4): 355- 365.

13. **Behnaz Mokhtari**, Reza Badalzadeh (2023) The potentials of distinct functions of autophagy to be targeted for attenuation of myocardial ischemia/reperfusion injury in preclinical studies: an up-to-date review. *Journal of Physiology and Biochemistry*. 10.1007/s13105-021-00824-x.
14. Sanaz Gholami, **Behnaz Mokhtari**, Aniseh Javadi, Poul Flemming Høilund-Carlsen, Reza Badalzadeh, Alireza Alihemmati (2023) Ischemic-postconditioning improves myocardial injury and fibrosis following ischemia/reperfusion injury in diabetic rats pretreated with alpha-lipoic acid. *ImmunoAnalysis*. <https://doi.org/10.34172/ia.2023.10>.
15. **Behnaz Mokhtari**, Reza Badalzadeh, Masoud Hamidi, Ata Mahmoodpoor (2022) Mitochondrial transplantation protects against sepsis-induced myocardial dysfunction by modulating mitochondrial biogenesis and fission/fusion and inflammatory response. *Molecular Biology Reports*. <https://doi.org/10.1007/s11033-022-08115-4>.
16. Sanaz Gholami, **Behnaz Mokhtari\***, Reza Badalzadeh (2022) Alpha-lipoic acid potentiates the anti-arrhythmic effects of ischemic postconditioning in the setting of cardiac ischemia/reperfusion injury in diabetic rats. *Journal of Diabetes & Metabolic Disorders*. <https://doi.org/10.1007/s40200-022-01034-y>.
17. **Behnaz Mokhtari**, Poul Flemming Høilund-Carlsen, Leila Chodari, Masoud Yasami, Reza Badalzadeh, Samad Ghaffari (2022) Melatonin/nicotinamide mononucleotide/ubiquinol: a cocktail providing superior cardioprotection against ischemia/reperfusion injury in a common co-morbidities modelled rat. *Molecular Biology Reports*. <https://doi.org/10.1007/s11033-022-08189-0>.
18. **Behnaz Mokhtari**, Rana Yavari, Ata Mahmoodpoor, Reza Badalzadeh (2022) An overview on mitochondrial-based therapies in sepsis-related myocardial dysfunction: mitochondrial transplantation as a promising approach. *Canadian Journal of Infectious Diseases and Medical Microbiology*. <https://doi.org/10.1155/2022/3277274>.
19. **Behnaz Mokhtari**, Reza Badalzadeh (2022) Protective and deleterious effects of autophagy in the setting of myocardial ischemia/reperfusion injury: an overview. *Molecular Biology Reports*. <https://doi.org/10.1007/s11033-022-07837-9>.
20. Ahmad Jamei Khosroshahi, **Behnaz Mokhtari\***, Reza Badalzadeh (2022) Combination of nicotinamide mononucleotide and troxerutin induces full protection against doxorubicin-induced cardiotoxicity by modulating mitochondrial biogenesis and inflammatory response. *Molecular Biology Reports*. <https://doi.org/10.1007/s11033-022-07390-5>.

