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## **Azithromycin, modulates immune responses to Pneumococcal Conjugate Vaccine (PCV7) and inhibits inflammatory cytokines in healthy and lipopolysaccharide-treated mice**

Macrolide antibiotics, including azithromycin, have been involved in the modulation of host immune response, independently of their antimicrobial properties. Macrolides inhibit the production of various cytokines and the migration of inflammatory cells. These anti-inflammatory actions may be beneficial in attenuating inflammatory process involved in bacterial sepsis. Therefore, we investigated the ability of azithromycin to attenuate the deleterious effects of Lipopolysaccharide (LPS). This study was designed to determine the effect of azithromycin on pro-inflammatory cytokines ((TNF $\alpha$ , IL-6 and IL1 $\beta$ ) in healthy and lipopolysaccharide – treated mice. Moreover, to investigate the effect of that azithromycin on protective humoral immune responses induced by a 7-valent, polysaccharide, Pneumococcal Conjugate Vaccine (PCV7) by determination of (IgG) and (IgM). Our results show that Oral administration of azithromycin (10 and 100 mg/kg) 30 minutes prior to lipopolysaccharide injection causing significantly decrease in total leucocytic count, lymphocytes %, neutrophils %, as well as significantly attenuated the LPS-induced increase in plasma (TNF- $\alpha$ ) conc. By use of a PCV7, it was found that oral administration of azithromycin (10 and 100 mg/kg b.wt) one hour prior to vaccine causing significant decrease in immunoglobulins; (IgM) and (IgG) led to significantly lower primary antibody responses. The results demonstrate that azithromycin can be inhibitory with regard to protective immune responsiveness. In conclusion, azithromycin exhibits significant anti-inflammatory properties.

### **Biography**

Afffi Nehal A is a Professor of Pharmacology and Head of Veterinary Pharmacology Department in Faculty of Veterinary Medicine at Cairo University. Her research has focused on pharmacology, toxicology, ethno pharmacology and pharmaceuticals. She has published over 60 manuscripts on applied pharmacology and toxicology. She currently serves as an Editor and Reviewer for many international journals. She has obtained Cairo University Encouragement Prize for Scientific Researchers in 2002, the field of bioavailability as well as the Cairo University award for international publications for 5 successive years. She has 35 years of experience in teaching, education, research, evaluation, and business administration.

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