

The journey from drug discovery to elimination

October 27 2015, by Alicia Zuniga



Unless you regularly work with neglected tropical diseases, onchocerciasis is probably a word you don't hear very often, much less know how to pronounce. Due to recent world events, however, it may trigger a flicker of recognition. In the past two months, discoveries and milestones along the journey to the elimination of the usually neglected onchocerciasis have been deservedly highlighted in the media.

More commonly known as [river blindness](#), onchocerciasis is caused by a parasitic worm called *Onchocerca volvulus*. It is transmitted by the bite of blackflies and often leads to permanent blindness. Although it is a serious health concern in Latin America and especially sub-Saharan Africa, it remains a little-known disease to those outside of these endemic regions. These areas have become the focus of long-term mass drug administration (MDA) campaigns in the fight to eliminate the

disease.

This summer, it was reported in *PLOS Neglected Tropical Diseases* that Mexico had met the World Health Organization's (WHO) criteria for declaring elimination in three endemic foci of transmission: Southern Chiapas, Northern Chiapas and Oaxaca. This was no small feat: over 100,000 blackflies from these regions were tested for *Onchocerca* DNA and not one fly tested positive. Mexico is the third Latin American country to successfully eliminate river blindness transmission, behind Colombia's and Ecuador's declarations in 2013 and 2014, respectively.

Even more recently, two out of the three Nobel Prize winners in Physiology or Medicine 2015 were credited with major contributions to the development of the drug used to treat and prevent river blindness. Satoshi Ōmura's lab isolated avermectin, an anti-parasitical compound, which William C. Campbell later used to develop ivermectin, the drug used in MDA. It should be considered a victory in NTD awareness that such a renowned accolade was awarded to those fighting a battle that often flies below the radar.

This breakthrough provides a beacon of light for the countries who are still hoping to achieve onchocerciasis elimination and brings us one step closer to the end of the fight with this disease. Acknowledgement of the breakthrough discoveries in the treatment of this NTD brings well-deserved attention to the scientists behind this advancement, and hopefully increased awareness of a largely unknown disease. It is a perfect example of how basic research can be translated into successful elimination of a disease plaguing some of the world's most neglected populations. PLOS Neglected Tropical Diseases is proud to contribute to the fight by providing open access to high-quality onchocerciasis research. This recent attention can make onchocerciasis more recognizable in the minds of the public until the day the word is only found in history books.

More information: Mario A. Rodríguez-Pérez et al. Elimination of Onchocerciasis from Mexico, *PLOS Neglected Tropical Diseases* (2015). DOI: [10.1371/journal.pntd.0003922](https://doi.org/10.1371/journal.pntd.0003922)

Stanimira P. Krotneva et al. African Program for Onchocerciasis Control 1995–2010: Impact of Annual Ivermectin Mass Treatment on Off-Target Infectious Diseases, *PLOS Neglected Tropical Diseases* (2015). DOI: [10.1371/journal.pntd.0004051](https://doi.org/10.1371/journal.pntd.0004051)

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