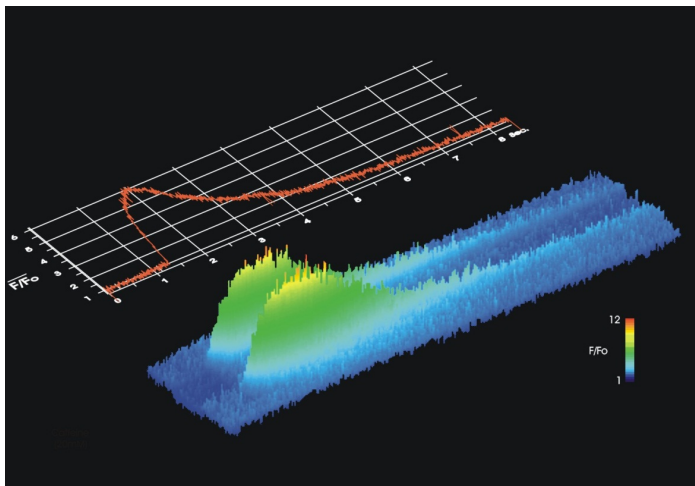


AVVISO DI SEMINARIO

T-tubule function in cardiac ventricular myocytes

Clive Orchard, School of Physiology and Pharmacology, University of Bristol, UK

The t-tubules of cardiac ventricular myocytes are invaginations of the cell membrane that form a complex network within the cell. A few years ago, we developed a technique to detach the t-tubules physically and functionally from the surface membrane (detubulation), allowing us to investigate their function. Using this technique we have shown that t-tubules are not simple invaginations of the surface membrane; instead, they form a specialised micro-domain which carries a disproportionately high percentage of many of the trans-sarcolemmal Ca fluxes associated with excitation-contraction coupling. Membrane currents at the t-tubules also appear to be differentially regulated from those at the surface membrane. This specialisation, and the localisation of the t-tubular ion flux pathways adjacent to sarcoplasmic reticulum Ca release channels, means that the t-tubules play a central role in excitation-contraction coupling and its regulation, and in the electrical activity of the heart. However t-tubule structure is labile and changes in pathological conditions such as HF, in which changes in t-tubule structure and function, including local signalling, contribute to changes in cell function.



2D and 3D projections of a confocal line scan image of extracellular Ca^{2+} around a cardiac ventricular myocyte during application of 20 mM caffeine, monitored using fluo-3 in the bathing solution.

[Il seminario si terrà il 31 Ottobre 2013 alle ore 11:00 presso l'aula Querzoli del Laboratorio Europeo di Spettroscopie Non-lineari \(LENS\) - Polo Scientifico e Tecnologico di Sesto Fiorentino.](#)

Referente: Leonardo Sacconi
sacconi@lens.unifi.it