CAN SPIN LABELS BECOME EFFECTIVE TOOLS IN PLATELET MEMBRANE STUDIES?

EWA GRAŻYNA GENDEK
Bratysławska 14 m. 123, 94-040 Łódź, Poland

Electron paramagnetic spectroscopy (EPR) has been shown to be a useful tool in dynamic cell membrane property studies of different kinds of cells. If this method, so successfully used in studies of other cells, could be easily applied in assessing platelet membranes, it should allow us to speed up testing of antagonist/agonist binding to different membrane receptors and of the binding reactions’ functional effects. Few papers report on experiments performed using platelet cell membranes, and their results may be sometimes misleading. Both the literature and my experimental experience permit the statement that, depending on the procedure used for platelet/platelet membrane isolation, labeling and signal measurements, the registered and evaluated EPR signal may come from spin label molecules bound to: serum albumin, bovine serum albumin, plasma lipoproteins, erythrocyte/leukocyte membranes and, only rarely, from platelet membranes.

The only way to successfully study platelet membranes with spin labels seems to be to recognize the difficulties inherent in applying the method to platelets, and to take special precautions to avoid artifacts coming mainly from: not using appropriate controls, using inadequate methods of cell/cell membrane isolation and from spin label destruction by platelets.