21. **Behnaz Mokhtari**, Reza Badalzadeh, Nahid Aboutaleb (2021) Modulation of autophagy as the target of mesenchymal stem cells-derived conditioned medium in rat model of myocardial ischemia/reperfusion injury. *Molecular Biology Reports*. <https://doi.org/10.1007/s11033-021-06359-0>.
22. **Behnaz Mokhtari**, Mahdi Abdoli-Shadbad, Alireza Alihemmati, Aniseh Javadi, Reza Badalzadeh (2021) Alpha-lipoic acid preconditioning plus ischemic postconditioning provides additional protection against myocardial reperfusion injury of diabetic rats: modulation of autophagy and mitochondrial function. *Molecular Biology Reports*. <https://doi.org/10.1007/s11033-021-06987-6>.
23. Maryam Naseroleslami, Nahid Aboutaleb, **Behnaz Mokhtari** (2020) Amniotic membrane mesenchymal stem cells labeled by iron oxide nanoparticles exert cardioprotective effects against isoproterenol (ISO)-induced myocardial damage by targeting inflammatory MAPK/NF- $\kappa$ B pathway. *Drug Delivery and Translational Research*. <https://doi.org/10.1007/s13346-020-00788-3>.
24. Maryam Naseroleslami, Masuomeh Sharifi, Kamran Rakhshan, **Behnaz Mokhtari**, Nahid Aboutaleb (2020) Nesfatin-1 attenuates injury in a rat model of myocardial infarction by targeting autophagy, inflammation, and apoptosis. *Archives of Physiology and Biochemistry*. <https://doi.org/10.1080/13813455.2020.1802486>.
25. **Behnaz Mokhtari**, Yaser Azizi, Aliakbar Rostami Abookheili, Nahid Aboutaleb, Donya Nazarinia, Nasim Naderi (2020) Human amniotic membrane mesenchymal stem cells-conditioned medium attenuates myocardial ischemia-reperfusion injury in rats by targeting oxidative stress. *Iranian Journal of Basic Medical Sciences*. 10.22038/ijbms.2020.47572.10952.
26. **Behnaz Mokhtari**, Nahid Aboutaleb, Donya Nazarinia, Mahin Nikougoftar , Seyed Mohammad Taghi Razavi Tousi, Mohammad Molazem, Mohammad-Reza Azadi (2020) Comparison of the effects of intramyocardial and intravenous injections of human mesenchymal stem cells on cardiac regeneration after heart failure. *Iranian Journal of Basic Medical Sciences*. 10.22038/ijbms.2020.40886.9660.
27. Donya Nazarinia, Nahid Aboutaleb, Raheleh Gholamzadeh, Solmaz Nasserri Maleki, **Behnaz Mokhtari**, Mahin Nikougoftar (2019) Conditioned medium obtained from human amniotic mesenchymal stem cells attenuates focal cerebral ischemia/reperfusion injury in rats by targeting mTOR pathway. *Journal of Chemical Neuroanatomy*. <https://doi.org/10.1016/j.jchemneu.2019.101707>.
28. **Behnaz Mokhtari**, Fariba Karimzadeh (2018) A review on the autism with the most approaches on the critical biomarkers. *Razi Journal of Medical Sciences*. Vol. 24, No. 165.
29. **Behnaz Mokhtari**, Reza Badalzadeh, Alireza Alihemmati, Mustafa Mohammadi (2015) Phosphorylation of GSK-3 $\beta$  and reduction of apoptosis as targets of troxerutin



effect on reperfusion injury of diabetic myocardium. *European Journal of Pharmacology*. <http://dx.doi.org/10.1016/j.ejphar.2015.08.056>.

30. Reza Badalzadeh, **Behnaz Mokhtari\***, Raana Yavari (2015) Contribution of apoptosis in myocardial reperfusion injury and loss of cardioprotection in diabetes mellitus. *Journal of Physiological Sciences*. 10.1007/s12576-015-0365-8.

### **3. Articles Presented in Seminars and Congresses**

1. **Behnaz Mokhtari**, Reza Badalzadeh, Samad Ghaffari (2022) Mitochondrial transplantation in combination with mitochondrial boosters, MitoQ and melatonin, as a surviving strategy to counteract myocardial reperfusion injury of aged rats. *Healthy Aging Congress (5th International Alavi Meeting)*.
2. **Behnaz Mokhtari**, Reza Badalzadeh (2021) Effect of nicotinamide mononucleotide preconditioning and melatonin postconditioning on the expression of proteins regulating mitochondrial dynamics in myocardial ischemia/reperfusion injury of aged rats. *World Congress on Targeting Mitochondria, Berlin, Germany*.
3. **Behnaz Mokhtari**, Reza Badalzadeh (2021) Effect of troxerutin on hippocampal gene expression of microRNA-146a/microRNA-155-nuclear factor-kappa B inflammatory signaling in healthy and diabetic rats. *10th Basic and Clinical Neuroscience Congress*.
4. **Behnaz Mokhtari**, Nahid Aboutaleb (2020) Effect of human amniotic membrane mesenchymal stem cells-conditioned medium on myocardial ischemia-reperfusion injury in rats. *24th Iranian & 3rd International Congress of Physiology and Pharmacology*.
5. **Behnaz Mokhtari** (2004) Changes in the magnetic field around a current-carrying wire. *12th Iranian Physics Conference*.
6. ...

