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The hemoglobin deformation induced by near infrared radiation – spin label study

Urszula Cytlak, Małgorzata Dzik, Tomasz Walski, Katarzyna Gałecka, Małgorzata Komorowska

The aim of presented study was to monitor the structural changes of hemoglobin induced by NIR radiation. We investigated the reaction between 4-isothiocyanato-2,2,6,6-tetramethylpiperdinoxyl spin label and hemoglobin sites: cysteines and N terminal groups by means of EPR spectroscopy. The reactivity of mentioned groups depends on the protein structure. We observed lower reactivity of N terminal sites for 15 and 30 min exposition to NIR. The accessibility of the hemoglobin's cysteine increases with irradiation time. Analysis of nitrogen hyperfine splitting indicates decreasing polarity in environment of both sites for samples 15 min. exposed to NIR.