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In vivo ESR studies on the effect of O₂ on bioreduction of nitroxides in murine tumors Krystyna Cieszka, Martyna Elas, Zenon Matuszak, Stanisław J.Łukiewicz

The redox state of B16 melanoma tumors, evaluated by measuring the rate of reduction of nitroxides was studied *in vivo* and *ex vivo* under normoxia and hyperoxia. Oxygen was supplied either by intratumoral injection of oxygen-saturated nitroxide solution, or by inhalation of O_2 mixed with a few percent of air, under *in vivo* conditions. The decrease in the rate of nitroxide free radicals (NFR) reduction by B16 melanoma tumors was observed both *in vivo* and *ex vivo*, after oxygen delivery, whereas this effect was almost absent in normal tissue. The decrease of the rate of NFR reduction varied for different nitroxides and was 30 to 70% of the control rate. Both ways of oxygen supply were effective in diminishing the reduction rate of the NFRs. These findings demonstrated the feasibility of influencing the oxygen level in B16 tumors and of modifying the redox state of tumors in this way.