

THE EMPEROR'S NEW VIRUS?

Commentary by [The Perth Group](#) 20th September 2011

The Emperor's New Virus? documentary is online at:

<http://youtu.be/PQFxrW7E>

<http://vimeo.com/28934768>

<http://vimeo.com/houseofnumbers> (HD download)

This commentary is online at:

<http://www.houseofnumbers.com/site/scientific-response>

www.theperthgroup.com/OTHER/ENVCommentary.pdf

www.tig.org.za/ENV_Commentary.pdf

There is a summary entitled "[In a Nutshell](#)" at the end of this document.

Man's mind cannot grasp the causes of events in their completeness, but the desire to find those causes is implanted in man's soul. And without considering the multiplicity and complexity of the conditions any one of which taken separately may seem to be the cause, he snatches at the first approximation to a cause that seems to him intelligible and says: "This is the cause!"

Count Leo Tolstoy *War and Peace* Book XIII Chapter 1

FOREWORD

The aim of this document is to explain and amplify the information presented in Brent Leung's video *The Emperor's New Virus?* Both video and commentary are long because, with a PubMed search of [HIV AND (isolation OR detection)] bringing up 25,000 papers, challenging the HIV theory of AIDS cannot be confined to a few paragraphs. In some places the commentary departs from the order of the video but it does encompass most of the material Leung presents. It is hoped that the video, complemented with this material, will provide viewers/readers with an appreciation of the Perth Group's interpretation of the scientific data: Thus far the scientific data do not prove the existence of a unique retrovirus HIV. There can be no HIV theory of AIDS without HIV. HIV remains the greatest impediment to solving the problem of AIDS.

INTRODUCTION

Over the past three decades we have repeatedly been told there is a virus HIV and this virus is the cause of AIDS. "HIV, the virus that causes AIDS" is probably the best known, most repeated, most believed biological statement of all time. What most people do not know is that the HIV theory of AIDS does not enjoy universal acceptance. Indeed, not only has the HIV theory been challenged, so too has the existence of HIV. Brent Leung's video follows in the footsteps of two able

investigative journalists,¹ Neville Hodgkinson and Djamel Tahj. Hodgkinson wrote the book: *Aids: The Failure of Contemporary Science. How a Virus that Never Was Deceived the World.*² It was in Djamel Tahj's 1997 *en camera* interview³ that Montagnier, among other things, admitted the material he claimed was the "new virus" HIV, was devoid of retrovirus particles. This should have spelt the end of HIV. Instead it marked the beginning.

HIV protagonists and dissidents do agree there can be no HIV theory of AIDS without HIV. However, if one accepts the existence of a retrovirus HIV and accurate tests to detect its presence in the human body, it is not difficult to argue the case for the HIV theory. This may explain why Peter Duesberg, the *bête noire* of the AIDS establishment, has had so much trouble proving his point. Duesberg has long argued HIV is not the cause of AIDS⁴ because it is harmless. Rather than being pathogenic it is a "passenger virus" pointing to the "real" cause of AIDS. In framing this theory Duesberg does not dispute the existence of HIV or HIV specific antibodies. Indeed the existence of both is a necessary condition for his theory. In his view HIV is a *bona fide* retrovirus rendered harmless because it is neutralised by the HIV antibodies. Being a virologist of considerable stature the scientific community could not afford to ignore Duesberg. In the late 1980s and early 1990s his claims were critically analysed and rebutted in several scientific journals. Satisfied that Duesberg has been neutralised,⁵ HIV experts continue to either dismiss or ignore all other dissident argument.⁶

Our group's involvement in AIDS began in 1981 when two diseases, Kaposi's sarcoma and *Pneumocystis carinii* pneumonia, began appearing at an alarming rate in young, homosexual men in the United States. Prior to the AIDS era one of us (Eleni Papadopulos-Eleopulos [EPE]) had developed a general theory of cellular functioning⁷ which we thought might go a long way to explaining the pathogenesis of AIDS.⁸ However, following the claim of the discovery of a retrovirus by Montagnier in 1983, and its subsequent rediscovery by Gallo in 1984, this theory did not gain traction. This is why we have spent the past three decades challenging the HIV theory. This has become a necessary strategy to furthering our own theory of AIDS pathogenesis. Our efforts in this regard are reflected in our publications: several papers in the peer-reviewed scientific literature and material published in the popular press and on the internet.⁹ The rise of the internet¹⁰ has in no small way made up for the increasing difficulty of publishing contrarian points of view. In regard to the latter, editors of scientific and medical journals are in a difficult situation. Peer reviewers (peer \equiv HIV protagonist) do not take kindly to anti-HIV-theory manuscripts¹¹ and editors need to be sensitive to the commercial realities of publishing, which include relationships with proprietors and advertisers.

The Emperor's New Virus? consists largely of Leung's interviews with the leader of the Perth Group, biophysicist Eleni Papadopulos-Eleopulos and several leading, international HIV/AIDS experts. It may seem strange that a physicist should lead a

challenge against a biological theory, but ultimately, biology is physics.¹² The history of science reveals an abundance of people, not all scientists, entering the territorial waters of others. Occupying such spaces seems to be especially favoured by physicists, a highly commendable practice because physicists are taught to maintain a world view of nature. To cite two of many examples: In 1944 physicist Erwin Schrödinger wrote a small book on biology: *What is Life? The Physical Aspect of the Living Cell*. This year, 2011, the US National Cancer Institute funded 12 new Physical Science-Oncology Centres as part of a five-year initiative. This innovation specifically designates physicists in the anticipation they will bring fresh ideas to cancer research largely because the perennial cancer scientists have found it so difficult to dent the magnitude of this “stubborn and growing medical problem”.^{13, 14}

Scientific knowledge has become so vast that scientists, like many other professionals, must sacrifice breadth for depth. Nowadays specialisation is a necessity for a scientific career but it comes at a price. The risk is that scientists restrict their activities to such a degree they become trapped in what John Ralston Saul calls “fractured fields of learning”, problematic in regard to “integrated thought”. Gerard deGroot describes the same phenomenon as “arcane foxholes of knowledge”. HIV/AIDS is a good example, being, as it must, a multitude of interfaces between many different disciplines where each scientist is entirely dependent on the veracity of all others. Anyone familiar with physicist Richard Feynman’s investigation of the Space Shuttle Challenger explosion in 1986 will appreciate how one small vulnerability can cause the demise of a whole enterprise. For example, all major epidemiological studies in HIV/AIDS are premised on the specificity of HIV antibody testing. If specificity is lacking such studies fail utterly.

In the early 1980s Professor Ronald Penny,¹⁵ a senior, highly credentialed and respected clinical immunologist at St. Vincent’s Hospital in Sydney, Australia, presented listeners to Australian ABC radio a simple but elegantly powerful defence against the nascent, dissident questioning of the HIV theory of AIDS. He said: “Wherever you have AIDS you have HIV. Wherever you don’t have AIDS you don’t have HIV”. Although he may not have realised it, Penny was throwing down the gauntlet to anyone embarking down a dissident path. Deconstruction of the HIV theory of AIDS requires nothing less than the deconstruction of HIV. Penny’s argument points up the difficulty Duesberg has faced in arguing from the premise that HIV and HIV specific antibodies exist. From the Perth Group’s perspective, Penny’s stance has a certain irony. The greatest single impediment to solving the problem of AIDS is the “human immunodeficiency virus”.

One needs to expand Penny’s argument somewhat to grasp the full extent of his premises. When Penny says “Wherever you have AIDS you have HIV” he is saying “Wherever you have AIDS you have HIV infection”. How does Penny know there is HIV infection? He would answer: Because everyone with AIDS undergoes a blood test – an antibody test – proven to be highly specific for HIV infection. Meaning

nothing or hardly anything but HIV can cause a positive test. In other words, Penny would say the test is as good as finding the virus itself in a person. This means that HIV infection is not diagnosed directly, as in the cases of a bacterium in the pus of an infected wound. HIV, the virus particles, are not obtained from the blood or tissues of a patient. HIV infection is diagnosed indirectly and a person's status as "HIV positive" refers to a positive antibody test. This distinction is important and warrants further explanation.

Antibodies are not viruses. Antibodies are proteins elaborated by cells of the immune system known as plasma cells. Plasma cells in turn are derived from B-lymphocytes.¹⁶ When a person encounters a foreign agent, a viral infection for example, the interaction between that agent and particular B-lymphocytes causes the latter to differentiate into antibody producing plasma cells. The antibodies they produce are described as being "directed against" the virus proteins with which they chemically unite –thereby, we are told, "neutralising the foreign invader". This describes Duesberg's position. The Australian Society of HIV Medicine advises patients that the immune system, which includes antibodies, "have the primary function of protecting the human body from attacks by "foreign" agents. These can include viruses, infection-causing bacteria, parasites and fungi, or other material introduced into the body, for example, chemicals". The notion that antibodies act by directly "neutralising" viruses was disputed by scientists including Albert Sabin, the developer of the oral polio vaccine, as long ago as the 1930s. However, there is no dispute that antibodies can be used diagnostically to detect infections because, if proven specific, they obviate the time consuming, laborious and more expensive procedure of obtaining the microbe itself.

An HIV antibody test is performed by adding blood serum to a test kit containing proteins deemed unique to HIV. If there are antibodies that react with these proteins there is a physical alteration in the reaction mixture, commonly a colour change. Put simply:

1. HIV infection produces antibodies (dissolved in the serum) directed against the HIV proteins.
2. Serum is added to a test-tube¹⁷ containing the HIV proteins.
3. If there is a reaction it will produce a colour change.
4. Colour change = a positive test.¹⁸

The problem is there is no guarantee that antibodies will behave monogamously. Just as a sexual partner does not prove a spouse, antibodies have a proclivity, quite a strong proclivity it turns out, to react with proteins which are not the protein that induced the antibody in the first place. The promiscuous nature of antibodies, and

the implications of such promiscuity, are widely under-appreciated and usually ignored.¹⁹

The term for any substance able to stimulate the production of an antibody is antigen (from ANTIbody GENErating). Proteins are very powerful antigens, the best in fact, but because antibodies are promiscuous, even if HIV and HIV antibodies did exist, a reaction does not prove the antibodies are the *de jure* partners of the HIV proteins. They may be *de facto* partners – both will react with the same antigen (protein) – and distinguishing between these two possibilities must be proven before the test is introduced into routine clinical practice. Otherwise the wrong information will be imparted to both doctor and patient, not to mention scientists studying AIDS. The Perth Group has argued many times that there is no proof the antibodies that react in the antibody tests are the result of an infection with a retrovirus HIV.^{8, 20} The only way to know is to compare the antibody test with an independent means of verifying the presence or absence of HIV. And that independent means can only be HIV itself. Hence proving the existence of HIV is fundamental. One should also note that because the HIV experts rely on antibody/protein reactions as the quintessential component of proof for the existence of HIV, this is reason alone to regard their proof as problematic.

THE DOCUMENTARY IN DETAIL

A timely reminder from the President of The Royal Society

The Emperor's New Virus? begins with a quotation by the eminent biologist and Nobel laureate Sir Paul Nurse, President of The Royal Society of Great Britain. This statement, a reminder for everyone, was made during a BBC Horizon TV documentary *Science Under Attack*, first broadcast in January 2011:

I'm here in The Royal Society. Three hundred and fifty years of an endeavour which is built on respect for observation, respect for data, respect for experiment. Trust no one, trust only what the experiments and the data tell you. We have to continue to use that approach if we are to solve problems...

The Royal Society was established in 1660 and given a Royal Charter by King Charles II in 1662. Sir Paul reiterates the Society's motto "*Nullius in verba*" – trust no one. The society website explains the historical roots of the motto: "It is an expression of the determination of Fellows to withstand the domination of authority and to verify all statements by an appeal to facts determined by experiment". This should be the *modus operandi* of all scientists.

After two brief statements by HIV experts Robert Gallo and John Moore (questioning the existence of HIV is "an absurdity" and "as bizarre as it gets"), Leung asks Papadopoulos-Eleopoulos how the Perth Group can justify questioning the existence of HIV in the face of so many notable scientists who claim the opposite. The response is "There is the evidence..." – echoing The Royal Society *raison d'être* – "verify all

statements by an appeal to facts determined by experiment”. And this is the task Leung sets the viewer. As the evidence unfolds make up your own mind. In the end it comes down to interpretation of the same published data – data that all can study and interpret. Orthodox scientists interpret these data one way, the Perth Group another.

