

Respective roles of nitric oxide and superoxide radical in the respiratory burst activity of rat polymorphonuclear leukocytes induced by hyperthyroidism

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Administration of single doses of 0.1 mg of L-3,3',5-triiodothyronine (T3)/kg for 3 consecutive days to fed rats elicited a marked increase both in the opsonized zymosan-induced luminol-amplified integrated chemiluminescence (ICL) of isolated polymorphonuclear leukocytes (PMN) in the absence (200%) and presence (228%) of L-arginine, and in the rate of superoxide radical ($O_2^{\cdot-}$) production (180%). In the presence of L-arginine, the ICL was significantly increased by 57 and 17% over values observed in its absence, in PMN from control rats and T3-treated animals, respectively, an effect that was completely abolished by N^ω-nitro-L-arginine. However, the net L-arginine-dependent ICL was comparable in stimulated PMN from both experimental groups, and the respective rates of nitric oxide (NO^{\cdot}) production were not significantly different, either in the absence or presence of nitro-L-arginine methyl ester. It is concluded that thyroid hormone-induced respiratory burst activity of rat PMN is not