The aim of the work was to study the effect of polyethylene glycol PEG-1500 on the Ca\(^{2+}\)-ATPase activity and changes in CD44 surface marker expression in human erythrocyte membranes. Determination of the Ca\(^{2+}\)-ATPase activity was carried out in sealed erythrocyte ghosts by the level of accumulation of inorganic phosphorus. Changes in the expression of CD44 and amount of CD44+-erythrocytes were evaluated by flow cytometry. The inhibition of Ca\(^{2+}\)-ATPase activity is an important step for understanding the role of these proteins in cell functions.
-ATPase activity and a reduction in the level of CD44 expression and also the decrease in the amount CD44
+
cells were found, reflecting a fairly complex restructuring in the membrane-cytoskeleton complex of erythrocytes under the influence of PEG-1500. Effect of PEG-1500 on the surface CD44 marker could be mediated by modification of proteins of membrane-cytoskeleton complex, as indicated by accelerated loss of CD44 in erythrocyte membranes after application of protein cross-linking reagent diamide. Reduced activity of Ca
+2
-ATPase activity may contribute to the increase in intracellular Ca
2+
level and thus leads to a modification of interactions of integral proteins with cytoskeletal components that eventually could result in membrane vesiculation and decreasing in expression of the CD44 marker, which is dynamically linked to the cytoskeleton.

**Key words:** Ca$^{2+}$-ATPase, CD44, polyethylene glycol 1500, erythrocyte.

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3. Feuerecker M., Kaufmann I., Salam A. P., Choukèr A. Effects of cryopreservation with
polyethylene glycol on the expression of CD11b and CD62L on the surface of polymorphonuclear leukocytes. 


erythrocyte. Demonstration of a non-reactive population in intrinsic proteins.


https://doi.org/10.1016/0005-2736(81)90077-8


*Biochemistry.*
1971, 10 (13), 2606–2617.

https://doi.org/10.1021/bi00789a030

12. *Pokudin N. I., Petruniaka V. V., Orlov S. N.* Does calmodulin participate in the regulation of the Ca-pump of erythrocytes in vivo?

*Biokhimia.*
(In Russian).


https://doi.org/10.1016/0003-2697(69)90198-5


https://doi.org/10.1016/0003-2697(76)90527-3


*FEBS Lett.*
1989, 244 (2), 484–486.


https://doi.org/10.1007/s00249-006-0097-z

https://doi.org/10.1042/bj1580647


https://doi.org/10.1016/S0006-3495(95)80006-8


https://doi.org/10.1016/0005-2736(79)90089-0

https://doi.org/10.1016/S0006-3495(94)80991-9

https://doi.org/10.1016/S0006-3495(95)80214-6

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