

THE ROLE OF SUPEROXIDE IN INFECTION WITH *LEISHMANIA AMAZONENSIS*

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Introduction and objectives: The production of superoxide is an essential process in microorganisms killing by mammalian host cells; however few works addressed the role of this molecule in cutaneous leishmaniasis. In the other hand, nitric oxide is known as a key radical for the resistance against *Leishmania ssp.* Taking such information into account we decided to evaluate the role of superoxide in C57BL/6 animals infected with *Leishmania amazonensis*, using both NADPH oxidase knockout mice (phox^{-/-}) and inducible nitric oxide synthase (iNOS) knockout mice. **Results:** We found that iNOS^{-/-} animals developed the largest lesion and highest parasite burden when compared to wild type (wt) and phox^{-/-}. Both wt and phox^{-/-} displayed similar parasite burden at 10 weeks post-infection in the lesion site and in the draining lymph node although phox^{-/-} showed a slightly faster progressive lesion reaching the peak at week seven while wt partners reached the peak at 9 weeks of infection. No difference between phox^{-/-} and wt was found in the production of IFN- γ at lesion site and draining lymph node, neither in the presence of serum nitrite. Histopathological analysis showed a more disorganized tissue with many inflammatory cells in phox^{-/-}. More importante, when phox^{-/-} mice were treated with aminoguanidine the growth of lesion and parasite burden increased significantly and reached higher levels when compared to treated wt. **Conclusion:** This study suppose that superoxide, in absence of NO, acts as a critical mechanism in host resistance to *L. amazonensis* infection.

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