

**Whole-body S-band *in vivo* EPR studies on bioreduction of nitroxides in mice.**

**I. Parameters determining kinetics**

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The whole-body model system *in vivo* EPR studies, originally reported in 1983, is now systematically examined and shown to be very convenient for pharmacokinetic studies of metabolic degradation of paramagnetic species. Bioreduction of nitroxides is one of its possible applications. Toxicity, nitroxide concentration, external and body temperature, age and body weight are demonstrated to be among the parameters which influence the rate of this process. Some of these factors, however, are not taken into account by other authors. Advantages of whole-body EPR technique over topical EPR approach, commonly used in recent pharmacokinetic investigations, are discussed.