Viruses are particles

Aristotle said “If you would understand anything, observe its beginning and its development”. So Leung begins with viruses. Everyone is familiar with “a virus” as a diagnosis a doctor may make during a nondescript, short-lived set of symptoms and signs. “It’s just a virus – go to bed, take two aspirin every six hours and drink plenty of fluids”. But what exactly is a virus? We learn a virus is not a woolly notion encompassing a panoply of unspecified illnesses but a specific, microscopic entity, a particle with recognisable parts, each with a purpose. These anatomical features of viral particles are collectively referred to as the virus morphology.²¹ Virus particles, also called virions, are exceedingly small: the so-called HIV particle is a sphere about a 100nm in diameter – enlarged ten thousand times it would have a diameter of one millimetre. Particles of this size cannot be seen with the light microscope. This is why viruses are studied using the more powerful electron microscope, an instrument that uses a beam of electrons in place of light.

Viruses are particles that look like a virus should look – and replicate inside living cells

The virus particle has one biological imperative. It has to spread. If it doesn’t spread it’s dead. Dead *ab initio*. It never was and never will be a virus. Replication is the critical property underlying this imperative which one can think of as the “virus rule”. A particle that looks like a virus and replicates is, by definition, a virus. A particle that looks like a virus and does not replicate is, by definition, not a virus.

The replication process begins with the particle attaching itself to and then entering a cell. Following entry the virus purloins the cellular metabolism to produce new viral constituents (proteins) which are eventually assembled into new virus particles. Then the particles are released from the cell whereupon the new particles repeat the process with other cells. The act of particles leaving a cell and entering another is called propagation or transmission of the virus. Repeated cycles of transmission turn an initially tiny number of virus particles (an inoculum) into billions. Viruses use cells to replicate because they lack the space in which to fit all the necessary chemical and metabolic machinery required for replication. Replication and transmission underlie the notion of infectious diseases with the term “infectious” being used in two, highly interrelated ways. First, the particles are infectious by virtue of their replication and transmission. The cells involved can be inside a living body or in a cell culture laboratory experiment. Second, infectious refers to virus particles being passed from one person’s cells to another, that is, person to person where replication and transmission cause disease.

In the late 1970s young gay men, principally in New York and San Francisco, began dying from two uncommon diseases, Kaposi's sarcoma and *Pneumocystis carinii* pneumonia. And although these diseases were not new, they were not previously prevalent in the community of gay men. They were in fact the first cases of what would later be called AIDS. It wasn't long before an infectious agent was proposed as a cause. This was a reasonable hypothesis because the gay men who developed these diseases were highly sexually promiscuous. As everyone knows sexually promiscuity carries a risk of acquiring diseases. Since the escalating number of such cases was obviously a new phenomenon, perhaps a new infectious agent was afoot.

If there's no such thing as HIV what are all these particles we see?

Leung (to EPE): We've all seen pictures. We've seen electron micrographs of HIV. How can you say something that we see isn't there?

EPE: You did not see electron micrographs of HIV. What we see is electron micrographs of particles which look like retroviruses. But it's one thing to look like and another thing to be a virus.

There are electron microscopic images in which we do see particles, some of which have some of the morphological features of retrovirus particles. But looking like is not proof of being. Photographs of people are not people. Plastic flowers do not set seed. No amount of taxidermy can rejuvenate an extinct species. The answer to Leung's question is an invocation of the virus rule. This is why professional electron microscopists never report particles that look like viruses as actual viruses. They cannot because appearances do not prove a particle is infectious. Proof of replication and transmission cannot be obtained by looking at static images of dead material. Electron microscopists always refer to particles which may or may not turn out to be a virus as "virus-like". Not all virus-like particles replicate, which means they are not viruses. Replication is the test a virus-like particle must pass to earn the title "virus". The HIV experts themselves including Gallo admit to the existence of non-replicating retrovirus-like particles. (And as Gallo said in 1976, such particles may contain the same biochemical constituents [RNA and an enzyme] as retrovirus particles).

If there is no HIV why was there an international lawsuit about the misappropriation of HIV?

Leung raises the issue of the lawsuit in which US researchers led by Robert Gallo were alleged to have stolen Montagnier's virus by culturing samples sent to the USA by the Pasteur Institute in 1983. (Samples were sent with the stipulation they were to be used solely for scientific purposes). How could there be a law suit about an imaginary virus? In our view it was impossible for Gallo to have stolen the French virus even if there had been a virus to steal.

What Montagnier sent to Gallo was culture supernatant. Supernatant is similar to the wine above the dregs at the bottom of a bottle. Cell cultures consist of the cells plus the nutrient fluid in which the cells are grown. As virus particles replicate and are released from the cells they become suspended in the culture fluid. Cells and fluid can be separated by centrifugation. Centrifugation produces a sediment of cells at the bottom of the test-tube (“dregs”) with a clarified layer (= fluid + the more minute particulate matter [virus-like + other including cellular debris]) above the sediment called supernatant. In cell cultures retrovirus particles are released from the cells by a process known as “budding”. Budding refers to the manner in which the particles emerge, little by little, from the cell membrane, rather like the moon slowly rising over the ocean. Typically, budding particles have small projections on their outer surfaces called knobs or spikes. All the HIV experts agree the knobs are crucial for infection because they are the means by which the particles attach to the cells they infect. However, as the particles bud from the cell membrane and are released into the culture fluid they rapidly lose their knobs. Which means that within 24 hours or so “cell-free” particles do not have knobs (see also page 26). Hence, without a means of attachment they cannot get inside a cell, and denied access have no means of replication. The supernatant Gallo received from Montagnier had to cross the Atlantic Ocean. Even if it arrived in Maryland the same day it left Paris, by the time it arrived the particles in the supernatant were devoid of knobs and hence non-infectious. Gallo could not have stolen Montagnier’s virus because time had rendered the Pasteur Institute samples sterile.

An analysis into the evidence for the existence of HIV through isolation and purification

With this title Leung begins the substantive portion of his video. The viewer is taken through the experiments published in May 1983 by Luc Montagnier and his associates at the Pasteur Institute.²² No doubt some will claim Montagnier’s experiments are so outdated they no longer warrant serious consideration. The doctrine that the passing years reduce knowledge to dotage is both imprudent and self-defeating. If true, science would have no foundations. Archimedes, Copernicus, Kepler, Newton, Maxwell, Darwin and Einstein, to name just a few, would all be victims of *tempus fugit*. Watson and Crick could no longer be taken seriously because their paper on the structure of DNA was published almost 60 years ago. For decades now all HIV experts have accepted that Montagnier discovered HIV. He is consistently cited in this regard – over 4000 times at last count. And it was for this discovery that Montagnier and Barré-Sinoussi were awarded the 2008 Nobel prize in Physiology or Medicine. Unless all the experts are wrong, proof of the discovery of HIV must reside in the pages of the Montagnier 1983 *Science* paper. If that is not *satis superque* then virtually the same experiments were published a year later by Robert Gallo and his colleagues and the same analysis applies. In our view the best experiments in regard to proving the existence of HIV are the single Montagnier and four back-to-back Gallo papers all published in *Science*.²³ In fact,

following the publication of Gallo's papers both the existence of HIV and its causative role in AIDS were accepted as proven.²⁴

The existence of viruses is proved by isolating them. What is isolation?

The title of Montagnier's 1983 paper begins with the word "Isolation", as do two of the four Gallo papers. "Isolation" signals the reader that a scientist considers he has proven a virus exists. If this is the first reported isolation then the scientist can also claim to be the discoverer of that virus. Taken at face value "isolation" appears eminently reasonable proof of existence. The word "isolation" (from Latin *insulatus* = 'made into an island') means obtaining an object separate from everything else that is not that object. If a scientist has the skill to pluck a virus out of a patient or cell culture, to have it in his hand so to speak, there can be no argument the virus exists.

In virology the word "isolation" does not accord with common English usage

Leung delves deeper. How do virologists isolate a virus? What do they actually do? He seeks the answer from Nobel laureate David Baltimore and retrovirologist Robin Weiss, but like Omar Khayyam leaves by the same door he entered.²⁵ Baltimore struggles to answer and then gets angry. It's painful to watch. It's obvious explaining virus isolation is not within his comfort zone.

Baltimore: Didn't Gallo do it [isolate HIV]? I don't want to be your textbook...this is all textbook stuff you're asking me...I've got better things to do.

On the other hand, Weiss appears perplexed.

Weiss: I don't quite know what's behind your question about isolation...[Perhaps wanting to understand the meaning of virus isolation was behind Leung's question]...Isolation and purification are jargon words in virology...they mean different things to different people...they're not very precise.

A dispassionate viewer must wonder how a procedure claimed to prove the existence of a virus responsible for the deaths of millions is not "very precise" yet is the basis of an "overwhelming scientific consensus".

Definition: Virus isolation = isolation of a virus

If by isolation virologists do not mean obtaining virus particles separate from everything else, what do they mean? Baltimore doesn't want to be Leung's textbook but if he were Leung would still be in the dark. It's not possible to find a definition of isolation in most virology textbooks. The few that do venture a definition are far from enlightening.²⁶

Flossie Wong-Staal, a collaborator of Robert Gallo, makes it clear that when virologists speak of virus "isolation" it is not in accord with common English usage.²⁷ As Weiss affirms.

Wong-Staal: Isolation is essentially getting the virus from the patient and being able to transmit this virus to another cell, to reproduce infection, and to have a continual supply of the virus, and that's called an isolation.

We can only conclude that isolation refers to a set of experiments a virologist undertakes to prove a virus exists. This does not fit with etymology or English²⁸ but it does mean, as per *The Royal Society* motto, one can study the experimental methods and data and decide for oneself if these demonstrate beyond reasonable doubt the existence of virus-like particles that fulfil the virus rule.

HIV is a retrovirus. What are retroviruses and why are they retro?

Just as the plant and animal kingdoms are divided into families, subfamilies, genera and species, so are virus particles. Electron microscopists use morphological features to classify the universe of retrovirus particles into one large family called *Retroviridae*. Different subfamilies and genera have different, easily recognisable (for experts), appearances. In regard to their biochemical constituents, all retrovirus particles contain RNA as their store of genetic information (the viral genome) and consist of approximately 10 proteins. Most of the proteins are structural but some have other functions. One of the latter is an enzyme that catalyses a chemical reaction whereby an RNA molecule, acting as a template, directs the synthesis of an equivalent DNA molecule (RNA → DNA). Since the direction RNA → DNA is “reverse” (“retro”) from the long considered orthodox “forward” direction (DNA → RNA), any enzyme capable of this function is called a reverse transcriptase (RT). (The suffix -ase labels a protein as an enzyme). Similarly, the process is known as reverse transcription. “Reverse” also gives retroviruses their retro name. The purpose of retroviral RT is to produce a DNA copy of the particle's RNA genome once the particle has entered (infected) a cell. To detect and measure reverse transcriptase the scientist adds the RNA template and the chemical building blocks of DNA to the culture. If the scientist subsequently detects a DNA copy of the RNA template sequence he can infer the presence of a reverse transcribing enzyme, a reverse transcriptase. It is the detection of the new DNA that proves the enzyme is there and working – what scientists refer to as the enzyme “activity”. In all HIV research the RNA template used is not the particle's own RNA, as one might expect, but a synthetic “test-piece” RNA manufactured in a laboratory.

Virus “isolation” requires cell cultures

The cells thought to be infected with a virus are cultured outside the body in a test-tube (or bottle or other container). The procedure must be performed in a sterile manner because bacterial contamination rapidly kills cells. The culture is a mixture of cells and fluid that contains the many nutrients and chemical agents (including antibiotics) required to keep cells alive and thriving. Note: The term cell culture “growth” does not mean the cells get larger as do humans. It means the population of cells increases by cell division. The population at any point is the balance between the number of cells dying and the addition of new cells through cell division.

In Montagnier's experiments cell division was artificially stimulated using chemicals known as mitogens. There were two mitogens – a protein called T-cell growth factor (interleukin-2) and another protein containing a substance derived from kidney beans called phytohaemagglutinin, PHA. Use of PHA is ubiquitous in HIV research. HIV cannot be “isolated” without it. It is only by generating a large enough number of cells that a scientist can produce virus particles in sufficient quantity to work with. A scientist cannot work with one or even thousands of virus particles. He needs millions. Important also is the fact that dead and dying cells in the culture do not simply dissolve or evaporate. They degenerate, break apart (lyse) and in doing so may create large quantities of sub-cellular size particulate matter such as membrane-bound vesicles and other debris. These structures may contain RNA and proteins and may even take on the appearances of retroviral particles.²⁹

Montagnier's proof of existence – first experiment. Virus without proof of virus-like particles

Lymphocytes (T-lymphocytes or T-cells) were obtained from an enlarged lymph node, surgically removed from the neck of a gay man known as BRU. After 15 days of culture Montagnier detected RT activity which he interpreted as a retroviral RT and proof that BRU's cells were infected with a retrovirus. In fact Montagnier defined isolation of a retrovirus as detection of RT activity. Hence for Montagnier a chemical reaction = isolation of a virus.³⁰ Montagnier also wrote “Samples [from the first experiment] were regularly taken for...examination in the electron microscope” but no further mention was made of the “examination”.

