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Title:	DNA polymerase $\beta$ of <i>Leishmania donovani</i> is important for infectivity and it protects the parasite against oxidative damage
Authors:	Chaba, Rachna (/jspui/browse?type=author&value=Chaba%2C+Rachna)
Keywords:	Leishmania donovani Oxidative stress DNA repair DNA damage
Issue Date:	2019
Publisher:	Elsevier
Citation:	International Journal of Biological Macromolecules, 124, pp.291-303.
Abstract:	The visceral leishmaniasis is caused by <i>L. donovani</i> , a neglected tropical disease with an estimated number of 500,000 cases worldwide. Apart from the absence of effective vaccine, the available drugs have limitations like toxic side effects and emergence of drug resistance. The genome of <i>Leishmania</i> is remarkably challenged by the oxidative stress present inside the human macrophage. To maintain genomic integrity, a number of specialized DNA repair pathways assist in the recognition and repair of damaged DNA. In general, Base Excision Repair (BER) plays an essential role in the maintenance of genomic stability. We demonstrate here that the treatment of <i>L. donovani</i> with oxidative agents causes DNA damage and upregulation of Pol $\beta$ . On the other hand, parasite overexpressing Pol $\beta$ shows more resistance against Amp B, H <sub>2</sub> O <sub>2</sub> and menadione as compared to wild type cells. We also observed a higher infectivity in the parasites that overexpress Pol $\beta$ . The upregulation of Pol $\beta$ was also found in stationary phase and axenic amastigote of <i>L. donovani</i> . Overall, we propose that Pol $\beta$ is crucial for infectivity and survival of the parasite. Discovery of specific inhibitors against Pol $\beta$ could offer an attractive strategy against leishmaniasis.
Description:	Only IISERM authors are available in the record.
URI:	<a href="https://www.sciencedirect.com/science/article/pii/S0141813018326357">https://www.sciencedirect.com/science/article/pii/S0141813018326357</a> ( <a href="https://www.sciencedirect.com/science/article/pii/S0141813018326357">https://www.sciencedirect.com/science/article/pii/S0141813018326357</a> ) <a href="http://hdl.handle.net/123456789/2197">http://hdl.handle.net/123456789/2197</a> ( <a href="http://hdl.handle.net/123456789/2197">http://hdl.handle.net/123456789/2197</a> )
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