

牛冠動脈および大動脈のミクロゾーム のカルシウム蓄積能

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Microsomal Calcium-Accumulating Ability of Bovine Coronary Artery and Aorta

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ABSTRACT Calcium uptake and binding activities of microsomal fractions from bovine coronary artery and aorta were examined. The isolated microsomal fraction of the coronary artery and aorta showed 7- to 8-fold higher glucose-6-phosphatase activity and 4- to 6-fold higher NADPH-cytochrome *c* reductase activity as compared with the corresponding values for the homogenate fraction. Coronary artery and aorta microsomal calcium uptake activities were 118 and 159 nmoles Ca^{2+} /mg protein/10 min in the presence of 100 μM CaCl_2 , respectively. These activities for bovine vascular smooth muscle microsomes are higher than those of other species investigated. The calcium uptake activities were dependent on calcium concentrations ranging from 5 to 50 μM in the assay medium. The onset of the reaction for aorta microsomal calcium uptake was faster than that for the coronary artery. The calcium uptake activity was also dependent on ATP, but it was practically independent of oxalate ions in the assay medium. Microsomal calcium binding activities of the coronary artery and aorta were maximal at 20 min of incubation under the present experimental conditions. A lower K_m value of the aortic calcium binding for ATP was obtained as compared with that for the coronary artery. The present experiment explored several characteristics of the microsomal calcium-accumulating ability of vascular smooth muscle, which provides meaningful information for further study on cellular calcium movements in vascular smooth muscle.

抄録 牛冠動脈および大動脈から得られるミクロゾーム分画の示すカルシウム uptake, binding 活性の特性を検討した。冠動脈, 大動脈のミクロゾームカルシウム uptake 活性は,

ATP 依存性で、またカルシウム濃度により変化した。100 μM CaCl_2 存在下での活性は、それぞれ 118, 159 nmoles Ca^{2+} /mg protein/10 min であった。カルシウム uptake, および binding の活性反応速度は冠動脈のほうが速かった。以上の結果は血管平滑筋ミクロゾームのカルシウム蓄積能を検討するために有用な情報となる。

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