Montagnier's proof of existence – second experiment. Virus but still no proof of virus-like particles

In the second experiment lymphocytes were obtained from a healthy blood donor and put into culture with the same chemicals. When that culture was established lymphocytes from the BRU lymph node were added creating what is known as a co-culture. Again RT activity was detected which Montagnier now reported as isolation and propagation of a retrovirus. By propagation Montagnier meant particles released from BRU's cells entered and then replicated in the healthy blood donor's cells, thus satisfying the virus rule. However, Montagnier had no way of knowing which cells, the blood donor or BRU cells, were responsible for the RT activity. As in his first experiment, Montagnier did not mention the results of electron microscopic “examination” of the second culture. In other words, Montagnier claimed the existence and transmission of a retrovirus without proof for the existence of retrovirus-like particles.

Reverse transcriptase activity is not a unique property of retroviruses

The Perth Group has long challenged the view that Montagnier's RT activity = infectious particles = a retrovirus. Montagnier's claim is invalid because uninfected cells are also sources (enzymes) of reverse transcription. RT activity is certainly a characteristic of a retrovirus, in fact it is a *sine qua non* of a retrovirus. But, just as

hair is characteristic of but not specific to mammals, RT activity is neither unique nor specific to retroviruses. Montagnier may have believed he had arrived at a particular place in the biological landscape but, like Columbus 500 years earlier, belief and fact do not necessarily coincide.^{31, 32}

Baltimore affirms RT is not retrovirus specific

Wong-Staal states (wrongly) that RT is unique to retroviruses. Gallo and Weiss state RT is a surrogate marker for retroviruses.³³ (Surrogate means substitute – something that stands in place of something else, which means it has to be specific for that something else). Leung questions the assertion that RT activity is non-specific and not a unique property of retroviruses. EPE challenges Leung to ask the experts, and suggests Varmus and Baltimore. Baltimore knows a lot about reverse transcriptases. With Howard Temin he is a co-discoverer of reverse transcriptase, for which he shared the 1975 Nobel prize in Physiology or Medicine. So Leung returns to Baltimore.

Leung (to Baltimore): Are retroviruses the only ones that can reverse transcribe?

Baltimore: Uh, no. There are other forms of reverse transcription that are used in various ways inside the cell...for instance the ends of chromosomes are made by a reverse transcription process...that's how they're maintained stable...there is reverse transcription in the inheritance of all our cells...no, reverse transcription is very widespread...something like 50% of the DNA in our cells comes about by reverse transcription...but it's [referring to the cellular DNA] not all retroviruses...lots of it is just repeated elements [of DNA]...DNA which is in there because it's able to copy itself and reintegrate itself in other places...and this is something that's going on all the time...and it builds up.

Gallo: normal lymphocytes, not infected with a retrovirus, reverse transcribe

The Perth Group cites a paper from 1976 in which Gallo reports: “the [RT] activity was obtained...from PHA stimulated (but not unstimulated) normal human blood lymphocytes”.³⁴ BRU's lymphocytes were stimulated with PHA.

Leung seeks confirmation:

Leung (to EPE): In both experiments they fed the cultures substances [PHA] which artificially cause reverse transcription?

EPE: Yes.

If Keith, Ron and Mick play guitar, hearing a guitar doesn't prove it's Keith

If RT activity is “going on all the time” in cells and PHA causes RT activity in normal, PHA stimulated lymphocytes it's incompetent to argue the RT activity in the BRU cell cultures must be the result of a retrovirus infection. Much less that RT activity = detection, isolation and transmission of a retrovirus. Asked why scientists made

claims of HIV isolation based on RT activity, all EPE can say is she doesn't know. But before the AIDS era they all knew RT activity is not retrovirus specific.²⁰

Montagnier's proof of existence – third experiment

In the third experiment Montagnier added culture supernatant from the second experiment to uninfected lymphocytes obtained from the umbilical cord blood of two newborn babies. Again RT activity was detected and on this occasion Montagnier published his one and only electron microscopic image of a sample of the (unpurified) culture supernatant.³³ Montagnier's co-author Françoise Barré-Sinoussi excitedly recounts what happened immediately after they detected RT activity in this culture:

Barré-Sinoussi: ...and then...we immediately call our guy who was responsible for electron microscopy [Charles Dauguet] and said please, could you look under the microscope, whether you can see virus particle, and if it resemble to a retrovirus...and after, after, quite, it was very difficult because it was only few cells infected, so it was a very difficult task, for him, to find the cells that was just producing these particles but, finally he found it, and he found one lymphocyte, with a budding particle, typical of retrovirus, and, very close from this cell, one complete mature particle that resembled to a retrovirus.

Two leading international electron microscopists are unconvinced by Montagnier's electron micrograph

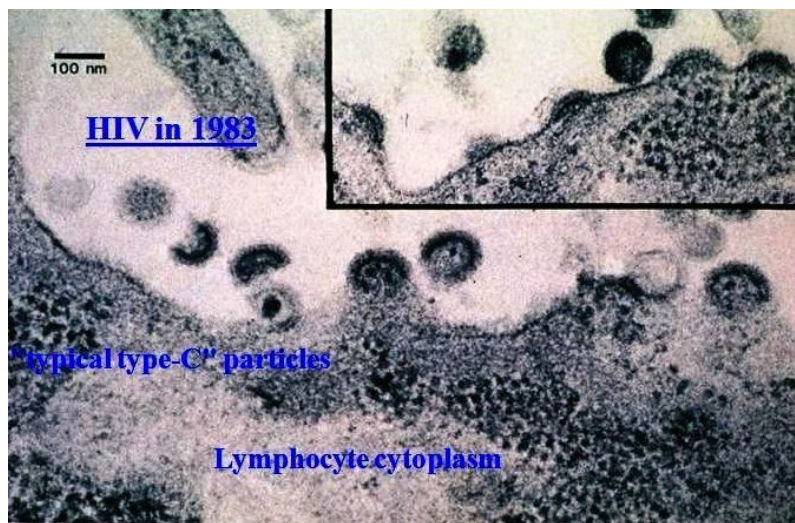
Reinhard Kurth: In that paper he had only one electron micrograph. And the virus could be identified as sort of a retrovirus, but it could have also been an arena virus...but when we saw that photo we said suggestive, but not convincing.

Gelderblom: I've seen these publications [Montagnier's electron micrograph]. Stamp sized images. It's a nuisance. It's a nuisance. You do not really see much.

A thousand and one words is worth more than a picture

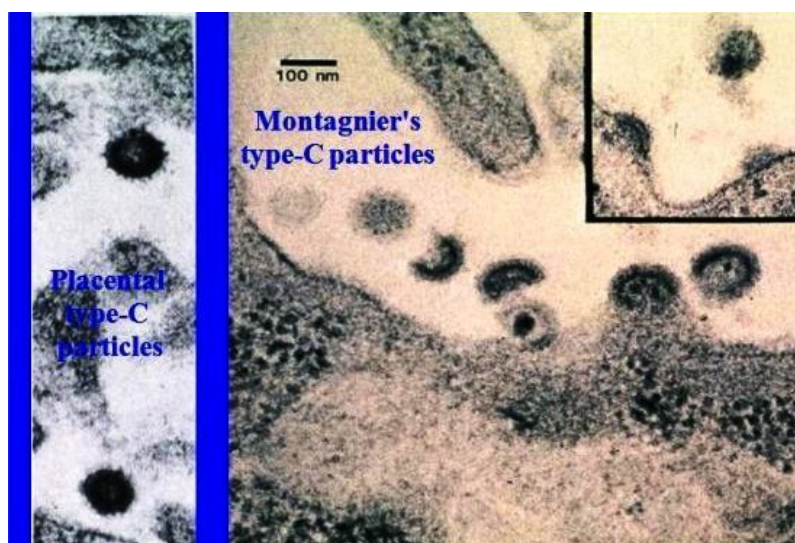
Imperfections and disbelief aside, Montagnier's single "stamp sized" image convinced the Pasteur Institute team and subsequently many others that BRU's cells were infected with a retrovirus now known as HIV. But, as computer scientist John McCarty once spoofed, "a thousand and one words is worth more than a picture". The Perth Group has expended at least this many words explaining why Montagnier's electron micrograph is problematic to say the least. As mentioned, professional electron microscopists refrain from reporting the presence of virus-like particles as viruses. In fact, when interviewed by Djamel Tahiri (see below) Montagnier said electron microscopy is not sufficient to prove a particle is a virus. Furthermore, whatever the nature and origin of Montagnier's particles they cannot be HIV even if HIV did exist somewhere else in the Universe. HIV is classified in the Retrovirus subfamily known as lentiviruses. Montagnier's particles were not reported as lentivirus particles. Montagnier and Barré-Sinoussi reported them as "typical" type-C retroviral particles, and type-C particles belong to a different subfamily of

retroviruses. Which means even if these particles were a retrovirus Montagnier could not have discovered HIV. Humans are not chimpanzees.³⁵



Montagnier *et al* Science 1983
EM of budding particles

Budding type-C particles are ubiquitous. They can be found in all manner of biological material ranging from insects to mammals. Significantly, they are seen in virtually all normal placentas.³⁶ Umbilical cord blood flows through the placenta for many months which means umbilical cord blood lymphocytes are continuously in intimate contact with the placental cells that produce the type-C particles. No one knows why placentas harbor type-C particles but the fact they do is another reason to reject Montagnier's claim that the particles visualised in his third experiment originated from BRU. There is also direct evidence that human umbilical cord lymphocytes produce retrovirus-like particles.³⁷



Montagnier's type-C "HIV" particles belong to the same genus as placental particles

HIV taxonomy: A trinity

Montagnier's particles are not lentivirus particles and neither are the particles Gallo reported in 1984 (also type-C). Even today there is still no agreement as to the classification of HIV particles. Leung asks if the different appearances "is that big a deal". It is "that big a deal" because viruses are not proteins or RNA or DNA, they are particles and their morphology is a fundamental determinant of their identification. A virus particle cannot simultaneously be three different morphologies. Yet, over the years, including at least up until 2005, different laboratories have classified the HIV particle as type-C, type-D and lentivirus particles, that is, into two subfamilies and three genera. This is no different from reporting one and the same mammal as human, a chimpanzee and an orang-utan.

Gelderblom: measurement makes electron microscopy objective

Leung (to Gelderblom): When I look at electron micrographs all viruses look the same to me.

No doubt Leung echoes the thoughts of many, including professionals who are not experts in electron microscopy. Hans Gelderblom is the international expert in retrovirus electron microscopy at the Robert Koch Institute in Berlin. What Gelderblom says is remarkable because he gives credence to the notion that interpretation of the HIV/AIDS scientific data is not beyond the reach of anyone prepared to read and think.

Leung (to Gelderblom): Using the electron microscope, how easy is it for you to differentiate between all these retroviruses? Because to someone like me, the untrained eye, they all look the same.

Gelderblom (smiling): Certainly not. I will be able to teach you within half an hour...you can measure...you really can make an objective diagnosis.

Leung: So for someone like you it's easy to tell the difference?

Gelderblom: Yes.

Leung: The cone-shaped core [of a lentivirus] is very identifiable. It looks very different than a C-type. Is that right?

Gelderblom: Yeah. Absolutely.

Montagnier's unpurified particles, even if a virus, are not proof they are a new virus

Montagnier's three experiments could not prove his "virus" was new. This is because all retroviruses have a reverse transcribing enzyme, and particles of a given subfamily or genus share appearances. If Montagnier had discovered something new the only way to prove it was to take the particle apart and prove it is composed of different proteins from the proteins of the two, already discovered, human

retroviruses HTLV-I and HTLV-II, over which Gallo claimed priority a few years earlier. To do so Montagnier first had to purify the particles.

