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Production and Characterization of Monoclonal Antibody against Surface Glycoprotein, gp61, on K562 Erythroleukemia Cells

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A multipotential hematopoietic cell line, K562 cells, were differentiated along megakaryocytes by a chemical inducer, PMA, with an enhanced expression of gp130 and 200 KDa protein and decreased synthesis of 43 KDa protein accompanying a distinct morphological change like fibroblasts. On the other hand, the cells were differentiated along erythrocytes by other chemical inducers, DMSO or butyrate with a concomitant increase in hemoglobin accumulation and decreased synthesis of 200 KDa protein. An antigen of apparent molecular weight of 61 KDa was identified on the surface of K562 cells by using monoclonal antibody raised against K562 cells. The antigen was considered to be a glycoprotein molecule rich in sialic acids and the epitope of antigen was sensitive to neuraminidase digestion or peroxidase oxidation, but resistant to heat treatment. The 61 KDa surface antigen increased or decreased in its expression along differentiation of K562 cells into megakaryocytes or erythrocytes, respectively.

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EFFECT OF LOW-TEMPERATURE ON THE ACROSOME OF SPERMATOOZOA

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It is known that the acrosome reaction of spermatozoa are remarkably influenced by Ca^{2+} . This experimental study was designed to examine the acrosome reaction in a heterothermic and homeothermic mammal's spermatozoa. The experiments have been carried out by the following methods: Sperm preparations, Induction of acrosome reaction, Evaluation of acrosome reaction by the triple staining method, Qualitative analysis of intercellular calcium concentration. Acrosome reaction of the human spermatozoa occurred at low temperature (10-15 °C), intercellular Ca^{2+} concentration of the spermatozoa varied in accordance with the low temperature and the Ca^{2+} affected by the low-temperature environment hardly facilitate the fertilizing capabilities such as sperm motility, capacitation and acrosome reaction. Based on the experimental results, it is possible to suggest that in low environmental temperature, the acrosome reaction occur proportionally and therefore, the in vitro experimental temperatures could be adjusted to low temperature for getting better fertilization rate. KEY WORDS: acrosome reaction, Ca^{2+} , heterothermal spermatozoa, low temperature.