

Study of Sodium Depositions in Heart Interstitium Using Methods of X-ray Absorption and Fluorescent Microscopy

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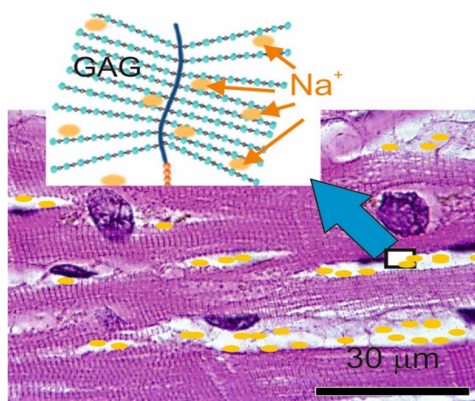
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Until now there have been only indirect indications of the presence of sodium accumulations in muscle and skin tissues that are beyond homeostasis control [1, 2]. Despite their osmotic inactivity, such sodium deposits can effect on mechanical properties of the heart muscle impairing its elasticity and leading to serious heart dysfunctions. In this work an accurate study of the chemical composition of the heart muscle tissue at the cellular level was carried out using the methods of X-ray absorption and fluorescence microscopy. The experiments were carried out on a TwinMic X-ray scanning microscope [3] at ELETTRA synchrotron (Italy) with a resolution of about 1 μm .



Comparison of the obtained maps of intra- and extracellular sodium distribution in heart tissues of different laboratory animals has resulted in the first experimental confirmation of the hypotheses about the existence of deposited sodium states in the intercellular space.

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