The reason for purification is simple. Proteins are the principal constituents of all biological matter including cells and viruses. The origin of a protein cannot be inferred by the fact it is a protein. Proteins are proteins just as bricks are bricks. Knowing you have a brick doesn't tell you which house it came from. One can further appreciate this by considering a paternity suit. To compare the DNA of the alleged father with that of the child one must ensure the DNAs originate from the bodies of the alleged father and the child. This entails forensic precautions to identify both individuals prior to obtaining their blood or other tissue samples for analysis. The same standard applies to the identification of virus particle proteins. When cells, cellular debris and virus particles are mixed up in a culture the only way of knowing which proteins are viral is to separate the particles from all the non-viral, cellular material. You don't need to be an HIV expert to understand this point. As EPE says, "this is so simple". And, unlike isolation, when it comes to purification, there is nothing "jargon" or "imprecise" about it. Everyone agrees on what purification means and the need to do it.

Barré-Sinoussi: Now when this virus is in this supernatant it's not purified. OK? Because the cells are releasing plenty of things, not only the virus...cellular proteins...so on, OK?...so that means that in the supernatant you have a mixture of everything, including the virus. Then you have to purify it...OK...this is the second step...then you try to purify the virus from all this mess.

Wong-Staal: Purification is just obtaining the virus free of cellular contaminants of other contaminations but it doesn't mean necessarily that the virus is infectious.³⁸

Gallo (quoted from his testimony during the Parenzee hearing in 2007): You have to purify.

Leung (to Montagnier): What is the purpose of the purification?

Montagnier: To make sure you have a real virus.

However, in what must rate as one of the most outstanding failures in the history of science, Montagnier and Barré-Sinoussi did not publish an electron micrograph of the supernatant material they processed and designated "purified" virus. Barré-Sinoussi's anxiety-laden curiosity about what Charles Dauguet would see in the unpurified cell cultures apparently did not extend to this material (although 14 years later we learnt such pictures were obtained but never published). Yet a decade earlier Barré-Sinoussi and Chermann (a co-author of the 1983 *Science* paper), published a paper in which electron micrographic evidence was considered essential to prove purity.^{39, 40}

Montagnier's experiment intended to prove his "new virus" is a new virus

To purify the particles Montagnier used a long established procedure known as sucrose density gradient ultracentrifugation. No doubt this will be unfamiliar to most readers/viewers but fortunately Leung's video includes an explanatory demonstration of this technique. It's best to watch the video but basically what happens is this:

Different objects can be separated as long as they have at least one difference in a physical property. Size and weight are obvious examples. For reasons no one knows particles of the retrovirus family share a density of 1.16 g/ml. This density is not unique but it is a reliable attribute which can be used to advantage to purify the particles. If you were to put retroviral particles into water they, like dust particles settling in air, would sink extremely slowly because of their extremely low mass to surface area. This is why high speed centrifugation, spinning the sample at 40-60K revolutions per minute for up to several hours in the ultracentrifuge, is one of the steps in the purification procedure.

First the scientist prepares a solution of sucrose, ordinary table sugar, in a test-tube. The solution is prepared such that the dissolved sugar concentration and hence its density gradually increases as one progresses down the tube from top to bottom. Next the scientist takes a small sample of culture supernatant and gently places at the top of the solution. Then the tube is spun in the ultracentrifuge, subjecting the material in the sample to an enormous force, thousands of times gravity. This propels the particulate matter downwards through the sucrose solution, greatly speeding up what might otherwise take forever. When particulate matter, for example, retroviral particles, reaches a region in the tube where the sucrose solution and the particles have the same density, the particles stop. They stop because the centrifugal force propelling them downwards is balanced by the buoyant force propelling them upwards. After spinning the tube for several hours the scientist obtains a solution in which there are discrete places where objects of the same density have come together. The term virologists use is "banding". The particles are said to "band" at a particular density. The individual density bands are extracted one at a time by making a small hole in the bottom of the tube, letting out tiny volumes of solution (aliquots) one after another. In this way the 1.16 g/ml band is obtained and can be analysed for its biochemical (protein and RNA) content and also sent for electron microscopic examination.

It's important to emphasise that density gradient centrifugation separates objects on the basis of their differing densities – not other attributes. This is significant because as stated earlier, cell cultures even when not infected with a virus are mixtures of various types of cell-derived particulate matter (cellular debris). Some of this material may also band at the same density as retroviral particles (see below). This cellular debris is the "mess" and "dirt" Barré-Sinoussi and Gelderblom respectively acknowledge in the video. Much of this material is present in the form of

microvesicles (vesicle = a fluid filled sac) and these and the other structures may contain proteins and RNA and look like retrovirus particles.

No one expects a scientist to obtain 100% pure retrovirus-like particles but one does expect the predominant particulate matter to bear all the morphological features of a particular species of the retrovirus family. Obviously the only way to prove the identity and purity of the particles is by looking at what you've got. And, in the interest of good scientific practice, by publishing images so that others may look.

Montagnier “explaining” why there were no published images of purified “HIV”

Leung (to Montagnier): To silence them [his critics] how come you guys just didn't show pictures from the gradient instead of just the culture?

Montagnier hesitates, screws up his face, looks very uncomfortable and delivers a series of nonsensical remarks designed to head Leung off at the pass. Most significantly he fails to tell Leung what he told Djamel Tahi *en camera* a decade earlier (see below). Yet Montagnier does not hesitate to tell Leung that density gradient material contains particles which are infective (virus) and non-infective (not virus) but “you cannot” tell the difference. Hans Gelderblom is clearly unhappy with Montagnier's failure to publish such a picture (why becomes apparent later). He goes even further, stating retrovirology has established techniques and that electron microscopy of the density gradient is essential for a scientist “just to be acknowledged a retrovirologist dealing with that new virus in a proper way”.

A brief review

It's worth pausing to document what Leung's video has revealed so far.

1. Viruses are microscopic particles of particular morphological appearances which infect cells in order to replicate.
2. Viruses are proven to exist by a process referred to as “isolation” – a term which retrovirologist Robin Weiss calls “jargon” and “imprecise”.
3. Montagnier defined isolation and transmission of a retrovirus as a chemical assay – RT activity.
4. This enzyme activity is not specific to retroviruses. Gallo proved this in the 1970s and Baltimore, a co-discoverer of reverse transcriptase, confirms it in the video. Before the AIDS era numerous studies were published that prove this fact.
5. In the one electron microscopic image Montagnier published of his third culture, he saw a few particles which were reported as typical type-C particles, the wrong genus for HIV.
6. Since there was no published picture of the material Montagnier called “purified virus” no one reading Montagnier's paper had any way of knowing

what constituted the new “purified virus”. Whether it even contained particles of any kind, and if so whether they were retrovirus-like, retrovirus-unlike, pure or impure. As Montagnier himself said, if the particles do not band at 1.16 g/ml they are not a retrovirus.

7. Nonetheless, using this material, Montagnier proceeded with an analysis of the proteins of the “purified virus” in order to prove it was a new retrovirus.

Purification: proof for the existence of “a real virus”

Proteins form about 60% of the weight of a retroviral particle and there are about 10 involved. To prove he had a new virus Montagnier had to (a) obtain and identify the proteins of his “purified virus”; (b) show these proteins are different from the proteins of HTLV-I and HTLV-II. To understand this task it’s important to know a little about the structure of proteins. Proteins are constructed of molecules known as amino acids. Each protein is a sequence of amino acids joined together to make a polymer (a chain). The identity of a protein is given by the sequence of the amino acids. Determining the sequences is the only way to precisely compare two proteins – akin to distinguishing humans using fingerprints. However, when virologists characterise virus proteins they use a combination of much less precise procedures which they nonetheless consider sufficient to the task. They may later determine sequences.

To follow what Montagnier did with the proteins in the 1.16 g/ml density band we first have to be acquainted with another laboratory technique known as gel electrophoresis. A gel can be visualised as a molecular sieve which sorts proteins according to their molecular weights. The protein mixture is placed at one end of a gel and a steady voltage applied. Under the influence of the electric field proteins move through the gel – the lighter proteins moving faster than the heavier proteins. After several hours the proteins become separated and when separation is complete, the voltage is removed and the gel stained with a protein-specific dye. This reveals the relative positions of the proteins throughout the gel as a series of dark, horizontal lines/bands.⁴¹ Bands are thicker lines and the darker the lines/bands the greater the concentration of protein. The molecular weight of each protein is approximated by comparing its position in the gel to the positions of proteins of known molecular weights (marker proteins) electrophoresed at the same time in a parallel gel.⁴² However, molecular weights determined by electrophoresis are not precise. For example, a protein of molecular weight 24K might be measured as 25K, especially if the electrophoresis is performed in different laboratories. Molecular weights distinguish proteins a little but are far too non-specific to discriminate between proteins, including similar molecular weight proteins belonging to different viruses. Nonetheless, molecular weight serves the useful purpose of giving the protein a name to begin with. This name is simply a “p” (for protein) followed by the molecular weight in kilodaltons (kDa). For example, p25 is a protein of molecular weight 25,000 Da. Note: some proteins are glycosylated, that is, combined chemically with sugar molecules (from Greek, *glykys* = “sweet”). Such proteins are

designated “gp”. For example the “HIV” gp41 and gp120 proteins. Sometimes the “g” is omitted although it is recognised that the protein is glycosylated.

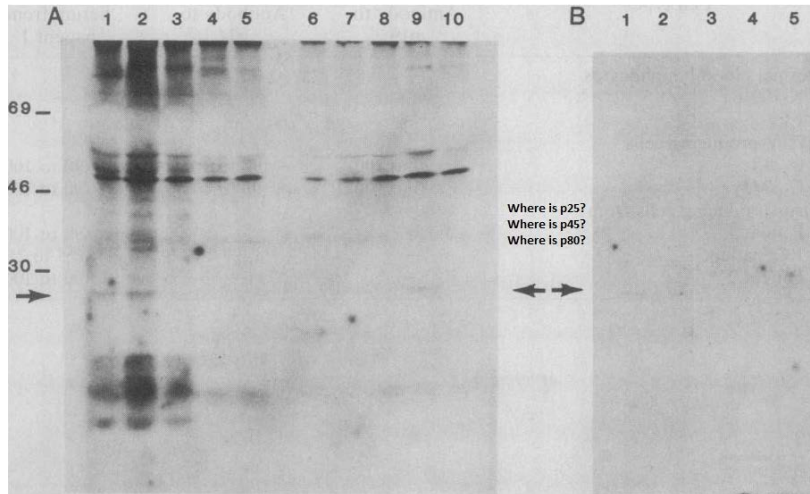
The “science” behind Montagnier and his colleagues’ claims

Montagnier considered the detection of RT activity in the three consecutive cultures and the type-C particles in the third culture pool that the cultures were infected with a retrovirus. The next task was twofold: (a) obtain the viral proteins; (b) prove they are unique. That is, he had a new virus. Since he claimed to have purified the virus an electrophoresis of the 1.16 g/ml density gradient material should have provided him with the expected 10 or so viral proteins – by definition. And no other proteins. Then he had to show these proteins did not belong to HTLV-I or HTLV-II. The only exact way of achieving this was to determine the amino acid sequences of the relevant proteins. If these were different then Montagnier could claim the retrovirus was new. But this is not what Montagnier did and what he did do precludes any notion of having discovered a new retrovirus.

We can assume Montagnier’s “proof” was based on the following premises: If BRU was infected with the newly isolated and purified retrovirus his immune system would have produced antibodies directed against the proteins of the virus. Such antibodies would be present in BRU’s bloodstream (serum). If Montagnier added BRU’s serum to the viral proteins the antibodies would react with these proteins because they would “recognise” them as “their own”. On the other hand, if Montagnier added antibodies directed against the proteins of HTLV-I or HTLV-II there would be no reactions because these antibodies would not “recognise” these proteins because they belong to a different virus.⁴³ Indeed when this experiment was performed with the BRU serum three antibody/protein reactions were reported. Montagnier claimed that one (surprisingly not all three) of the antibodies was an HIV antibody and the protein it reacted with was an HIV protein.

Montagnier’s new retrovirus HIV: One protein and no reverse transcriptase

Montagnier found that antibodies in the BRU serum reacted with three proteins: p25, p45 and p80. Let us apply The Royal Society maxim to this experiment: “Three hundred and fifty years of an endeavour which is built on respect for observation, respect for data, respect for experiment. Trust no one, trust only what the experiments and the data tell you” (B1 below). We can see what “the experiments and the data tell you” by inspecting Figure 3 in Montagnier’s paper – the photograph of his gel electrophoresis. Although not shown in *The Emperor’s New Virus?* we can study and interpret the photograph here.⁴⁴



Montagnier *et al Science* 1983
Figure 3

Part A of this figure shows several lanes with dark lines/bands where various antibodies have reacted with proteins present in a cell extract of the BRU culture. However, what interests us is part B of this photograph. This is where antibodies are added not to a cell extract but to the “purified virus” material. Lane 1 of part B is the experiment where BRU’s antibodies are added to this material. Who can see even one line/band in this lane? Even where Montagnier has placed a two-headed arrow, said to be pointing at a p25 protein, is it possible to see a line/band similar to those seen in part A of Figure 3? Indeed who can see any protein bands in any position in any of the lanes in figure 3B? If we “Trust no one, trust only what the experiments and the data tell you” what do the data tell you? Several years ago a member of the Perth Group showed Montagnier’s figure 3B (blinded) to a leading HIV/AIDS expert and asked what he saw. After three seconds his reply was “nothing”. A rare occasion on which a protagonist and dissident agreed yet the expert was looking at the evidence for the first “isolation” of “HIV”.

