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EFFECT OF CALCIUM ION ON THE POLYAMINES FUNCTION AND METABOLISM

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Phosphate-containing biological molecules, such as nucleic acids or membrane phospholipids, may interact with polyamines such as spermine and spermidine. These interactions, beyond to neutralize the negative charge of phosphate groups, decrease the degreés of freedom of biomolecules.

The presence of calcium ions, and the consequent formation of stables Ca^{++}-phosphate complexes, modulates the interaction between the polycationic amines and the phosphate-containing molecules. An example of this behavior was obtained in the oxidative deamination of spermine catalyzed by bovine serum amine oxidase. The apparent inhibition of the enzyme by phosphate ion was reversed by the presence of Ca ion.

The equilibria of the phosphate-polyamine-Ca^{++} system and the possible effects on biological systems are discussed.