Imperial College London News Release
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New virus is not linked to Chronic Fatigue Syndrome, suggests UK research

New UK research, published today in PLoS ONE, has not reproduced previous findings that suggested Chronic Fatigue Syndrome may be linked to a recently discovered virus. The authors of the study, from Imperial College London and King's College London, say this means that anti-retroviral drugs may not be an effective treatment for people with the illness.

An estimated three in 1000 people have Chronic Fatigue Syndrome (CFS), or myalgic encephalomyelitis (ME), experiencing severe physical and mental fatigue that is not alleviated by rest, together with other symptoms such as muscle pain, headache, joint pain and depression. Diagnosing CFS is difficult, as symptoms vary and there is no standard test. The fundamental cause of CFS is unknown and it is usually treated using rehabilitation techniques such as cognitive behavioural therapy or graded exercise therapy.

In October 2009, a group of US scientists published research in the journal Science that suggested that a recently discovered virus called XMRV could be linked to CFS. In their study, 68 out of 101 patients with the illness and 8 out of 218 healthy controls appeared to be infected with the virus.

However, in today's study, researchers found no evidence that patients with CFS had the XMRV virus, after analysing tissue samples from 186 patients with CFS using sensitive molecular testing techniques.

This more recent analysis showed no molecular evidence for XMRV in any of the samples from CFS patients. The researchers say this means that anti-retrovirals should not be used to treat CFS, as they would be unlikely to have an effect on the symptoms. However, several labs in the US now offer CFS patients treatments based on the earlier findings that linked the condition with XMRV.

Professor Myra McClure, one of the authors of the study from the Division of Medicine at Imperial College London, said: "Our research was carried out under rigorous conditions - we looked at samples from well-studied patients, and we used very sensitive testing methods to look for the virus. If it had been there, we would have found it. The lab in which we carried out the analysis had never housed any of the murine leukaemia viruses related to XMRV, and we took great care to ensure there was no contamination.

"We are confident that our results show there is no link between XMRV and Chronic Fatigue Syndrome, at least in the UK. The US study had some dramatic results that implied people with the illness could be treated with anti-retrovirals.

Our recommendation to people with Chronic Fatigue Syndrome would be not to change their treatment regime, because our results suggest that anti-retrovirals would not be an effective treatment for the condition," added Professor McClure.

After reading the US study, clinical researchers from King's College London sent blood samples from 186 CFS patients to the Imperial Retrovirology Laboratory team. King's has been running an NHS service for CFS patients for nearly twenty years, and the previously stored samples came from patients had been fully investigated and examined, meaning that CFS was the correct diagnosis.

The Imperial scientists extracted the DNA from the samples and analysed it using a sensitive technique, called Polymerase Chain Reaction (PCR), which can locate tiny fragments of virus DNA. The scientists analysed control samples of water at the same time to ensure there was no contamination. They also looked for a specific marker fragment of human DNA in the sample to make sure the technique was working.

The water controls contained no DNA, showing that the samples were not contaminated. All the test samples, from patients and healthy controls, contained the human DNA they looked for, suggesting the technique was working well.

Dr Anthony Cleare, Reader in Psychiatric Neuroendocrinology, one of the authors of the study from the Chronic Fatigue Syndrome Clinic at King's College London, said: "Chronic Fatigue Syndrome is a serious and debilitating condition. It can also be extremely frustrating for people with the illness, as we have yet to identify its fundamental cause, or come up with any definitive treatments. The recent US study generated real excitement among doctors and patients alike as it seemed to open up a new line of research. Unfortunately, we have not been able to replicate those findings."

"It is important to emphasise that today's findings do not invalidate all previous research, some of which has shown that CFS can be triggered by other infective agents, such as Epstein Barr Virus or Giardia parasites. As ever in science, no single study is conclusive and there are lots of other research groups working on this at the moment. We await their results with interest," added Professor Simon Wessely, another author of the study from the Chronic Fatigue Syndrome Clinic at King's College London.

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Notes to Editors:

1. "Failure to Detect the Novel Retrovirus XMRV in Chronic Fatigue Syndrome" PLoS ONE, Wednesday 6 January 2010.

Corresponding author: Professor Myra McClure, Imperial College London (For a full list of authors, please see paper) You can download a proof of the paper here:
https://fileexchange.imperial.ac.uk/files/bfe812fffad/McClure%20PLoS%20ONE.pdf

2. Patients can be referred to the CFS Service at King's College Hospital by their General Practitioner. Please visit the website for more details:
http://www.kcl.ac.uk/projects/cfs/

3. About Imperial College London

Consistently rated amongst the world's best universities, Imperial College London is a science-based institution with a reputation for excellence in teaching and research that attracts 14,000 students and 6,000 staff of the highest international quality.

Innovative research at the College explores the interface between science, medicine, engineering and business, delivering practical solutions that improve quality of life and the environment - underpinned by a dynamic enterprise culture.

Since its foundation in 1907, Imperial's contributions to society have included the discovery of penicillin, the development of holography and the foundations of fibre optics. This commitment to the application of research for the benefit of all continues today, with current focuses including interdisciplinary collaborations to improve health in the UK and globally, tackle climate change and develop clean and sustainable sources of energy.

Website: www.imperial.ac.uk

4. King's College London

King's College London is one of the top 25 universities in the world (Times Higher Education 2009) and the fourth oldest in England. A research-led university based in the heart of London, King's has more than 21,000 students from nearly 140 countries, and more than 5,700 employees. King's is in the second phase of a £1 billion redevelopment programme which is transforming its estate.

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