Nonetheless, Montagnier interpreted figure 3B as follows:

1. p45 is a cellular and hence non-viral protein. In his paper Montagnier said p45 “may be due to contamination of the virus by cellular actin”. Subsequently, in other publications he said this protein was actin, a ubiquitous cellular protein with a molecular weight reported between 41-45K.
2. p80 was not further mentioned (but in a subsequent paper Montagnier said it was also a cellular protein).
3. p25 is the only protein of the three said to belong to the new retrovirus. (Nowadays Montagnier’s p25 is regarded a p24 protein, confirming the imprecision inherent in using gel electrophoreses to determine molecular

weights. Similarly, Montagnier p45 protein is now a p41 protein, an even larger discrepancy).

4. Since antibodies to the HTLV-I p24 protein (provided by Gallo) did not react with the p25 (p24) protein of the “purified virus” Montagnier claimed this proved his virus was not HTLV-I and hence was new. It appears Montagnier did not test his “purified virus” protein mixture with HTLV-II antibodies.

Observations on Montagnier’s protein data

1. If two of the three proteins were not retroviral the material was not purified.⁴⁵ Even Montagnier said the material was contaminated.
2. If two of the three proteins were not retroviral, why was p24 retroviral?
3. If two of the three antibodies in BRU’s serum were not retroviral, what were they?
4. If two of the three antibodies in BRU’s serum were not retroviral, why not the third?
5. Montagnier published no evidence for the existence of retrovirus-like particles in his purified virus. Therefore he had no basis for claiming p24 was a constituent of a virus.
6. Retroviruses typically consist of about 10 proteins. Where are the missing proteins?
7. Where are the missing antibodies?
8. There are no “one protein” retroviruses.
9. The HIV reverse transcriptase protein (enzyme) is said to consist of two proteins, p66 and p51, joined together. Since a p24 protein is neither a p66 nor a p51 protein, Montagnier’s “new virus” did not have a reverse transcriptase protein. Hence it cannot be a retrovirus.
10. This proves the source of the reverse transcriptase activity Montagnier detected in all his cell cultures, his “proof” of the detection, isolation and propagation of a new retrovirus, was cellular.

Recapitulation

Since the evidence from the “purification” experiment is the key to proving the existence of Montagnier’s new virus, “a real virus”, let us recapitulate.

1. Umbilical cord lymphocytes were cultured with supernatant taken from the second culture (a co-culture of lymphocytes obtained from BRU and a healthy blood donor).

2. To quote Barré-Sinoussi, in the umbilical cord lymphocyte culture, Charles Dauguet, the Pasteur Institute electron microscopist, “found one lymphocyte, with a budding particle, typical of retrovirus, and, very close from this cell, one complete mature particle that resembled to a retrovirus”. In the Montagnier paper these particles were reported as “typical type-C”, that is, non-lentiviral (and hence non-HIV) particles.
3. The culture supernatant was banded in a sucrose density gradient.
4. In the 1.16 g/ml band RT activity was detected.
5. Without any electron micrographic proof, the 1.16 g/ml band material was said to be “purified” retrovirus particles.
6. Serum from BRU was added to the proteins in the “purified virus”. The patient BRU had previously been infected with several microbes and hence developed antibodies directed against the organisms that cause gonorrhoea and syphilis, as well as those directed against cytomegalovirus, Epstein-Barr virus and herpes simplex virus.
7. The BRU serum reacted with three proteins: p24, p45 and p80, but no protein having the molecular weight of the reverse transcriptase protein.
8. The p45 and p80 proteins and the antibodies in BRU serum that reacted with them were said to be non-retroviral. That is, the proteins were cellular and the antibodies auto-antibodies.⁴⁶
9. Since two of the proteins in the “purified virus” were non-viral, obviously the “purified virus” was not purified.
10. Since no electron micrographic proof was published it is impossible to claim any retroviral particles were present in the “purified virus”, much less purified retrovirus particles.
11. Although Montagnier:
 - a. had no proof that the “purified” material contained any particles with the morphology of retroviruses;
 - b. knew that BRU’s serum contained antibodies which reacted with cellular proteins (p45, p80) and had antibodies that reacted with a number of infectious agents, any of which could have reacted with a p24 protein,⁴⁷ nonetheless he claimed:
 - (i) p24 was retroviral;
 - (ii) p24 was the protein of a new retrovirus because it did not react with antibodies to the p24 protein of HTLV-I.

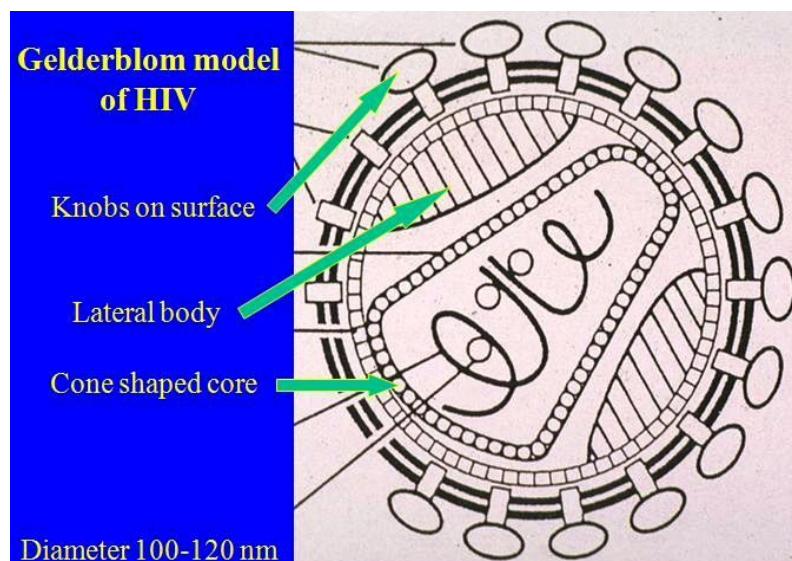
That is, Montagnier proved the existence of a new retrovirus.⁴⁸

12. The finding that BRU's serum contained antibodies that reacted with p24 was considered proof that BRU was infected with the new retrovirus, HIV.⁴⁹
13. Gallo, who reviewed Montagnier's paper for publication (and wrote the abstract), accepted Montagnier's claim. So has the rest of the world.
14. Montagnier's p24 became the key HIV protein. Its detection in cultures has long been considered synonymous with HIV isolation.
15. Serum containing antibodies to p24 was considered proof of HIV infection.

A year later, in similar experiments, Gallo also reported a p24 protein as "HIV" but, unlike Montagnier, regarded p41 (Montagnier's p45), the protein Montagnier said is the cellular protein actin, as a second HIV protein. Yet, like Montagnier, Gallo did not publish electron micrographic evidence that his "purified virus" contained retrovirus-like particles. Similarly, the p24 and p41 proteins of Gallo's "purified virus" are not reverse transcriptase proteins. Notwithstanding, following Gallo's publications, finding antibodies that reacted with p41 (or p24 or both) was considered proof of HIV infection.

Particles need knobs to be infectious but knobs are missing

Leung's second question to the Perth Group concerned Gallo's alleged misappropriation of Montagnier's new virus. In the 1908s virus taxonomists defined lentiviruses as spherical particles with a diameter of 100-120 nm. (The current taxonomy has a revised dimension of 80-100 nm). Within the particle there is a cone shaped core as well as two dense structures called lateral bodies. On the surface of the budding particle there are 8-10 nm projections called spikes or knobs.⁵⁰



Gelderblom model of "HIV"

All HIV experts, including Gallo in this video, assert that knobs are absolutely essential for the particle to get inside a cell. No knobs = no infection = no replication = no virus. While projections can be seen on budding particles (as they exit the cell membrane) no scientist has proven the existence of knobs on the independent, cell-free particles. This means the cell-free particles cannot be infectious and hence cannot be a virus.

Atomic force microscopy affirms knobs are an artefact

In 2003 Kuznetsov and his colleagues from the Department of Molecular Biology and Biochemistry at the University of California published a study of HIV particles using a new experimental technique called atomic force microscopy (AFM). AFM is described in *Wikipedia* as follows:

“AFM is one of the foremost tools for imaging, measuring, and manipulating matter at the nanoscale...with demonstrated resolution on the order of fractions of a nanometer... Information is gathered by “feeling” the surface with a mechanical probe. Piezoelectric elements that facilitate tiny but accurate and precise movements on (electronic) command enable the very precise scanning.”

Kuznetsov reported:

“The clusters of gp120 [the spikes/knobs are said to be composed of the “HIV” glycoprotein gp120] do not form spikes on the surface of HIV as is commonly described in the literature. The clusters are hardly protrusions at all. We suggest that the spikes observed by negative-staining electron microscopy may be an artifact of the penetration of heavy metal stain between envelope proteins. Indeed, the term “spike” appears to have assumed a rather imprecise, possibly misleading definition, and might best be used with caution”.⁵¹

In other words, according to the most recent innovation in studying the morphological features of nanometre sized particles, there are no spikes/knobs on the surface of HIV.

Knobs on SIV do not prove knobs on HIV

The knob problem is further illustrated by a paper in *Nature* by Ping Zhu and his colleagues from Florida State University, the National Cancer Institute, the National Institute of Allergy and Infectious Diseases and the National Institutes of Health. These authors published electron micrographs of SIV (simian [monkey] immunodeficiency virus) particles and the particles said to be HIV. Anyone can see knobs on the surface of the SIV particles. Electron microscopists publish their best pictures and in the Zhu pictures there may be a few knobs on one “HIV” particle but the same “knobs” can be seen in parts of the picture where there are no particles. Ping *et al* are so unsure about the existence of knobs on HIV they refer to them as “putative knobs”. Putative means “supposedly” which means Zhu and his colleagues did not know if they were visualising knobs. This is not the evidence one expects as

proof millions of people around the world have died because of infection with an infectious, retrovirus-like particle.⁵²

Missing knobs, haemophilia, factor VIII concentrates and AIDS

In what seems a knight's move Leung asks "How does this work into haemophiliacs?" This evocative question is one which the Perth Group addressed in 1995 in an invited paper published in a special edition of the journal *Genetica*. Haemophilia is an inherited disorder of blood coagulation affecting approximately 1/10,000 males. The most famous case being Alexis, the only son of Nicholas II, the last Russian Czar. Haemophiliacs are born with a deficiency of factor VIII, one of many blood clotting proteins. Because they form such flimsy blood clots haemophiliacs are prone to prolonged and excessive bleeding following minor trauma or even in the absence of trauma. The treatment of bleeding episodes is to raise the concentration of the blood clotting protein by an intravenous infusion of factor VIII concentrate.

Factor VIII concentrate is manufactured from pooled plasma donated by thousands of individuals. Pooling comes with the risk that an infectious agent present in an individual donation may contaminate the entire pool, although such agents are heavily diluted in proportion to the few-infected/majority-uninfected. In the early 1980s many haemophiliacs were tested (including stored blood specimens on some), and most were found to be HIV antibody positive. However there are scientific problems with the notion that HIV is responsible for haemophiliac AIDS. In fact AIDS in haemophiliacs has long been considered a test case for the HIV theory of AIDS.⁵³ This is the subject of the Perth Group's *Genetica* paper.^{54, 55} In the video one of the principal problems is highlighted.