### **Workshops (Participant or Lecturer)**

1. Enhancing the Competencies of Assistant Professors Workshop, Tabriz University of Medical Sciences, 2024 – Present
2. Cell Culture Workshop, Ardabil University of Medical Sciences, 2022
3. ELISA Workshop, Ardabil University of Medical Sciences, 2022
4. Real-Time PCR Technique Workshop, Ardabil University of Medical Sciences, 2022
5. Western Blotting Workshop, Ardabil University of Medical Sciences, 2022
6. Brain Ischemia Modeling Workshop, Ardabil University of Medical Sciences, 2022
7. Cell Proliferation and Colony Formation Assay Workshop, Tarbiat Modares University, 2021

8. Theoretical and Practical Workshop on Cardiac Ischemia, Cardiovascular Laboratory, Department of Physiology, Tabriz University of Medical Sciences, 2020 (Lecturer & Manager)
9. Cell Culture Workshop, Tarbiat Modares University, 2020
10. Laboratory Animal Handling Workshop, Urmia University of Medical Sciences, 2020
11. Primer Design Workshop, Iran University of Medical Sciences, 2019
12. Research Ethics Workshop, Iran University of Medical Sciences, 2019
13. Theoretical and Practical Workshop on Cardiac Ischemia, Ischemia Laboratory, Department of Physiology, Iran University of Medical Sciences, 2018 (Lecturer & Manager)
14. Graduate Student Empowerment Workshop (Systematic Review and Meta-Analysis), Iran University of Medical Sciences, 2018
15. Graduate Student Empowerment Workshop (Scientific Writing), Iran University of Medical Sciences, 2018
16. Research Methodology Workshop, Iran University of Medical Sciences, 2018
17. Cardiac Ischemia Modeling Workshop, Iran University of Medical Sciences, 2018
18. Gastric Reflux Surgery Workshop, Iran University of Medical Sciences, 2018
19. Graduate Student Empowerment Workshop (Proposal Writing), Iran University of Medical Sciences, 2017
20. Introduction to Teaching and Educational Design, Iran University of Medical Sciences, 2017
21. Real-Time PCR Technique, Tabriz University of Medical Sciences, 2015

## **Research Projects and Thesis Supervision**

1. Research Projects: Supervised and contributed to over 30 research projects.
2. MD Thesis Supervision: Served as the primary supervisor for 5 MD theses.
3. MD Thesis Advising: Provided guidance as an advisor for 1 MD thesis.

## **Professional Reviewing**

1. Reviewing for International ISI Journals: more than 20 journals
2. Reviewing for National Journals: 2 journals
3. Reviewing for Research Projects: more than 10
4. Reviewing for Student Thesis: more than 10

## **Languages**

1. Turkish: Native language
2. Persian: National language
3. English: Excellent proficiency, academically certified
4. Arabic: Good proficiency

## **Computer Skills**

1. Office & Documentation: Proficient in Microsoft Office Suite (Word, PowerPoint, Excel) for document preparation, presentations, and data management.
2. Statistical & Graphing Software: Experienced in SPSS and GraphPad Prism for statistical analysis, data visualization, and scientific graphing.
3. Reference & Research Management: Skilled in using reference management tools such as EndNote, Mendeley, and Zotero for efficient literature organization and citation.
4. Laboratory & Experimental Systems: Expertise in PowerLab systems and Chart software for physiological data acquisition, analysis, and real-time monitoring.
5. Image & Data Processing: Proficient in Adobe Photoshop and image analysis software (e.g., ImageJ).

## **Research Interests**

1. Investigating the effects of mitoprotective strategies in cardiac ischemia-reperfusion injury, particularly in the presence of risk factors and comorbidities such as aging, diabetes, and hypertension.
2. Exploring the therapeutic potential of mitochondrial transplantation as an emerging strategy for cardioprotection in ischemic heart diseases.
3. Exploring the therapeutic potential of mesenchymal stem cells (MSCs) and their conditioned medium in cardiovascular disorders, with a focus on myocardial repair and regeneration.
4. Examining the role of ion channels in cellular and biological membranes under physiological and pathological conditions, especially in ischemia-reperfusion injury of the heart and brain.
5. Understanding the interaction between aging, diabetes, and cardiovascular diseases, with an emphasis on metabolic and mitochondrial dysfunction.
6. Investigating the role of mitochondria, autophagy, mitophagy, and other intracellular signaling cascades in myocardial infarction and cardiac protection.
7. Developing innovative experimental models and translational approaches to bridge the gap between preclinical research and clinical applications in cardioprotection.
8. Conducting comprehensive literature reviews and meta-analyses, generating novel research ideas, and exploring advanced methodologies for scientific knowledge enhancement and innovation.

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**References:** Available upon request.