Cite this as: Yacong LI, Kuanquan WANG, Qince LI, Henggui ZHANG, 2020. Biological pacemaker: from biological experiments to computational simulation. *Journal of Zhejiang University-Science B (Biomedicine & Biotechnology)*, **21**(7):524-536. http://doi.org/10.1631/jzus.B1900632

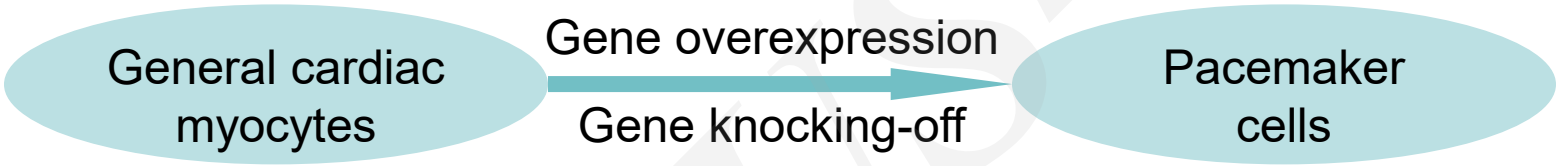
Biological pacemaker: from biological experiments to computational simulation

Key words: Biological pacemaker; Gene therapy; Cell therapy; cardiac simulation; Computing modelling

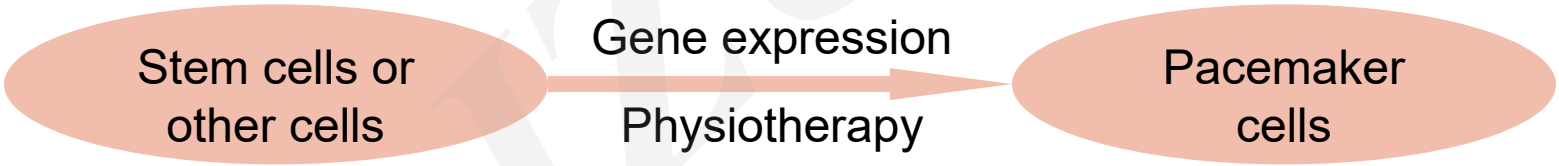
Research Summary

This review summarized the contemporary development of the biological pacemaker in the following aspects:

- **Biological experiments for producing biological pacemakers**
  - **Gene therapy**



  - **Cell therapy**



- **Computational simulations of biological pacemaker**

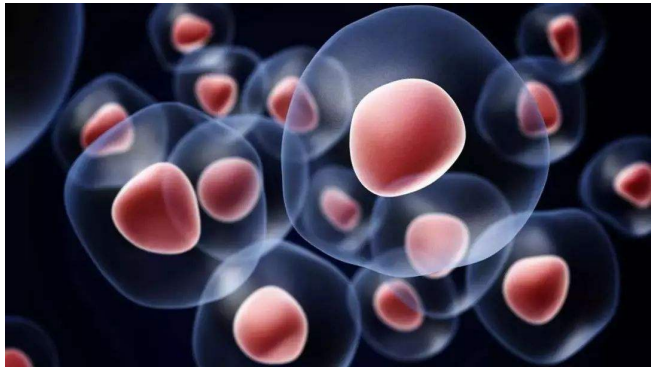
JZUS-B

Innovation points

- **Introduction** of three kinds of gene that were modified to transfer General cardiac myocytes into pacemaker cells

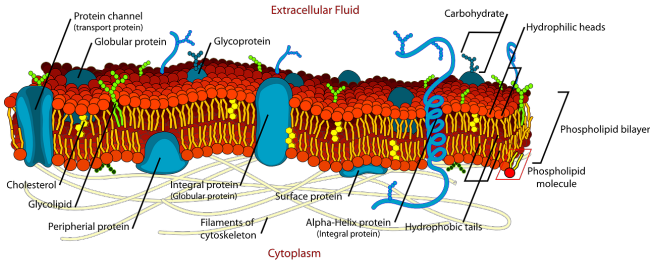


- **Review** of four kinds of stem cell that are mainly used to differentiate into pacemaker cells.



- **Emphasis** of the Obstacles to producing biological pacemakers.

- **Summary** of the current development of computational research on biological pacemaker.



The picture originates from the internet