Factor VIII concentrate is prepared from plasma which is therefore virtually cell-free. Processing the plasma involves freezing, thawing and filtration which further reduces cellular content by lysis of any remaining cells and elimination of their lytic products (cellular fragments). Since retroviral replication requires intact living cells, cellular fragments, if any remain in factor VIII, cannot support the generation of new retrovirus particles. This means that retroviral particles, if any were present in the plasma pool would be in the same situation as the particles released into cell culture fluids. EPE documents the research published by Hans Gelderblom and John Moore showing that on release from the cell membrane "HIV" particles have on average 0.5 knobs but the knobs are rapidly lost, all but disappearing within a day or so.⁵⁶ Given the time between collection and processing of plasma into factor VIII concentrate is days to weeks, and the time from manufacture to use several months, it is impossible for factor VIII to be contaminated with "HIV" particles bearing knobs. Since no knobs = no infection, a retrovirus cannot be responsible for a positive HIV antibody test and AIDS in patients with haemophilia.⁵⁴

Gelderblom and Moore also reported: "...it was possible that structures resembling knobs [said to be made of gp120] might be observed even when there was no gp120 present, i.e., false positives". In other words, they are unable to exclude the possibility that knobs do not exist on cell-free particles at any time. If knobs are absolutely necessary for infectivity then given that (a) budding (immature) particles are not infectious; (b) mature (cell-free) particles have no knobs; then it follows that the "HIV" particles cannot be infectious. In fact, Gelderblom tried to draw attention to this fact four years earlier. In 1988 he wrote: "Occasionally, in thin sections cut tangentially in the region of the envelope, a defined hexamer pattern of knobs is detected on well preserved, immature and budding particles".⁵⁷ A year earlier he wrote: "Shedding of envelope proteins [which include gp120] is a common phenomenon of retroviruses. The extent and velocity of loss of surface proteins in case of HIV, however, appears extraordinary. Our observations are confirmed by biochemical studies. The loss of surface knobs apparently correlates morphologically with virus maturation. Immature and/or budding HIV particles are "spiked," [have knobs] but they are rarely observed".⁵⁸ In the same year he wrote: "The presence of host cell specific proteins on the surface of immunodeficiency viruses might have biological consequences. MHC antigens [cellular proteins] play a major role in cell-cell interaction and in the regulation of immune response. It is conceivable that these antigens in combination with viral envelope glycoprotein can serve recognition signals...the association of the MHC antigens with virion and their spontaneous loss of the virus specific gp120 from the surface of virion implies speculation on the infectivity of HIV...whether such virions are infectious for certain cells and MHC antigens alone or in connection with the transmembrane glycoprotein gp41 may serve as receptors has to be elucidated".⁵⁹

Montagnier is unable to explain how haemophiliacs become infected with HIV

Leung (to Montagnier): I wanted to ask you about haemophiliacs. Because they had cell free plasma, it was just the virus [not HIV-infected cells as a source of virus particles]. But the virus sheds its membranes [knobs] within 24 hours. So how...one thing we couldn't get, how was it able to infect the T-cells [lymphocytes when infused into people with haemophilia]?

Montagnier: Yes... it's a question...but we have to know that all the fractions of the blood can be infectious.⁶⁰ And there is some virus bound to red blood cells which could be released also in the plasma [since by definition plasma = blood minus the red blood cells there are no red blood cells in factor VIII] after treatment or incubations ["treatment or incubations" are undertaken after the red blood cells are removed from the donated blood]...so perhaps there is more virus when you process the blood...more virus could come in the plasma...And this virus could be protected by the plasma proteins...from denaturation...this is one possible thing".

Montagnier says haemophiliacs are "fragile" as part and parcel of the disease haemophilia. He explains this "fragility" is manifested as immune deficiency which

precedes HIV infection. Montagnier asserts the immune deficiency makes haemophiliacs prone to HIV infection. (Yet the HIV theory of AIDS is that HIV causes the immune suppression that leads to AIDS, not *vice versa*).^{61, 62} He also says the virus may exist in forms, which he is currently studying, which make them more “resistant” than the “usual particles”. Montagnier says these three factors combined could explain why haemophiliacs develop HIV infection despite their being infused with cell-free plasma. He finishes his answer saying:

Montagnier: But all are hypotheses...these are not based on solid data of course...they are just assumptions...but you are right...we have to explain how haemophiliacs have been so easily infected with plasma products.

Why has it taken 23 years for the discoverer of HIV to admit “this is a question” whose answer neither he nor the HIV theory of AIDS can answer?⁶³

The 14 year wait to reveal “purified virus” ends

Leung (to EPE): For you the entire existence of HIV rests upon the fact that there are no pictures of the purified gradient. Is that correct?

EPE: It is part of it. That is the most crucial evidence which you need. If you don't have these pictures which prove that there are...in what they call “purified virus”, there are virus-like particles then the whole experiment and thus the existence of HIV is finished.

Leung: And you're saying to date there is (*sic*) no pictures of purified virus?

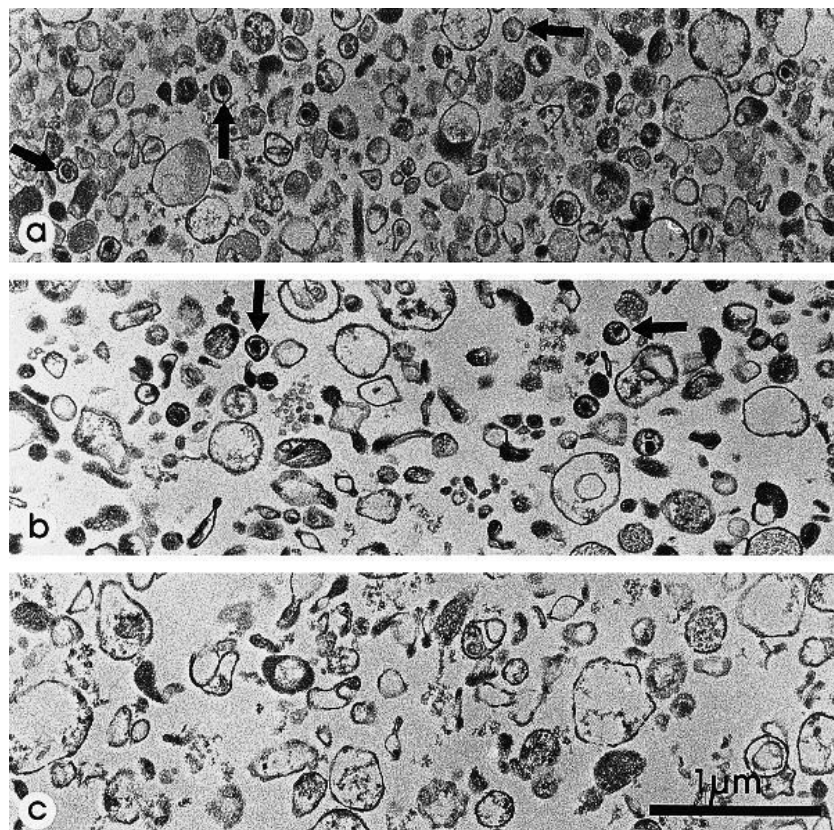
EPE: To date there is (*sic*) no pictures of purified virus. Certainly Montagnier did not publish it, Gallo did not publish it, Levy did not publish such pictures, Weiss did not publish such pictures [all four are retrovirologists involved in the early studies of HIV]...in fact this is admitted by the Franco-German researchers in 1997, when the first attempts...the first pictures of what is called “purified HIV” were published by two groups, one from the United States⁶⁴ [Julian Bess *et al*] and a Franco-German⁶⁵ [Pablo Gluschkof *et al*] study.

The Perth Group's point is that the scientific community promulgated the “overwhelming scientific consensus”, the HIV theory of AIDS, which includes tests to diagnose and treat patients, many of whom are clinically healthy, in total ignorance of what particles, if any, of what kind, pure or impure, were present in “purified virus” from which the proteins (and RNA), which are the reagents used in these tests, originated. In 1997, 14 years after Montagnier published his paper, these data came to light in the form of electron micrographs published in two papers in the March issue of *Virology*.⁶⁶ In the introduction to the study by Gluschkof and Gelderblom and their colleagues, the authors confirm what the Perth Group has been saying from the beginning:

“Virus to be used for biochemical [RNA = “viral load” tests] and serological analyses [antibody tests] or as an immunogen [proteins present in the antibody test kits used to test for the “HIV” antibodies] is frequently prepared by centrifugation through sucrose gradients...However, in none of the studies...has the purity of the virus preparation been verified”. Verified = proven to be true.

***Virology* electron micrographs I: “Purified virus” = “mess” with no lentiviral particles**

The Gluschkof electron micrograph is a composite of three – two of “purified virus” from “infected” cultures and one from similarly treated material obtained from non-infected cell cultures. Looking at the images of “infected” material anyone can see that whatever this material represents it is not pure. In something pure every object looks the same as every other object.⁶⁷ It is delusional to label this material “purified virus”. The predominant particulate matter in these images bears as much relationship to retrovirus-like particles as does Rachmaninoff to the Rolling Stones.



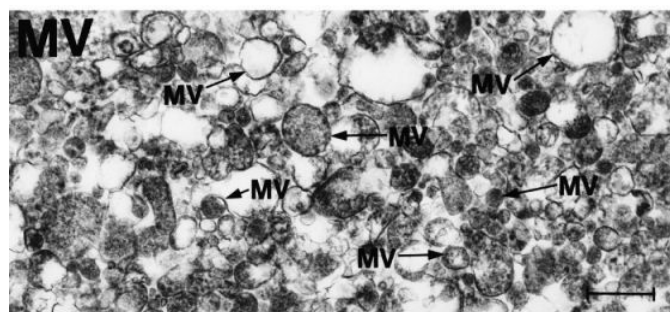
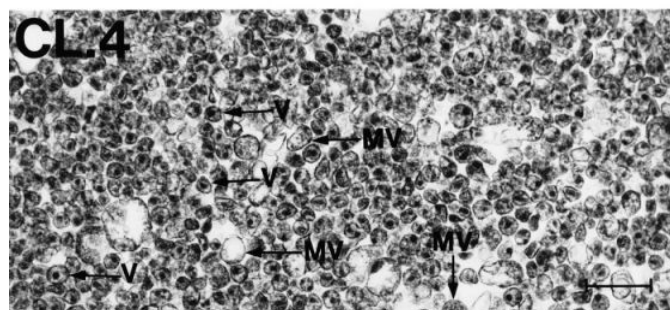
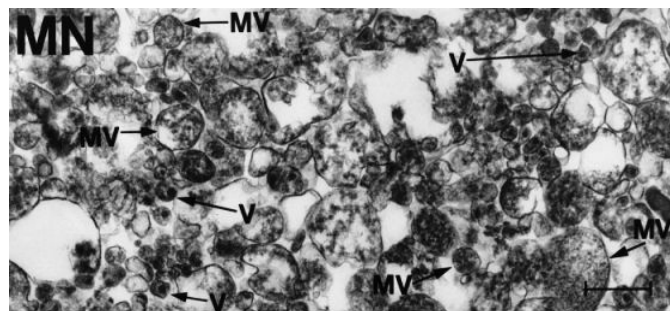
Gluschkof *et al Virology* 1997 “Purified HIV”
a, b = “infected”; c = non-infected

This material affirms Gelderblom’s statement – “there’s 80% of dirt” in the 1.16 g/ml density gradient material. The authors classify almost all the material as “cellular microvesicles”²⁹ and the few particles they nominate as HIV are too large, lack cone-shaped cores, do not have lateral bodies and are devoid of knobs – all defining features of lentiviral particles. The bottom electron micrograph (of non-infected

material) also has a few particles with appearances similar to the “HIV” particles seen in the material obtained from “infected” cultures. In fact, the authors refrained from calling their “purified virus” purified virus. Instead they labelled the micrograph “purified vesicles”.⁶⁸ Purified vesicles are not purified retrovirus.

***Virology* electron micrographs II: “Purified virus” = mostly “mess” and no lentiviral particles**

It is the same story with the US study, published by Julian Bess and his colleagues from the National Cancer Institute.⁶⁹ Three electron micrographs, two of “purified” material from “infected” cultures and one from a non-infected culture. Again the predominant material is cellular microvesicles which Bess and his colleagues in previous publications refer to as “mock virus”. (Why invent and promulgate such a term?). But the change in name is not a change in nature. As with the Gluschankof data, the few particles labelled “HIV” are too large and lack the other lentiviral defining features.



