

Retraction

MEDICAL SCIENCES

Retraction for “Detection of MLV-related virus gene sequences in blood of patients with chronic fatigue syndrome and healthy blood donors,” by Shyh-Ching Lo, Natalia Pripuzova, Bingjie Li, Anthony L. Komaroff, Guo-Chiuan Hung, Richard Wang, and Harvey J. Alter, which appeared in issue 36, September 7, 2010, of *Proc Natl Acad Sci USA* (107:15874–15879; first published August 23, 2010; 10.1073/pnas.1006901107).

The authors wish to note the following: “Although our published findings were reproducible in our laboratory and while there has been no evidence of contamination using sensitive mouse mitochondrial DNA or IAP assays or in testing coded panels, we have the following concerns:

1. The original chronic fatigue syndrome (CFS) patient samples were of insufficient volume to distribute to other laboratories for independent confirmation.
2. Only one (1) of many laboratories has found a similar association between polytropic murine leukemia viruses (pMLV) and CFS and a careful study of 100 CFS patients (2), as well as a coded panel recently constructed by the National Heart, Lung, and Blood Institute (NHLBI) (3), have found no evidence for either xenotropic murine leukemia virus-related virus (XMRV) or pMLVs in CFS patient samples.
3. Our attempts, through collaborations, to demonstrate antibody in affected patients, to isolate the virus by culture, or to show integration sites in the human genome have failed to support the initial findings.
4. While recall of eight patients from the original cohort 15 years later showed pMLV gag sequences in seven, the copy number was very low and phylogenetic analysis showed these sequences were not direct descendants of the original dominant strains (4). Still later samples from four of these pa-

tients tested negative in the NHLBI panel. While this result could be explained by viral clearance over time, it fails to support a sustained retroviral infection in human cells.

Although a more definitive, National Institute of Allergy and Infectious Diseases (NIAID)–sponsored, coded panel of samples from 150 well-characterized and geographically diverse CFS patients and controls is being assembled for further study, in consideration of the aggregate data from our own laboratory and that of others, it is our current view that the association of murine gamma retroviruses with CFS has not withstood the test of time or of independent verification and that this association is now tenuous. Therefore, we retract the conclusions in our article.”

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1. Hanson MR, et al. (2011) Detection of MLV-like gag sequences in blood samples from a New York state CFS cohort. *Retrovirology* 8(Suppl 1):A234.
2. Shin CH, et al. (2011) Absence of XMRV retrovirus and other murine leukemia virus-related viruses in patients with chronic fatigue syndrome. *J Virol* 85: 7195–7202.
3. Simmons G, et al.; Blood XMRV Scientific Research Working Group (SRWG) (2011) Failure to confirm XMRV/MLVs in the blood of patients with chronic fatigue syndrome: a multi-laboratory study. *Science* 334:814–817 10.1126/science.1213841.
4. Katzourakis A, Hué S, Kellam P, Towers GJ (2011) Phylogenetic analysis of murine leukemia virus sequences from longitudinally sampled chronic fatigue syndrome patients suggests PCR contamination rather than viral evolution. *J Virol* 85: 10909–10913.

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