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Importance of Calcium

of

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Abstract: Calcium is the most abundant mineral in the body. Calcium regulates many cellular processes and has important structural roles in living organisms. Skeletal muscle structure and function, polymerisation of fibrin and the conduction of impulses in the nervous system are regulated by calcium. Calcium is an important intracellular messenger in protozoa, plants, and animals. Calcium-transporting systems which are located in the plasma membrane and in the organelles, regulate the ionic concentration of calcium in various compartments according to the different demands of the physiological cycle and these systems upregulate calcium entry by the action of several hormones and calcium binding proteins. Opening of calcium influx channels increases the cytosolic calcium concentrations but high calcium concentrations are toxic to the cell. Because of this toxicity; calcium is rapidly removed from the cytosol by calcium pumps and exchangers. Changes in cytosolic calcium concentrations cause a wide range of cellular responses. Cellular calcium is known to play an important role in apoptosis and the accumulation of calcium can induce various apoptotic pathways in the cell. Maintenance of the cellular calcium homeostasis has various benefits for human health and the deficiency of calcium causes many pathological conditions.

Key Words: Calcium, apoptosis, signalling, calcium binding proteins

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