

Editorial Expression of Concern

Bruce Alberts

Editor-in-Chief

In the issue of 23 October 2009, *Science* published the Report “Detection of an infectious retrovirus, XMRV, in blood cell of patients with chronic fatigue syndrome,” a study by Lombardi *et al.* purporting to show that a retrovirus called XMRV (xenotropic murine leukemia virus-related virus) was present in the blood of 67% of patients with chronic fatigue syndrome (CFS) compared with 3.7% of healthy controls (1). Since then, at least 10 studies conducted by other investigators and published elsewhere have reported a failure to detect XMRV in independent populations of CFS patients. In this week’s edition of *Science Express*, we are publishing two Reports that strongly support the growing view that the association between XMRV and CFS described by Lombardi *et al.* likely reflects contamination of laboratories and research reagents with the virus. In the first Report, “Recombinant origin of the retrovirus XMRV” (2), T. Paprotka *et al.* trace the ancestry of XMRV and provide evidence that the virus originated when two mouse leukemia viruses underwent recombination during experimental passage of a human prostate tumor xenograft in mice in the 1990s. A combination of sequencing, phylogenetic, and probability analyses lead Paprotka *et al.* to conclude that laboratory contamination with XMRV produced by a cell line (22Rv1) derived from these early xenograft experiments is the most likely explanation for detection of the virus in patient samples. In the second Report, “No evidence of murine-like gammaretroviruses in CFS patients previously identified as XMRV-infected” (3), K. Knox *et al.* examined blood samples from 61 CFS patients from the same medical practice that had provided patient samples to Lombardi *et al.* Comprehensive assays by Knox *et al.* for viral nucleic acids, infectious virus, and virus-specific antibodies revealed no evidence of XMRV in any of the samples.

The study by Lombardi *et al.* (1) attracted considerable attention, and its publication in *Science* has had a far-reaching impact on the community of CFS patients and beyond. Because the validity of the study by Lombardi *et al.* is now seriously in question, we are publishing this Expression of Concern and attaching it to *Science*’s 23 October 2009 publication by Lombardi *et al.*

The U.S. National Institutes of Health is sponsoring additional carefully designed studies to ascertain whether the association between XMRV and CFS can be confirmed. *Science* eagerly awaits the outcome of these further studies and will take appropriate action when their results are known.

References

1. V. C. Lombardi *et al.*, *Science* **326**, 585 (2009); published online 8 October 2009 ([10.1126/science.1179052](https://doi.org/10.1126/science.1179052)).
2. T. Paprotka *et al.*, *Science*, published online 31 May 2011 ([10.1126/science.1205292](https://doi.org/10.1126/science.1205292)).
3. K. Knox *et al.*, *Science*, published online 31 May 2011 ([10.1126/science.1204963](https://doi.org/10.1126/science.1204963)).

17 May 2011; accepted 26 May 2011

Published online 31 May 2011; 10.1126/science.1208542

Include this information when citing this paper.



Editorial Expression of Concern

Bruce Alberts (May 31, 2011)
published online May 31, 2011

Editor's Summary

This copy is for your personal, non-commercial use only.

Article Tools Visit the online version of this article to access the personalization and article tools:
<http://science.sciencemag.org/content/early/2011/05/31/science.1208542>

Permissions Obtain information about reproducing this article:
<http://www.sciencemag.org/about/permissions.dtl>

Science (print ISSN 0036-8075; online ISSN 1095-9203) is published weekly, except the last week in December, by the American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005. Copyright 2016 by the American Association for the Advancement of Science; all rights reserved. The title *Science* is a registered trademark of AAAS.