It must be tough to be an HIV denier these days. Back in the 1980s HIV was just being discovered and researched. The connection to the acquired immune deficiency syndrome (AIDS) quickly became clear, but the early treatments (remember AZT) were minimally effective.

One of the primary arguments of those who, for various reasons, decided to deny the connection between HIV and AIDS (or even the existence of HIV), was that anti-HIV treatment was ineffective in preventing or treating AIDS.

In the 1990s researchers developed a cocktail of new drugs called highly active anti-retroviral treatment (HAART), which is more recently just referred to by ART. With HAART, people with HIV started to live longer and longer. The treatment decreased viral loads (the amount of virus that can be detected in blood), improved immune function, decreased opportunistic infections and other complications of AIDS, and prolonged survival.

Those who were not taking HAART because they denied HIV, meanwhile, started to die off. HIV denial was on the wane but it never went away.

Peter Deusberg, who continues to desperately attempt to lend scientific credibility to HIV denial, remains the champion of this denial. On his website he claims:

"He has instead proposed the hypothesis that the various American/European AIDS diseases are brought on by the long-term consumption of recreational drugs and/or AZT itself, which is prescribed to prevent or treat AIDS."

This hypothesis does not explain how people who have never used recreational drugs, like kids who were infected from blood transfusions, or many people living in Africa who do not have access to such drugs, developed AIDS. Also, the spread of AIDS has not tracked with AZT use (the drug is now no longer in use for HIV). This theory does not account for the true epidemiology of the disease, which follows exposure to infected blood and other bodily fluids, not drug use.

HIV denial was never scientifically credible. It remains as an example of the power of denial and motivated reasoning in the face of overwhelming scientific evidence.

Now the crowning achievement of that evidence is the HIV hypothesis has lead directly to ART

drugs which are capable of putting HIV into a virtual remission, with undetectable viral loads and almost no effect on health and life expectancy for those who are well treated. Those who, for whatever reason, are not treated with ART continue to progress and develop AIDS. The connection has been demonstrated over and over again, and is a dramatic confirmation of the HIV hypothesis, in direct contradiction to the core claim of the HIV deniers. Scientifically, the case is closed.

But that never stopped deniers.

In an article from 2012 Bryan Fischer asks and answers *: "Why is Magic Johnson healthy as a horse? HIV virus does NOT cause."*

I have to point out that "HIV virus" is redundant, like PIN number. The "V" in "HIV" stands for "virus."

The real answer to Fischer's question is that Magic Johnson is healthy because of modern ART (or should I say, "ART therapy"). Just ask anyone who has had HIV for 20 years without ART, except you can't, because they are likely not alive. (Noted exception - there are those who are naturally resistant to HIV, and there are strains of HIV that are much weaker than the most common wild strains, so this is not universally true.)

Fischer makes some real howlers in his conspiracy mongering denialist rant. He writes:

"Viruses simply do not park in the system for 10-12 years and then suddenly spring to life to infect the host with a life-threatening disease, which is precisely the scenario HIV proponents advocate, making their view utterly unscientific and contrary to everything we know for a molecular fact about how viruses behave."

Except for all those viruses that do park themselves in certain tissues and cause chronic or latent illness, as anyone with shingles knows first hand. The chicken pox virus (Varicella zoster) can lay dormant in dorsal root ganglions (sensory nerve cells that sit right outside the spinal cord) and then become active years later, causing an outbreak of shingles.

Hepatitis viruses can also cause chronic illness. The JC virus, which 60-70% of the general population are infected with, lay dormant in the brain in most people, but can become active and cause progressive multifocal leukoencephalopathy (PML), which is a serious illness. The Ebstein Barre virus (EBV) also causes chronic infections, and is asymptomatic in most people but is thought to cause chronic fatigue syndrome in some.

There is a long list of viruses known to cause a slow simmering chronic illness, or that lay dormant and then can become active after years. Fischer is therefore just making up "molecular facts" (whatever they are) to suit his denialist needs. Clearly this represents a profound disregard for the truth.

So why do the world's scientists still believe HIV causes AIDS, according to Fischer?

"Virologists by the early 80s had given up on finding a viral cause for cancer. They had expensive labs and were drawing hefty salaries and suddenly had no dragons to slay. And so they seized on HIV as a make-believe culprit, and invented it as the cause of AIDS. Why? To keep billions of dollars in research grants flowing into their labs and wallets.'

The old "follow the money" gambit. This is a good go-to explanation for conspiracy theorists. Those fiendishly clever virologists concocted a world-wide conspiracy to invent and then practically cure a chronic viral illness to keep them in their "lavish" lifestyle. I'm betting Fischer doesn't personally know many virologists.

Conclusion

The identification and characterization of HIV followed by the development of highly effective ART to treat it is one of the stunning science success stories of the last 30 years. In one generation HIV has gone from a death sentence to a manageable chronic illness.

Instead of celebrating this triumph of modern medical science, denialists make up conspiracy

fantasies, and then desperately cling to their absurd beliefs while the rest of the world moves on. Along the way, however, they were responsible for many premature deaths (most notably in Africa where both HIV and HIV denial remain a serious problem).

James Randi was right, of course - such beliefs are "unsinkable rubber duckies" - they may be marginalized, but they rarely disappear entirely, not matter how thoroughly they are destroyed by history.

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