Bess *et al Virology* 1997 “Purified HIV”
 MN, CL4 = “infected”; MV = non-infected;
 MV = cellular microvesicle; V = virus
 Size bar = 1 μ M = 1000 nm

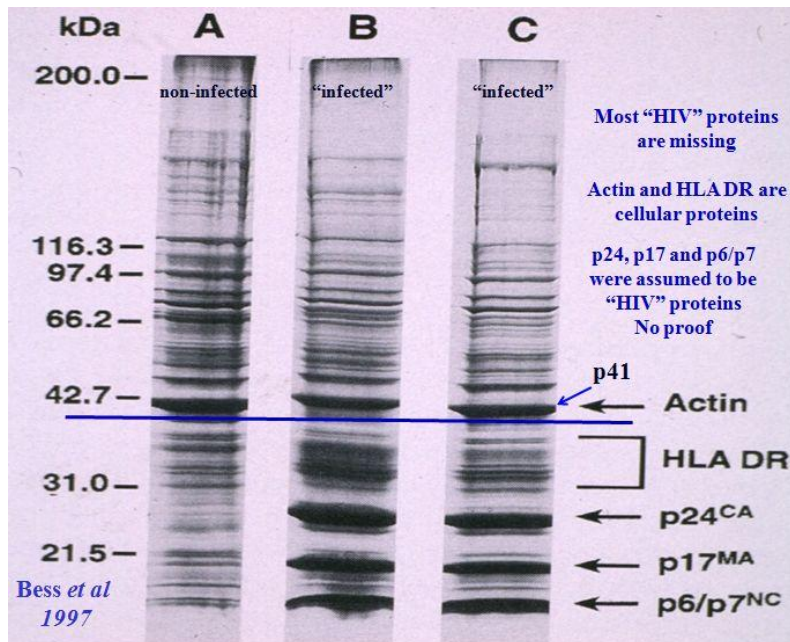
Gelderblom told Leung “you can measure...you really can make an objective diagnosis...these [diameters of retroviral particles] are fixed, morphological entities...they don’t change...the size of a structure is very important to make the diagnosis”. In the two Bess electron micrographs of “infected” cultures⁷⁰ the “HIV” particles have diameters which vary between 160 and 292 nm, whereas lentiviral particles are defined to vary between 100-120 nm⁷¹ (or nowadays 20 nm less). Hence “an objective diagnosis” based on nothing but size precludes the particles being a retrovirus.⁷² If the Bess “HIV” particles were humans they would be 12 feet tall. Do the Bess data mean a new “mock virus” is the cause of AIDS? And that antibody and “viral load” tests detect infection with “mock virus”? The only possible interpretation of the “HIV” particles is that they are cellular fragments.⁴⁰

In other words, the Gluschankof and Bess papers affirm that up until 1997 none of the HIV experts knew what particles, if any, their “purified viruses” contained and if present their morphologies or degree of purity. In 1997 these authors showed that “purified HIV” consists almost entirely of cellular structures (“microvesicles”) with a few other particles that lack several, key defining features of lentiviruses. Yet these data made no difference to the “overwhelming scientific consensus”. HIV experts kept using this material (proteins and RNA) as the basis of diagnosis and treatment, just as they had before. In the words of John Moore, this is “as bizarre as it gets”. Such behaviour on the part of scientists is so unscientific even a non-scientist is bound to seek a reason in another sphere. Given that proof of identity and purification is so basic, and that all HIV experts appreciate the non-specific nature of RT activity, retroviral-like particles and antibody/antigen reactions, one may ask has there been an element of wilful blindness on the part of some HIV/AIDS scientists? Margaret Heffernan points out in a recent article in *New Statesman* that “Cases of wilful blindness aren’t about hindsight. They feature contemporaneous information that was available but ignored. While it is tempting to pillory individual villains, the causes are more often systemic and cultural. Scientists can be just as myopic...with a theory or ideology, inconvenient facts can become invisible...Big ideas can create tunnel vision, blinding the believer to disconfirming data. This cognitive dissonance is resolved in favour of the faith”.⁷³

Protein analysis of “purified HIV” reveals there are no “HIV” proteins

Bess and his colleagues performed another experiment. They separated the proteins of their “purified virus” and uninfected material using gel electrophoresis. Their data are revealing.

The three gels labelled A (material obtained from uninfected cultures) and B and C (material obtained from “infected” cultures) are shown in the video and here:



Bess *et al* *Virology* 1997 Gel electrophoresis data
 A = uninfected; B, C = "infected"

Each gel reveals several dozen protein lines/bands. Since the purification is performed to separate retroviral particles from everything else, if the "infected" density gradient material actually did consist solely of retrovirus particles gels B and C should contain nothing but the 10 or so proteins said to belong to HIV. Gel A should not contain any proteins. Obviously, as the Bess electron micrographs show, the "purified" material is not purified and contains many microvesicles and other cellular debris and thus much cellular protein. If, as Bess claims, the "infected" material contained in addition the HIV particles, gels B and C must have in addition the 10 or so proteins that belong to HIV. Gel A should consist entirely of cellular proteins with none of the HIV proteins. These differences should be obvious and countable. This is not what the data show.⁷⁴

1. Anyone can see the electrophoretic patterns in all three gels are virtually identical. Leung has drawn a line just below the 42.7KDa marker protein and above this line the gels are identical.
2. Below the line there are some differences in the staining intensity in gels B and C compared to gel A. However, the same bands are present at the same positions in A, the uninfected material, albeit with less staining. Lighter staining means relatively less of the same molecular weight protein. It does not mean there is no protein of this molecular weight. Only zero staining (white) equates to absence of protein. This means the differences between the gels reflect differences in the quantities of the proteins. That is, the differences are quantitative, not qualitative. The same proteins are present in all three gels with some variation in the amounts of some proteins.

3. These quantitative differences could reflect the differences in the way the cultures were prepared and processed prior to electrophoresis.
4. Since the same proteins are present in gels A, B and C one has to conclude there are no “extra” proteins in B and C. That is, there are no HIV proteins in the “purified virus”.
5. No HIV proteins = no HIV.
6. Why then, in gels B and C, did Bess label p6/p7, p17 and p24 as HIV proteins?

Faith and agreement define HIV proteins

When this paper was published the Perth Group was intrigued to know how Bess and his colleagues identified these three proteins as HIV when the only data they had were their approximate molecular weights. In email correspondence Bess told the Perth Group the “HIV” labels were added following a request by the reviewer of their paper. Bess agreed with the reviewer despite of the fact he admitted he had no evidence these three proteins were HIV. Their identity was based on faith and an arrangement between Bess, his colleagues and the reviewer. Scientists should not publish claims for which they have no evidence.

Eleven years ago the Perth Group presented the Gluschkof and Bess data at the 2000 South African Presidential Advisory Panel on AIDS meeting. We argued that not only had both research groups failed to prove the existence of a unique retrovirus, they also reported similar “HIV” phenomena in their uninfected, “control” cultures. These findings, especially the latter, mandated repeating the Montagnier/Gallo isolation experiments of 1983/84 with the addition of proper controls. Proper controls, a significant omission from all HIV research (see endnote 48), means testing cell cultures obtained from patients who do not have AIDS but who have demographic, clinical and laboratory abnormalities similar to AIDS patients. The purpose of such experiments is to determine whether the RT activity, retroviral-like particles and antibody/antigen reactions reported by Montagnier and Gallo are truly due to a retroviral infection and not other factors. At the final session of the three-day meeting HIV scientists including virologist Professor Barry Schoub and Dr. Helene Gayle from the CDC agreed that a collaboration of scientists would perform such experiments whose results would be assessed and reported by an appropriately qualified adjudicating panel. The experiments are detailed in the Presidential AIDS Advisory Panel Meeting Report dated March 2001. Unfortunately such experiments did not eventuate.

Montagnier’s *mea culpa*

Why did Montagnier fail to publish an electron micrograph of his “purified virus”? Such an image could have showed the world his new retrovirus and proved it could be obtained in a purified form. In July 1997 Montagnier was asked this very question

during an *en camera* interview conducted at the Pasteur Institute by the French investigative journalist Djamel Tahı. The transcript of this interview was published in *Continuum Magazine*³ and later on the internet but unfortunately, for various reasons, the video itself was never made public. Tahı presented the Perth Group with a copy of the interview which remains in our possession.

In 1997 Tahı asked Montagnier the same question Leung asked in 2007. Why did Montagnier fail to publish an electron micrograph of the density gradient “purified virus” material? In 1997 Montagnier gave a straight answer. He admitted he and his colleagues did obtain electron micrographs of the “purified virus”. Montagnier told Tahı that in these micrographs “We saw some particles but they did not have the morphology typical of retroviruses. They were very different”. Since HIV is not classified as an “atypical” retrovirus (there is no such taxonomy) what Montagnier saw in the “purified virus” were nondescript particles devoid of retroviral morphology. Needless to say they were not the type-C retroviral particles Charles Dauguet reported in the culture and that Montagnier claimed were his new retrovirus HIV.

Montagnier changes his mind about purification

By 1997 Montagnier had also changed his mind about his 1983 “purification” of HIV. He told Tahı: “I repeat, we did not purify”.

Montagnier says Gallo did not purify

Asked if Gallo purified, Montagnier replied, “I don’t know if he really purified. I don’t believe so”.

This should have been the end of “HIV” yet incredibly nobody took any notice whatsoever of these extraordinary revelations.

Charles Dauguet spells the end of the new virus that never was

A few years after interviewing Montagnier Tahı interviewed Montagnier’s electron microscopist Charles Dauguet. Tahı asked Dauguet, now retired, what he saw in the Montagnier density gradient micrographs.

Dauguet (to Tahı): We have never seen virus particles in the purified virus. What we have seen all the time was cellular debris, no virus particles.

Which means p24 is a cellular protein.

Barré-Sinoussi explains why antibody testing is a “mess”

Near the end of the video Leung poses a last question to Barré-Sinoussi. Her answer should make every physician very apprehensive about antibody testing patients for HIV infection.

Leung: Going back to 1983, when trying to prove the existence of a new virus, why was purification important?

Barré-Sinoussi: It was important to prepare kits for antibody detection. Because we wanted these diagnosis kits to be as specific as possible. If you use a preparation of virus which is not purified of course you will detect antibody to everything, not only against the virus but also to all the proteins that are produced in the supernatant.

Gelderblom: “purified” virus = “80% dirt... I didn’t like that... that’s the truth”
Leung (to Gelderblom): Do you have any [electron micrographs] from the gradient [purified material]?

Gelderblom: Yeah...there’s 80% of dirt...and therefore I didn’t like that but it was necessary for us to control because this house [the Robert Koch Institute in Berlin] in ‘85 already established ELISA antigen material [antibody test kit “HIV” proteins]...for testing people...we had to look at the material that was used for the ELISA...80% dirt, OK?...that’s the truth [he winks].⁷⁵

QUESTION ARISING

Leung’s video brings to light information which is intriguing as much as it is disturbing.

Fourteen years after the discovery of HIV Gluschkof, Gelderblom and their colleagues wrote: “...in none of the studies...has the purity of the virus preparation been verified”. Yet now, after the passage of another 14 years, nothing has changed.

Gelderblom affirms density gradient “purified” material is “80% dirt” and he “didn’t like that” especially in view of its use for diagnosing HIV infection.

Barré-Sinoussi tells us the density gradient material from cultures must be purified to remove the contaminating “mess” caused by cellular breakdown products, including cellular proteins. However, she does not tell Leung what the Pasteur group knew in 1983 – that their electron micrographs showed their new “virus” was all “mess” and no retroviral particles.

The Gluschkof and Bess electron micrographs of 1997 define the “mess”, “dirt”, as cellular debris, mostly microvesicles, and no particles befitting the morphology of “HIV” – thus confirming what Montagnier did not make public in 1983.

The Bess data also tell us there are no HIV proteins in the “purified virus”.

What does all this mean? Especially for physicians and patients? Barré-Sinoussi said it and we repeat it:

Barré-Sinoussi: It was important to prepare kits for antibody detection. Because we wanted these diagnosis kits to be as specific as possible. If you use a preparation of virus which is not purified of course you will detect antibody to

everything, not only against the virus but also to all the proteins that are produced in the supernatant.

The published data affirm that the existence of HIV is based on detection of a non-specific chemical assay (RT activity), “a preparation of virus which is not purified”, in which “80%” or more is “mess” and “dirt” and in which none of the particles said to be lentiviral have the morphological features which validate such a classification. Not only does this mean there are no lentiviral particles in “purified HIV”, it also means the antibodies that physicians test for, to diagnose their patients HIV infected, are, as Barré-Sinoussi intimates, “antibodies to everything”, where “everything” is nothing but cellular proteins. Because cellular “mess”, “dirt” also contains RNA, the same argument applies to the RNA (“viral load” tests) that are also used in the management of HIV infection. It is difficult to think of anything more problematic in the history of Medicine.

