

Changes in Intracellular Free Calcium Concentration in Resting Lymphocytes at the Borderline of Life

S. Tóth^a, P. Csermely^b, A. Szkladányi^c, O. Regius^{a,1}

^aGerontology Center and ^bInstitute of Biochemistry I, Semmelweis Medical University; ^cNational Frederic Joliot-Curie Research Institute for Radiobiology and Radiohygiene, Budapest, Hungary

Intracellular free Ca^{2+} plays a key role in the regulation of intracellular processes. The best known examples of this regulation are connected with the activity of muscle fibers, liberation of neurotransmitter substances from the vesicles, and with mitosis [1-3]. In addition to this, evidence is accumulating to show that the calcium ion is an essential common component of several intracellular enzyme reactions [4].

Calcium ions influence the intracellular biochemical events in two ways: on the one hand, they act as 'second messengers', transmitting certain signals coming to the cell from the extracellular space in the form of electrical or chemical stimuli, and on the other hand, the calcium is a charge carrier. The ionic current passing through the calcium channel of the plasma membrane alters the membrane potential and by that influences the intracellular biochemical machinery [5].

The Ca^{2+} level of cytosol is regulated in many ways by different mechanisms. First of all, the calcium-binding proteins and the calcium pump, exchange and channel systems of the plasma membrane, endoplasmic (sarcoplasmic) reticulum and mitochondria belong to them [6].

The age-related changes in the immune system are among the processes subjected to the most detailed studies on ageing in gerontology. The age-

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