

# Detecting the onset of leprosy before nerve damage occurs

June 9 2015, by Ben Goodwin

---

New research could help improve the lives of thousands of leprosy sufferers worldwide by detecting the disease long before it manifests as skin lesions. Peripheral nerve damage is the hallmark of leprosy pathology, but its origins had remained unclear until now.

Experts have been exploring the relationship between *Mycobacterium leprae*, a bacteria which causes [leprosy](#), and the formation of the membrane attack complex (MAC), which is a tool deployed by the innate immune system to fight pathogens. MAC can damage adjacent health tissues and trigger inflammation at the early stages of the disease.

However, new research shows that inhibition of MAC formation reduces [nerve damage](#) and improves regeneration and functional recovery.

It is also suggested that biomarkers could be used to study the mechanism of autonomic neuropathy in general, with the aim of new drug development for autoimmune diseases such as diabetes, rheumatoid arthritis and lupus.

The research team consisted of Professor Pranab K. Das from the University of Birmingham and academics from the Institute of Lauro Souza Lima (ILSL) in Bauru, São Paulo, Brazil – where the research was carried out – along with the Academic Medical Center at the University of Amsterdam, Netherlands.

Professor Pranab K. Das, Honorary Senior Research Fellow, University

of Birmingham said:

'Our new research shows that inflammatory reactions can be prevented at an early stage of the disease, reducing the risk of the nerve damage that leads to the disabilities caused by leprosy. We propose that MAC inhibition could form the basis of the future development of novel therapeutics from leprosy.'

Despite a marked decline in the number of cases of leprosy since the 1980s and effective multidrug therapy (MDT), the disease remains endemic in several countries, including Brazil, where it is known as Hansen's disease. Almost 35,000 new cases of the disease were detected in Brazil during 2013, meaning that after India, it is the country where the disease is most prevalent worldwide.

Professor Das warns that the fall in new case detection doesn't mean that the disease is becoming less of a public health problem globally:

'Our research has shown that fewer people have been diagnosed with leprosy in Brazil due to the decline in clinical knowledge about the disease, which, coupled with its long incubation period, leads to delays in diagnosis after the onset of the disease. Furthermore, the stigma attached to those who have leprosy prevents many coming forward for treatment at the earliest stage.

'The UK and Brazilian governments are now encouraging collaborative studies on neglected tropical diseases and I hope, going forward, we can initiate further research on leprosy, inflammation and nerve damage.'

**More information:** "M. leprae components induce nerve damage by complement activation: identification of lipoarabinomannan as the dominant complement activator." *Acta Neuropathologica*, [DOI: 10.1007/s00401-015-1404-5](https://doi.org/10.1007/s00401-015-1404-5)

Provided by University of Birmingham

Citation: Detecting the onset of leprosy before nerve damage occurs (2015, June 9) retrieved 26 April 2024 from <https://medicalxpress.com/news/2015-06-onset-leprosy-nerve.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.