



Opinion

A Famous Chinese Prescription That Promotes Hcn4 Activity in Bone Marrow Mesenchymal Stem Cells is Shenfu Injection: Opinion

Rong Li*

Department of Internal Medicine-Cardiovascular, The First Affiliated Hospital of Guangzhou University of Chinese Medicine, Guangzhou, China

Sick Sinus Syndrome (SSS) refers to a group of heart rhythm disorders caused by problems relating to the sinus node. Currently, there is no effective treatment for SSS, and an electronic pacemaker is required to support heart function in SSS patients. However, electronic pacemakers are associated with several defects. For example, external magnetic noise commonly interferes, leading to complications. In addition, some patients, especially children with congenital sinoatrial node dysfunction, are not suitable subjects for pacemaker insertion. Therefore, the search for new therapeutic strategies for treating cardiovascular diseases has become imperative. Shenfu injection (SFI), a Chinese herbal medicine, is effective in improving bradyarrhythmia. However, the underlying mechanism of SFI's therapeutic effect remains elusive.

In this study, We investigated the effects of Shenfu Injection (SFI) on HCN4 activity in Bone Marrow Mesenchymal Stem Cells (BMSCs). The sample of BMSCs was divided into six groups: a control group, a high-dose SFI group (0.25ml/ml), a middle-dose SFI group (0.1ml/ml), a low-dose SFI group (0.05ml/ml), an adenovirus-encoded control vector group, and an adenovirus-encoded HCN4 group. Cell ultra structure was observed using a transmission electron microscope. Quantitative Reverse Transcription PCR (RT-qPCR) was performed to detect HCN4 expression, and HCN4 activity was detected using the whole-cell patch clamp technique. An enzyme-linked immunosorbent assay was performed to detect cAMP content. Application of flow cytometry confirmed that the isolated cells showed BMSC-like phenotypes. Differentiation of BMSCs in both the SFI and the adenovirus-encoding HCN4 groups occurred according to the cellular ultra structure. Application of the whole-cell patch clamp technique revealed that SFI could activate the inward pacing current of BMSCs in a concentration-dependent manner. The RT-qPCR results showed that HCN4 expression was significantly higher in the high-dose SFI group than in the medium and low-dose groups, whereas the cAMP content in the over expressed HCN4 group decreased significantly; this content in the high-dose SFI group increased significantly. In conclusion, SFI promotes HCN4 activity in BMSCs, which could explain its treatment effect when administered to patients with cardiovascular diseases. At present, the research group is conducting an in-depth study on the SFI for sinus node syndrome.

*Corresponding author: Rong Li, Department of Internal Medicine-Cardiovascular, The First Affiliated Hospital of Guangzhou University of Chinese Medicine, Guangzhou, China, E-mail: lr1348@gzucm.edu.cn.

Citation: Li R (2021) A Famous Chinese Prescription That Promotes Hcn4 Activity in Bone Marrow Mesenchymal Stem Cells is Shenfu Injection: Opinion. J Altern Complement Integr Med 7: 196.

Received: October 07, 2021; **Accepted:** October 07, 2021; **Published:** October 14, 2021

Copyright: © 2021 Li R, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.



