Research aims to reduce risk of nerve damage in leprosy patients

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An honorary senior research fellow from the University of Birmingham in the UK is collaborating with Brazilian and Dutch researchers in the fight against leprosy in Brazil.

Professor Pranab K. Das from the University of Birmingham (previously from the University of Amsterdam) is currently working with the Institute of Lauro Souza Lima (ILSL) in Bauru, São Paulo, and with the Academic Medical Center at the University of Amsterdam to reduce the risk of nerve damage caused by leprosy. If left untreated this nerve damage leads to disability.

Despite a marked decline in the number of cases of leprosy since the 1980s, 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 2010, meaning that after India it is the country where the disease is most prevalent worldwide.

The research team is exploring the potential of using leprosy as a human disease model to study aspects of immune dynamics due to changes in the host's immunity seen in other neuropathic diseases, such as Guillain-Barre syndrome. By establishing the cytokine /chemokine profiles of T-cells cloned from skin lesions of leprosy patients, Professor Das has shown that although a Th1 immune response sustains cell-mediated immunity to control the spread of intracellular infection it also leads to tissue damage.

Professor Das commented:

"We are working to prevent the onslaught of nerve damage caused by the onset of leprosy. Nerve damage can cause major disability to individuals and early detection is the most critical factor in thwarting its spread. Due to the lack of sensation caused by nerve damage leprosy sufferers can ignore minor injuries such as cuts and burns which left untreated can become infected and can even result in amputation in some cases."

"Through this research we hope to shed more light on early-detection and treatment methods. As a spinoff the results of such a study would find its translational value in neurological diseases concerning nerve degeneration and regeneration."

By developing clinical biomarkers to monitor the cytokine/chemokine profiles of patients with leprosy, in a longitudinal manner, Das suggests that immune reactions could be prevented at an early stage of disease, reducing the risk of the nerve damage that leads to the disabilities caused by this disease.

Furthermore, it is 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 opportunity for joint research activity between the University of Birmingham and scientists in São Paulo in this area is being pursued.

Notes to Editors

- Autonomic neuropathy is a group of symptoms which occur when there is damage to the nerves that manage everyday functions such as blood pressure, heart rate and digestion. These symptoms vary according to the nerves affected but examples include shortness of breath, swollen abdomen, nausea and abnormal sweating.
- The University of Birmingham is a member of the Russell Group of 20 leading UK research-intensive universities. It is a vibrant, global community and an internationally-renowned institution, in the top 100 globally. With approximately 28,000 students and 6,000 members of staff, its work brings people from more than 150 countries to Birmingham. For further information, please visit: **www.birmingham.ac.uk (http://www.birmingham.ac.uk/)**

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