

# New research offers the potential of new treatments for toxoplasma-induced pneumonia and cystic fibrosis

29 April 2015



Professor Geoff Hide's new research offers the potential of new treatments for toxoplasma-induced pneumonia and cystic fibrosis

The research has discovered a link between a vital pumping system that does not function correctly in people with cystic fibrosis and the parasite *Toxoplasma*.

A team of researchers from the University of Salford, led by Professor Geoff Hide, Professor of Parasitology at the School of Environment & Life Sciences, has worked with researchers from the Universities of Sun Yat-Sen, China and California in a study of the *Toxoplasma gondii* parasite. The parasite is one of the most common in humans.

The team found that the *Toxoplasma gondii* parasite causes the chloride pumping system, which releases chloride ions to produce a surface liquid lining in order to prevent airborne pathogens from being inhaled, not to work.

In people with [cystic fibrosis](#) and pneumonia, this

pump does not work. This defect is linked to infection by the *Toxoplasma gondii* parasite.

The research has revealed that a receptor called 'P2Y2-R', which picks up the signals to switch on this pump, is blocked when infected by the *Toxoplasma gondii* parasite.

This is the first time a causal relationship has been proven between infection of the *Toxoplasma gondii* infection and a defect in the chloride pumping system being linked to diseases such as cystic fibrosis. The new knowledge from these research findings paves the way for the development of new drugs to treat respiratory diseases.

Professor Hide believes that understanding the parasite is paramount for developing treatments in the future.

He said: "This is a very important finding as this parasite is thought to infect around 10% of people in the UK and 30% of people globally."

"While the parasite normally does not affect us, in some cases, such as, during pregnancy or immune system illnesses, it can cause considerable harm, including impairment of lung function."

**More information:** "Infection by *Toxoplasma gondii*, a severe parasite in neonates and AIDS patients, causes impaired anion secretion in airway epithelia." *PNAS* 2015 112 (14) 4435-4440; published ahead of print March 23, 2015, [DOI: 10.1073/pnas.1503474112](https://doi.org/10.1073/pnas.1503474112)

Provided by University of Salford

APA citation: New research offers the potential of new treatments for toxoplasma-induced pneumonia and cystic fibrosis (2015, April 29) retrieved 7 October 2022 from <https://medicalxpress.com/news/2015-04-potential-treatments-toxoplasma-induced-pneumonia-cystic.html>

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