

## **“House of Numbers” Lies about Research Findings on T Cell Destruction and AIDS**

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The centerpiece of the argument in “House of Numbers” is intoned by Brent Leung: “In late 2007, *ScienceDaily* reported that three prominent research teams had published papers in the *Journal of Immunology*, challenging the theory that the sudden loss of T-cells triggers disease and AIDS.” On screen we see a headline. Seconds later, he elaborates: “If the sudden loss of T-cells in HIV positive individuals can’t explain why people get disease, then there must be co-factors that cause people to get sick and die. Or, factors that have absolutely nothing to do with HIV.” But Leung is lying about the research he is referencing: it was with monkeys, not people. However, someone at *ScienceDaily* wrote an inaccurate headline that misrepresented the content of the article and made it seem as if it referred to human AIDS. Leung carefully avoided the actual text of the article, which make its clear that the loss of T-cells in humans *does* trigger AIDS in people. In fact, the researchers specifically contrast what happens to SIV infected monkeys whose T cells are destroyed and do not progress to AIDS with what happens to people infected with HIV whose T cells are destroyed and therefore do progress to AIDS.

Here’s the play-by-play. The lynchpin of Brent Leung’s argument that HIV does not cause AIDS is the headline of a 2007 article on *ScienceDaily.com* that read, “Sudden Loss Of T Cells Is Not Trigger For AIDS, New Study Suggests.”<sup>[i]</sup> The screen shows the article’s headline and first paragraphs for 12 seconds (a very long time in “House of Numbers”), while Leung, in a voice-over, intones, “In late 2007, *ScienceDaily* reported that three prominent research teams had published papers in the *Journal of Immunology*, challenging the theory that the sudden loss of T-cells triggers disease and AIDS.” Since T cell destruction is understood to be the primary mechanism by which HIV destroys the immune system, this seems to seriously challenge the HIV/AIDS paradigm.

The film then cuts to a clip of researcher John P. Moore saying, “The details of HIV pathogenesis, how HIV kills people, are still being worked out.” The placement of this interview fragment implies that Moore would agree that T cell destruction does not lead to AIDS and death (though, of course, he does not agree: JPM – personal communication). Next, Leung is shown in a lab, theorizing that, “If the sudden loss of T-cells in HIV positive individuals can’t explain why people get disease, then there must be co-factors that cause people to get sick and die. Or, factors that have absolutely nothing to do with HIV.” And the film goes on to propose other causes for AIDS—poverty, poppers, AZT.

*But the research Leung cites to claim that T cell loss does not cause AIDS does not say what Leung says it did. On the contrary, it affirms that in humans T cell destruction leads to AIDS and death.* The document on the screen was indeed from *ScienceDaily*, a popular science news website. However, the headline and first paragraph of that article, which was itself based on a press release from Tulane University, did not accurately represent the research: *notably, the headline and first paragraph failed to mention that the research was done with non-human primates.* Leung and his crew disregarded the rest of the *ScienceDaily* article, which clearly recorded that non-human primates were used and stated that the particular strain of SIV infecting these particular simian species behaves differently from HIV in humans. (Some other strains of SIV do cause AIDS in other simian species, notably in macaques) In the simian species used in this particular study, the animals rebound from the T cell destruction caused by the infecting virus, whereas humans generally don’t when they are infected with HIV. Leung also ignored the actual *Journal of Immunology* articles that *ScienceDaily* linked to—which is remarkable since his entire case against HIV’s causality rests on them.<sup>[ii]</sup>

The articles misrepresented by Leung said that three teams of researchers studied SIV-infected sooty mangabeys, rhesus macaques, and African green monkeys, respectively, and found that sooty mangabeys and African greens have non-pathogenic infections: they can recover from T cell depletion, which is why they do not get AIDS. (Rhesus do progress rapidly to AIDS.) The researchers explicitly contrasted non-human primate T cell recovery with the disease progress in HIV-infected human beings, who *cannot* recover from T cell depletion without treatment, and who therefore progress to AIDS and death. The three research teams suggest that while some non-human primates have evolved to adapt to the virus over many centuries, it is still new in humans: we have not yet evolved to recover from T cell destruction. The researchers see their findings as suggestive for therapies to control immune system activation and promote recovery from HIV-related T cell destruction.

