

Journal club on Calcium ion kinetics on muscle physiology: A proposal for a paper reading list

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1 Motivation

To bring a general view of the state of the art on Calcium ion kinetics on muscle physiology I suggest the set of lectures presented in this document. The lectures are aimed to present a general view of skeletal muscle kinetics and the experimental methods for *in-vivo* Calcium imaging, then read about the plausibility of develop mathematical models for biochemical reactions and complex biological systems. The last couple of readings present two different mathematical models for simulate Calcium kinetics inside muscle fibers of frog.

2 Paper list

Here are two lists, a *main list* and *complementary readings* list. The main list is presented in the suggested order and constitute the main core of the readings. The complementary list complement papers on the main list.

2.1 Main list

1. The Excitation–contraction Coupling Mechanism in Skeletal Muscle [2],
 - author: Juan C. Calderón, Pura Bolaños, Carlo Caputo
 - year: 2014
 - journal: Biophysical Reviews
 - publisher: Springer Berlin Heidelberg
 - volume: 6
 - number: 1
 - pages: 133–160
 - doi: 10.1007/s12551-013-0135-x
2. Seeing Is Believing! Imaging Ca^{2+} -Signaling Events in Living Cells [6],
 - author: J. Graham McGeown
 - year: 2010
 - journal: Experimental Physiology
 - volume: 95
 - number: 11
 - pages: 1049-1060
 - doi: 10.1113/expphysiol.2010.052456
3. Practical Aspects of Measuring Intracellular Calcium Signals With Fluorescent Indicators [4],
 - author: Joseph P. Y. Kao, Gong Li, Darryl A. Auston
 - year: 2010
 - journal: Methods in cell biology
 - volume: 99
 - pages: 113–52
 - doi: 10.1016/B978-0-12-374841-6.00005-0
4. Complex Biology With No Parameters [1],
 - author: J. E. Bailey

- year: 2001
 - journal: Nature Biotechnology
 - volume: 19
 - number: 6
 - pages: 503–504
5. Model of Calcium Movements During Activation in the Sarcomere of Frog Skeletal Muscle cite Cannell1984,
- author: M.B. Cannell, D.G. Allen
 - year: 1984
 - journal: Biophysical Journal
 - publisher: Elsevier
 - volume: 45
 - number: 5
 - pages: 913–925
 - doi: 10.1016/S0006-3495(84)84238-1
6. Model of Calcium Diffusion, Binding and Membrane Transport in the Sarcomere of Frog Skeletal Muscle. [3],
- author: M. Holý, J. Poledna
 - year: 1989
 - journal: General physiology and biophysics
 - volume: 8
 - number: 6
 - pages: 539–553

2.2 Complementary readings

1. Polycarboxylate Fluorescent Indicators As Ion Concentration Probes in Biological Systems [5],
 - author: H. E. Katerinopoulos, E. Foukaraki
 - year: 2002
 - journal: Current Medicinal Chemistry
 - volume: 9
 - number: 2
 - pages: 275–306
 - complements reading 3

References

- [1] J. E. Bailey. Complex Biology With No Parameters. *Nature Biotechnology*, 19(6):503–504, 2001.
- [2] JuanC. Calderón, Pura Bola nos, and Carlo Caputo. The Excitation–contraction Coupling Mechanism in Skeletal Muscle. *Biophysical Reviews*, 6(1):133–160, 2014.
- [3] M. Holý and J. Poledna. Model of Calcium Diffusion, Binding and Membrane Transport in the Sarcomere of Frog Skeletal Muscle. *General physiology and biophysics*, 8(6):539–553, 1989.
- [4] Joseph P. Y. Kao, Gong Li, and Darryl A. Auston. Practical Aspects of Measuring Intracellular Calcium Signals With Fluorescent Indicators. *Methods in cell biology*, 99:113–52, Jan 2010.
- [5] H. E. Katerinopoulos and E. Foukaraki. Polycarboxylate Fluorescent Indicators As Ion Concentration Probes in Biological Systems. *Current Medicinal Chemistry*, 9(2):275–306, 2002.
- [6] J. Graham McGeown. Seeing is believing! imaging Ca^{2+} -signaling events in living cells. *Experimental Physiology*, 95(11):1049–1060, 2010.