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ADDITIONS AND CORRECTIONS

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Antioxidant Properites of Melatonin—An Emerging Mystery

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Page 1269, Fig. 3 has been corrected from the published original in that the arrow indicating the activity of superoxide dismutase (SOD) is now unidirectional. In the original figure, activity was inadvertently shown as bidirectional.

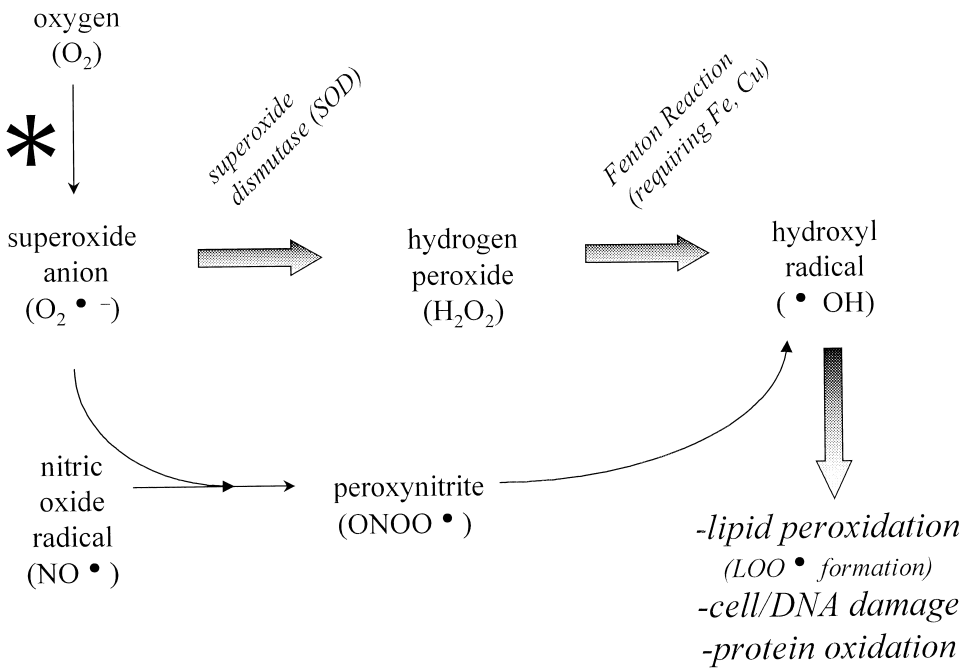

FIG. 3. Generation of oxygen free radicals. Molecular oxygen (O_2) is monovalently reduced to a superoxide radical ($O_2^{\cdot-}$). This occurs when oxygen accepts electrons from various donors including the cytochrome P450 reductase system, xanthine oxidase, semiquinones, and NADPH oxidases found in phagocytic cells (represented by *). Once formed, the superoxide anion radical ($O_2^{\cdot-}$) can react with the nitric oxide radical ($NO^{\cdot}$) to form the peroxynitrite radical ($ONOO^{\cdot}$) and eventually produce a hydroxyl radical ($^{\cdot}OH$) [44]. Alternatively, the superoxide anion radical can be converted to H_2O_2 by an extremely rapid reaction catalyzed by superoxide dismutase (SOD). Cells have an endogenous defense mechanism that detoxifies H_2O_2 to either water or oxygen and water via glutathione (GSH) peroxidase or catalase (CAT) respectively. However, when these enzymes are deficient, H_2O_2 undergoes a Fenton reaction to produce the highly toxic hydroxyl radical ($^{\cdot}OH$).