

## **Anti-Wolbachia therapy for onchocerciasis & lymphatic filariasis: current perspectives**

### **ABSTRACT**

Onchocerciasis and lymphatic filariasis (LF) are human filarial diseases belonging to the group of neglected tropical diseases, leading to permanent and long-term disability in infected individuals in the endemic countries such as Africa and India. Microfilaricidal drugs such as ivermectin and albendazole have been used as the standard therapy in filariasis, although their efficacy in eliminating the diseases is not fully established. Anti-Wolbachia therapy employs antibiotics and is a promising approach showing potent microfilaricidal activity and also prevents embryogenesis. This has translated to clinical benefits resulting in successful eradication of microfilarial burden, thus averting the risk of adverse events from target species as well as those due to co-infection with loiasis. Doxycycline shows potential as an anti-Wolbachia treatment, leading to the death of adult parasitic worms. It is readily available, cheap and safe to use in adult non-pregnant patients. Besides doxycycline, several other potential antibiotics are also being investigated for the treatment of LF and onchocerciasis. This review aims to discuss and summarise recent developments in the use of anti-Wolbachia drugs to treat onchocerciasis and LF.

**Keyword:** Black flies; Doxycycline; Filariasis; Lymphatic filariasis; Macrofilaricides; Minocycline onchocerciasis; Wolbachia