

INTERACTION OF BRAIN AND ERYTHROCYTE SPECTRIN WITH ANIONIC PHOSPHOLIPIDS

WITOLD DIAKOWSKI and ALEKSANDER F. SIKORSKI

Institute of Biochemistry and Molecular Biology, University of Wrocław,
Przybyszewskiego 63/77, 51-148 Wrocław, Poland

Spectrin, previously identified as one of the major proteins of the mammalian erythrocyte skeleton, was discovered in most animal cells. Brain spectrin, also known as fodrin, is one of the best studied nonerythroid proteins of the spectrin family. Erythrocyte spectrin can interact with the lipid domains in natural membranes and in model systems. We have found, that brain spectrin interacts with phospholipid mixtures in a similar way as its erythrocyte analogue.

We have studied an interaction of fodrin prepared from bovine brains with anionic phospholipids by using a monolayer technique. We have used phosphatidyl glycerol (PG), diphosphatidylglycerol (cardiolipin), phosphatidic acid (PA) and their mixtures with phosphatidylcholine (PC) in ratio 70/30 and 50/50 at pH 7.5 to form monolayers. We have observed an increase in the surface pressure of the monolayer at pH 7.5 for all used phospholipid mixtures. We have tested also interaction of erythrocyte bovine spectrin with above phospholipid monolayers. In contrast, erythrocyte spectrin did not induce an increase of the surface pressure of monolayer or observed increase was much smaller than observed in the case of brain spectrin interaction with anionic phospholipid monolayers.