- Advances In Industrial Biotechnology | ISSN: 2639-5665
- Advances In Microbiology Research | ISSN: 2689-694X
- Archives Of Surgery And Surgical Education | ISSN: 2689-3126
- Archives Of Urology
- Archives Of Zoological Studies | ISSN: 2640-7779
- Current Trends Medical And Biological Engineering
- International Journal Of Case Reports And Therapeutic Studies | ISSN: 2689-310X
- Journal Of Addiction & Addictive Disorders | ISSN: 2578-7276
- Journal Of Agronomy & Agricultural Science | ISSN: 2689-8292
- Journal Of AIDS Clinical Research & STDs | ISSN: 2572-7370
- Journal Of Alcoholism Drug Abuse & Substance Dependence | ISSN: 2572-9594
- Journal Of Allergy Disorders & Therapy | ISSN: 2470-749X
- Journal Of Alternative Complementary & Integrative Medicine | ISSN: 2470-7562
- Journal Of Alzheimers & Neurodegenerative Diseases | ISSN: 2572-9608
- Journal Of Anesthesia & Clinical Care | ISSN: 2378-8879
- Journal Of Angiology & Vascular Surgery | ISSN: 2572-7397
- Journal Of Animal Research & Veterinary Science | ISSN: 2639-3751
- Journal Of Aquaculture & Fisheries | ISSN: 2576-5523
- Journal Of Atmospheric & Earth Sciences | ISSN: 2689-8780
- Journal Of Biotech Research & Biochemistry
- Journal Of Brain & Neuroscience Research
- Journal Of Cancer Biology & Treatment | ISSN: 2470-7546
- Journal Of Cardiology Study & Research | ISSN: 2640-768X
- Journal Of Cell Biology & Cell Metabolism | ISSN: 2381-1943
- Journal Of Clinical Dermatology & Therapy | ISSN: 2378-8771
- Journal Of Clinical Immunology & Immunotherapy | ISSN: 2378-8844
- Journal Of Clinical Studies & Medical Case Reports | ISSN: 2378-8801
- Journal Of Community Medicine & Public Health Care | ISSN: 2381-1978
- Journal Of Cytology & Tissue Biology | ISSN: 2378-9107
- Journal Of Dairy Research & Technology | ISSN: 2688-9315
- Journal Of Dentistry Oral Health & Cosmesis | ISSN: 2473-6783
- Journal Of Diabetes & Metabolic Disorders | ISSN: 2381-201X
- Journal Of Emergency Medicine Trauma & Surgical Care | ISSN: 2378-8798
- Journal Of Environmental Science Current Research | ISSN: 2643-5020
- Journal Of Food Science & Nutrition | ISSN: 2470-1076
- Journal Of Forensic Legal & Investigative Sciences | ISSN: 2473-733X
- Journal Of Gastroenterology & Hepatology Research | ISSN: 2574-2566
- Journal Of Genetics & Genomic Sciences | ISSN: 2574-2485
- Journal Of Gerontology & Geriatric Medicine | ISSN: 2381-8662
- Journal Of Hematology Blood Transfusion & Disorders | ISSN: 2572-2999
- Journal Of Hospice & Palliative Medical Care
- Journal Of Human Endocrinology | ISSN: 2572-9640
- Journal Of Infectious & Non Infectious Diseases | ISSN: 2381-8654
- Journal Of Internal Medicine & Primary Healthcare | ISSN: 2574-2493
- Journal Of Light & Laser Current Trends
- Journal Of Medicine Study & Research | ISSN: 2639-5657
- Journal Of Modern Chemical Sciences
- Journal Of Nanotechnology Nanomedicine & Nanobiotechnology | ISSN: 2381-2044
- Journal Of Neonatology & Clinical Pediatrics | ISSN: 2378-878X
- Journal Of Nephrology & Renal Therapy | ISSN: 2473-7313
- Journal Of Non Invasive Vascular Investigation | ISSN: 2572-7400
- Journal Of Nuclear Medicine Radiology & Radiation Therapy | ISSN: 2572-7419
- Journal Of Obesity & Weight Loss | ISSN: 2473-7372
- Journal Of Ophthalmology & Clinical Research | ISSN: 2378-8887
- Journal Of Orthopedic Research & Physiotherapy | ISSN: 2381-2052
- Journal Of Otolaryngology Head & Neck Surgery | ISSN: 2573-010X
- Journal Of Pathology Clinical & Medical Research
- Journal Of Pharmacology Pharmaceutics & Pharmacovigilance | ISSN: 2639-5649
- Journal Of Physical Medicine Rehabilitation & Disabilities | ISSN: 2381-8670
- Journal Of Plant Science Current Research | ISSN: 2639-3743
- Journal Of Practical & Professional Nursing | ISSN: 2639-5681
- Journal Of Protein Research & Bioinformatics
- Journal Of Psychiatry Depression & Anxiety | ISSN: 2573-0150
- Journal Of Pulmonary Medicine & Respiratory Research | ISSN: 2573-0177
- Journal Of Reproductive Medicine Gynaecology & Obstetrics | ISSN: 2574-2574
- Journal Of Stem Cells Research Development & Therapy | ISSN: 2381-2060
- Journal Of Surgery Current Trends & Innovations | ISSN: 2578-7284
- Journal Of Toxicology Current Research | ISSN: 2639-3735
- Journal Of Translational Science And Research
- Journal Of Vaccines Research & Vaccination | ISSN: 2573-0193
- Journal Of Virology & Antivirals
- Sports Medicine And Injury Care Journal | ISSN: 2689-8829
- Trends In Anatomy & Physiology | ISSN: 2640-7752

Submit Your Manuscript: <https://www.heraldoopenaccess.us/submit-manuscript>