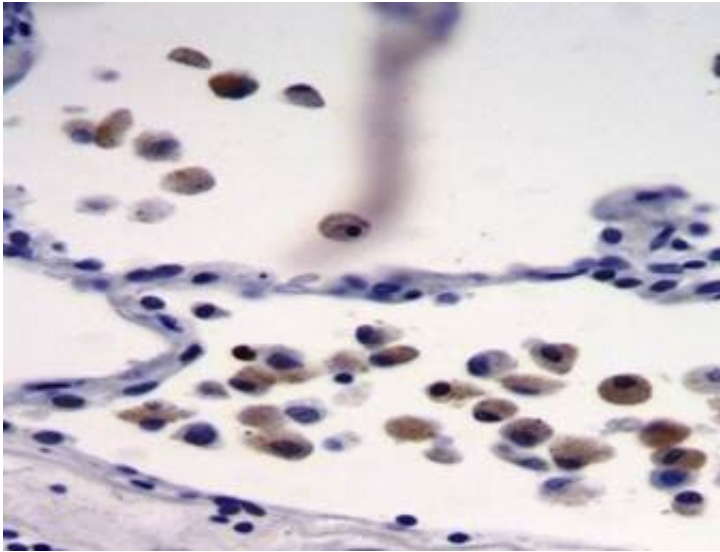


Scientists find 'unknown link' between lung cancer and common parasite

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A picture of Toxoplasma infected cells in lung tissue. The brown-stained cells are those that contain the parasite. Credit: University of Salford

Toxoplasma gondii, a microscopic parasite that gets inside our cells, is present in about 10 percent of the population in the U.K.

But in tests on [lung cancer patients](#), all were found to be infected with the parasite.

"It's a remarkable result which we don't fully understand yet," states Geoff Hide, Professor of Parasitology at the University of Salford. "It is

possible that the presence of the parasite in these patients is exacerbating their symptoms of cancer or interfering with their therapy."

Geoff and Dr. Lucy Smyth's work on [lung tissue](#) and Chronic Obstructive Pulmonary Disease at Salford University, led them and Ph.D. student Dr. Jaro Bajnok to carry out additional tests on the samples to see if any contained Toxoplasma.

Working with Professor Dave Singh, clinical consultant at the Medicines Evaluation Unit at Manchester University, they tested 72 tissue samples from patients diagnosed with [lung](#) cancer and found the parasite in all of them.

Further analysis of parasite life-cycle stages suggested that 96 percent of these patients had active infections. Control samples returned only a 10 percent positive match, consistent with the national average.

Reporting in the Journal the *European Respiratory Journal* (Open Research), the team conducted diagnostic tests using five Toxoplasma specific PCR markers and specific immunohistochemistry demonstrated that the infection was present in lung biopsy samples.

T. gondii is capable of infecting virtually all warm-blooded animals, and is commonly acquired by consuming raw meat or infected water or soil or handling cat litter. It can also be transmitted from mother to unborn baby and induce miscarriage.

The Manchester team is now planning a much larger study of samples from a broad range of cancer centers.

"We need to find out why the parasite is so active in these patients. It may be age-related because these are people with lung [cancer](#) but that is clearly not the whole story.

"Our advice to clinicians at this stage is be aware of the presence of this parasite, do test for it because it may or may not interfere with any treatment regime."

The same team at Salford, U.K. found a link between incorrectly functioning cellular pumping mechanism in cystic fibrosis patients and *Toxoplasma gondii*, reported in *Proceedings of the National Academy of Sciences*.

More information: Jaroslav Bajnok et al. High frequency of infection of lung cancer patients with the parasite *Toxoplasma gondii*, *ERJ Open Research* (2019). [DOI: 10.1183/23120541.00143-2018](https://doi.org/10.1183/23120541.00143-2018)

Provided by University of Salford

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