Cite this as: Yun-liang ZANG, Ling XIA, 2014. Cellular mechanism of cardiac alternans: an unresolved chicken or egg problem. *Journal of Zhejiang University-SCIENCE B (Biomedicine & Biotechnology)*, **15(3):201-211**. [doi=10.1631/jzus.B1300177]

Cellular mechanism of cardiac alternans: an unresolved chicken or egg problem

心脏电交替现象的细胞机制：先有鸡还是先有蛋的谜团

Key words: Cardiac alternans, Action potential duration (APD) restitution, Ca^{2+} handling, Heart failure

关键词：心脏电交替；动作电位长度恢复；钙循环；心衰

- T-wave alterans is associated with increased risk for sudden cardiac death.

- Both calcium handling and electrical components of the cardiac cell can be the cellular mechanism of cardiac alternans. However, it is difficult to discern which is the primary mechanism in experiments due to the bidirectional coupling between calcium and ionic currents.

- Through theoretical study combined with experimental measurements, it is possible to measure the relative contribution of calcium handling and eletrical components on the genesis of cardiac alternans.

- Identifying the main mechanism of cardiac alternans can help to cure patients with heart failure more targeted.

Increased propensity to alternans in heart failure