FACTOR XIII AS A SPECIFIC TRANSGLUTAMINASE

Summary

Transglutaminases (EC 2.3.2.13) are a group of closely related enzymes necessary for the proper functioning of many organisms. Transglutaminases are involved in many physiological processes such as blood clotting, wound healing, cell differentiation and apoptosis. The most important biological function of transglutaminase is irreversible posttranslational modification of proteins consisting of forming izopeptide bond between the primary amino group of the substrate, and the glutamine rest of the polypeptide chain. A very important enzyme belonging to the transglutaminase family is blood coagulation factor XIII. FXIII is involved in the final stage of the blood coagulation cascade that is stabilization of fibrin polymers formed from fibrinogen by inserting covalent bonds. What strengthen mechanical properties of the formed clot. There are two forms of factor XIII: plasmatic and cellular. Factor XIII present in the plasma is a tetrameric protein composed of two catalytic subunits A and two B subunits having regulatory function. The cellular form of factor XIII is a homodimer built of two subunits A which occurs in the cytoplasm of monocytes, macrophages, megakaryocytes, platelets, chondrocytes, osteoblasts, and in the placenta. The aim of this paper is a short characteristic of transglutaminases, description of the mechanisms of their action with particular emphasis on factor XIII as a specific enzyme belonging to this group.