

Inositol trisphosphate and excitation-contraction coupling in skeletal muscle

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The role of inositol trisphosphate as a chemical messenger in excitation-contraction coupling is discussed, both in terms of positive and negative results. The evidence presented includes experiments on the effect of inositol trisphosphate in intact and skinned fibers, in calcium release from isolated sarcoplasmic reticulum vesicles, in activation of single calcium release channels incorporated in planar bilayers, and biochemical experiments that have established the presence of all the intermediate steps involved in the metabolism of phosphoinositides, both in intact muscle and in isolated membranes. From these results, it is clear that a role for inositol triphosphate in skeletal muscle function is highly likely; whether this molecule is the physiological messenger in excitation-contraction coupling remains to be established. © 1989 Plenum Publishing Corporation.