We contacted *ScienceDaily* and they have corrected the misleading headline and paragraph. The headline now reads, "Progression Of SIV Infection In Monkeys Points To Differences Between Human And Simian Forms Of AIDS." [iii] The summary of the research clarifies the distinction between the virus in humans and simians: "Another major question raised by the study is why monkeys with SIV, unlike HIV-positive humans, are generally resistant to progression to AIDS after infection with the virus. The answer, the authors propose, is that thousands of years of host/virus co-adaptation has enabled monkeys, the natural hosts of SIV, to effectively limit T cell immune activation and apoptosis, a mechanism that leads to progression of the disease. By contrast, humans, who were introduced to the virus fairly recently, have not had the opportunity to develop such protective adaptations."

*ScienceDaily* has also added an Editor's Note:

This story has been modified from its original version, which can be accessed here: [http://web.archive.org/web/\\*/http://www.sciencedaily.com/releases/2007/09/070923193631.htm](http://web.archive.org/web/*/http://www.sciencedaily.com/releases/2007/09/070923193631.htm) (via the Internet Archive's Wayback Machine). This version clarifies that the research described in the story examined the differences in how the simian and human forms of AIDS progress. The purpose of the story was NOT meant to suggest that the sudden loss of T cells is not the trigger of AIDS in humans, nor was there any intent to support the erroneous belief that HIV somehow does not cause AIDS. We regret any confusion that this may have caused. Links to the abstracts of the journal papers referred to above are provided below.

There is very little actual research cited in "House of Numbers." It is shocking that Leung so radically misrepresented the only legitimate "evidence" for his HIV denialist theory, and that his source in fact affirms that HIV destroys T cells in humans, causing AIDS.

November 1, 2009. Minor revisions February 8, 2010.

[i] Tulane University (2007, September 26). Sudden Loss Of T Cells Is Not Trigger For AIDS, New Study Suggests. *ScienceDaily*. Retrieved October 28, 2009, from <http://www.sciencedaily.com/releases/2007/09/070923193631.htm> Study Suggests.]

[ii] Ivona V. Pandrea, Rajeev Gautam, Ruy M. Ribeiro, Jason M. Brenchley, Isolde F. Butler, Melissa Pattison, Terri Rasmussen, Preston A. Marx, Guido Silvestri, Andrew A. Lackner, Alan S. Perelson, Daniel C. Douek, Ronald S. Veazey, and Cristian Apetrei. **Acute Loss of Intestinal CD4<sup>+</sup> T Cells Is Not Predictive of Simian Immunodeficiency Virus Virulence.** *Journal of Immunology*, 2007; 179: 3035-3046 [link]

Shari N. Gordon, Nichole R. Klatt, Steven E. Bosinger, Jason M. Brenchley, Jeffrey M. Milush, Jessica C. Engram, Richard M. Dunham, Mirko Paiardini, Sara Klucking, Ali Danesh, Elizabeth

A. Strobert, Cristian Apetrei, Ivona V. Pandrea, David Kelvin, Daniel C. Douek, Silvija I. Staprans, Donald L. Sodora, and Guido Silvestri. **Severe Depletion of Mucosal CD4<sup>+</sup> T Cells in AIDS-Free Simian Immunodeficiency Virus-Infected Sooty Mangabeys.** *Journal of Immunology*, 2007; 179: 3026-3034 [[link](#)]

Jeffrey M. Milush, Jacqueline D. Reeves, Shari N. Gordon, Dejiang Zhou, Alagar Muthukumar, David A. Kosub, Elizabeth Chacko, Luis D. Giavedoni, Chris C. Ibegbu, Kelly S. Cole, John L. Miamidian, Mirko Paiardini, Ashley P. Barry, Silvija I. Staprans, Guido Silvestri, and Donald L. Sodora. **Virally Induced CD4<sup>+</sup> T Cell Depletion Is Not Sufficient to Induce AIDS in a Natural Host.** *Journal of Immunology*, 2007; 179: 3047-3056 [[link](#)]

[[iii](#)] Tulane University (2007, September 26). Progression Of SIV Infection In Monkeys Points To Differences Between Human And Simian Forms Of AIDS. *ScienceDaily*. Retrieved November 1, 2009, from <http://www.sciencedaily.com/releases/2007/09/070923193631.htm>