We return to Professor Penny. It may seem strange that antibodies which react with cellular proteins predict an increased probability of morbidity and mortality – but it is strange only because the idea is unfamiliar. There are many tests used in clinical practice, not all whose genesis is understood, which bring many and varied diseases into scope. There are many non-specific tests. The simplest and most familiar is the act of taking a person’s temperature. Temperature measurement is the most common medical test performed. All patients in all hospitals have their temperatures recorded, some many times daily. Households throughout the world keep thermometers for the same purpose. Every mother knows her child with fever is at increased risk of being or becoming ill. Every mother also knows that fever does not tell her the cause, which is why she may take her child to the doctor. Even then the doctor may be able only to make a tentative diagnosis. In like manner there can be no dispute that testing antibody positive to the proteins present in sucrose density gradient material is predictive of present or future illness – at least in the AIDS risk groups. This means a positive antibody test is not something a person would wish to have. However, while there is no proof the antibodies are induced by a lethal, retroviral infection, the belief they are may have consequences *sui generis*.

IN A NUTSHELL

Montagnier's evidence for the existence of a new retrovirus – the discovery of HIV

1. Montagnier cultured T-lymphocytes from the patient BRU.
Result: Detection of an enzyme activity, a reverse transcriptase (RT), in the culture.
Interpretation: Infection with a retrovirus.
2. BRU's T-cells co-cultured with healthy blood donor T-cells.
Result: Detection of RT activity.
Interpretation: Proof for isolation and transmission of a retrovirus.

Comment: **Baltimore**: "There are other forms of reverse transcription that are used in various ways inside the cell...reverse transcription is very widespread". That is, detection of RT activity is not proof for infection with a retrovirus.

3. Supernatant from the BRU + healthy blood donor co-culture added to umbilical cord T-cell cultures.
Result: Electron microscopic examination revealed retrovirus-like particles (type-C particles).
Interpretation: The virus is a type-C retrovirus infecting the cultures.
4. "The virus was purified by banding on a sucrose gradient".²² Then BRU serum and antibodies directed against the p24 protein of HTLV-I were added to the proteins in the "purified virus" material.
Results: A reaction between BRU serum and a p24 protein of the "purified virus" but no reaction with the HTLV-I antibodies.
Interpretation: BRU is infected with a new retrovirus (lymphadenopathy-associated virus LAV = HIV).

Comment: **Montagnier** (to Djamel Tahj 1997): "We saw some particles [in the "purified virus" material] but they did not have the morphology typical of retroviruses. They were very different". "I repeat. We did not purify".

PURIFICATION

QUESTION: IS PURIFICATION NECESSARY TO PROVE THE EXISTENCE OF A NEW RETROVIRUS?⁷⁶

White and Fenner: "It's an essential pre-requisite".

Montagnier: "It is necessary".

Gallo: "You have to purify". (T1257)

- Barré-Sinoussi:** "...you have to purify the virus from all this mess".
- JC Chermann:** "Yes, of course...Absolutely".
- Prof. David Gordon:** "It's a natural step from obtaining the virus in cell culture to then obtain purified virus". (T1034)
- Prof. Dominic Dwyer:** "The purification, as far as one can go, is important in analysis of any virus or bacteria, for that matter well". (T1199)

ANSWER: Yes, absolutely

QUESTION: WHY IS PURIFICATION NECESSARY?

- White and Fenner:** "...for the chemical analysis of viruses". To prove that the virus particles have unique proteins and RNA.
- Montagnier:** "...analysis of the proteins of the virus [obviously this also applies to the viral RNA, the genome] demands mass production and purification. It is necessary to do that".
- Montagnier:** "To prove that you have a real virus".
- Barré-Sinoussi:** "Because we wanted these diagnostic kits [the antibody tests] to be as specific as possible. If you use a preparation of virus which is not purified of course you will detect antibody to everything not only against the virus but also to all the proteins that are produced in the supernatant".
- JC Chermann:** To identify the HIV proteins and RNA they had to extract them "from the virus which we had concentrated and purified".
- Gallo:** "Conclusive serological testing, in our view, required finer, more specific assays based on using purified virus particles of [*sic*: or] proteins obtained from the virus instead of whole cells infected with virus".⁷⁷
- Gelderblom:** "...because this house [the Robert Koch Institute in Berlin] in '85 already established ELISA antigen material ["HIV" proteins]...for testing people...we had to look at the material that was used for the ELISA".
- Prof. David Cooper:** "Once the virus is purified, it's then genetically sequenced and those sequences are unique [must be unique] just like

every organism on the planet has unique sequences and markers". (T673).

Prof. David Gordon: "...because purification of virus is then very useful for further studies for the nature of the virus and the nature of the immune response against the virus". (T1032)

Prof. Dominic Dwyer: "Well, in the diagnostic sort of situation what that really is looking for is looking for presence of those conserved bits of genetic material that you know to be the pathogen, be it HIV or flu or whatever, you then use that technology to see whether those sequences or those bits are present in something else, in another clinical sample, for example. And that really now has become, you know, the main method of diagnosis of many pathogens in a laboratory now...I mean with genetic testing – I guess the upside of course is you can do it on everybody, it's pretty cheap, it's extremely reliable and robust, the downside is that you have to know the genetic structure to begin with, you have to have the genetic sequence of what you are after. So when a new virus emerges, like SARS, you can't necessarily use, reliably, nucleic acid testing until you get the sequence of that new virus for the first time. So then in fact you are in a first identifier, you are required to use these more traditional methods of virus culture and microscopy and so on". (T963)

ANSWER: To prove the existence of infectious particles with unique proteins and RNA. That is, to prove the existence of a new retrovirus.

QUESTION: IS THERE ANY PROOF FOR PURIFICATION?

At the beginning of the 1980s Montagnier, Gallo and their associates claimed to have proven the existence of retroviral particles having unique proteins and RNA, that is, proved the existence of a new retrovirus. Both groups claimed to have obtained this proof by purifying the particles using sucrose density gradients. However, neither group published proof that the material which they called "purified virus" contained retroviral particles, pure or impure.

Ever since their publication in 1983/84 the Perth Group has questioned the claims of HIV isolation made in the Montagnier and Gallo *Science* papers. In particular we have taken issue with the reported purifications of HIV. At the beginning of 1986 these misgivings were submitted twice as a paper to *Nature*. Subsequent to rejections by *Nature* this paper was published in *Medical Hypotheses*.⁸

Nineteen ninety-seven

In 1997 two crucial events took place which sealed the fate of HIV.

1. Montagnier's *mea culpa*. Responding to questions put to him by Djamel Tahi he said: "I repeat, we did not purify". Not only did they not purify but in the material they claimed to be "purified virus" they did not have any particles which looked like a retrovirus. "We saw some particles but they did not have the morphology typical of retroviruses. They were very different".

At the end of the interview Tahi asked:

Tahi: "Do EM pictures of HIV from the purification exist?"

Montagnier: "Yes, of course"

Tahi: "Have they been published"?

Montagnier: "I couldn't tell you....we have some somewhere...but it is not of interest, not of any interest".

In 2003 we emailed Robert Gallo asking if he was aware of the Tahi interview and Montagnier's response in regard to the absence of retrovirus-like particles in the unpublished electron micrographs of his "purified virus". Gallo replied "Montagnier subsequently published pictures of purified HIV as of course we did in our first papers. You have no need of worry [about the existence of electron micrographs of purified HIV]. The evidence [there is a unique retrovirus HIV] is obvious and overwhelming". There was not one electron micrograph of purified "HIV" published by Gallo, neither in 1984 nor at any time since. Neither has Montagnier published such pictures.

2. The first electron microscopic images of "purified virus" were published by two groups of researchers in 1997. The Franco-German group (Gluschankof, Gelderblom *et al*) stated that "the purity of the virus" preparations had not previously been verified by any scientist.⁶⁶

However, according to Gelderblom, 80% of the material in the "purified" virus was "dirt". (Their images show 80% is highly conservative). Even if true, in the remainder, which is said to represent retrovirus particles, none have all the morphological features Gelderblom himself attributes to HIV.

In the second group, the Bess *et al* study reported from the USA, none of the particles in the "purified" virus said to be "HIV" have even the dimensions of retrovirus particles. Furthermore, the "purified virus" and material obtained in the same way from non-infected cultures, the so-called "mock virus", microvesicles (cellular products), contain the same proteins. This is as good a proof as any that the "HIV" particles and thus the HIV proteins and RNA are nothing more than cellular products.

Yet nobody, not even the dissidents, has taken any notice of these events.

Gallo's evidence for purification

With one exception at the 2006-2007 PARENZEE hearing none of the HIV expert witnesses could produce evidence for purification. The exception was Gallo. When he was asked for such evidence he replied: "We succeeded in putting [HIV]...into permanent culture, meaning in a cell line, in a leukaemic cell that, itself, doesn't have virus particles, and the virus comes out in great quantity and forever, thus making purification already accomplished. But, of course, we also use banded virus by sucrose gradient which they make a case out of we never did. You don't publish that. Of course we did".⁷⁸ (T1278) (To the contrary, at no stage has the Perth Group claimed Gallo did not "use banded virus by sucrose [density] gradient"). However:

1. The leukaemic cell line Gallo used was H9 which is a clone of another cell line called HUT-78. The HUT-78 cell line originated from a patient with adult T4-cell leukaemia which, according to Gallo, is caused by his "other" retrovirus HTLV-I. In fact in 1983, writing in *Nature*, Wong-Staal and Gallo themselves reported that the HUT-78 contained HTLV-I genomic sequences.
2. According to Montagnier, cultures made with leukaemic cells such as H9, contain "a real soup" of retroviruses.
3. In Gallo's cell cultures Gallo's electron microscopist had problems finding any retrovirus-like particles, much less a "great quantity" of virus.
4. Viruses are produced in cells. The only way to mass produce viruses is to have lots of cells. Gallo himself said that HIV is released by budding at the cell membrane, a process which he claims causes holes in the membrane and leads to death of the infected cells. This means it is not possible that HIV "comes out...in great quantity and forever", as Gallo claims, without killing the cells and thus producing cellular microvesicles and debris. Both Gluschkof *et al* and Bess *et al* used the H9 cell line in their experiments. One only has to glance at their electron micrographs to see that even after "purification" (double "purification" in the case of Bess), let alone "permanent culture", Gallo's leukaemic H9 cell line produces an abundance of cellular microvesicles and debris.
5. Obviously, as Barré-Sinoussi points out, cell culture supernatants cannot be considered "purified virus". "Now when this virus is in this supernatant it's not purified. OK? Because the cells are releasing plenty of things, not only the virus...cellular proteins...so on, OK?...so that means in the supernatant you have a mixture of everything, including the virus. Then

you have to purify it...OK...this is the second step...then you try to purify the virus from all this mess”.

6. It is true that Gallo banded the culture supernatant in sucrose gradients. It is this material, not the culture, that he called “purified” virus. The proteins and RNA he defined as “HIV” were obtained from the density gradient banded material, not from the culture. It is also a fact that Gallo, like Montagnier, did not publish electron microscopic images of his “purified virus” material.

Gallo versus Montagnier

As far back as 1984 Gallo stated that Montagnier’s evidence did not prove “true isolation”.⁷⁹ During the Parenzee hearing in 2006/2007 Gallo was asked if Montagnier purified “HIV”. He replied: “He did a 116 cross gradient [1.16 g/ml sucrose density gradient] in that paper, yes. I don’t know if he said it was purified. If you do that you don’t have much virus”. If in the 1.16 g/ml band “you don’t have much virus” then why did Gallo recommend the publication of the Montagnier paper which claimed proof for the existence of a new retrovirus based on the “purity” of the 1.16 g/ml band?

Since Montagnier and Gallo agree purification is necessary to prove the existence of a new retrovirus then, according to Gallo, Montagnier could not have proven the existence of HIV. If this is the case neither did Gallo. In his 1984 *Science* papers Gallo, like Montagnier, claimed his 1.16 g/ml band, not the culture, was the “purified virus”. The proteins and RNA Gallo claimed were HIV were defined on the basis of their presence in the 1.16 g/ml band, not in the culture.

In 1997, when Tahi asked Montagnier if Gallo had purified the virus and thus proven its existence, Montagnier responded: “Gallo?...I don’t know if he really purified. I don’t believe so”.

So Gallo says he does not believe Montagnier obtained proof for purification, the absolutely necessary requirement to prove the existence of the new retrovirus HIV, while Montagnier says the same thing about Gallo. And the whole world believes that Montagnier and Gallo proved the existence of HIV and HIV is the cause of AIDS.

ANSWER: No

CONCLUSION

“To prove that you have a real virus” one must purify the viral particles. To date nobody has published evidence of purification of particles with the morphology attributed to HIV. At present the only scientific conclusion one can draw is that neither Montagnier nor anybody else has proved the existence of a “real virus”. Yet the scientific community continues to maintain an “overwhelming scientific

consensus” that a retrovirus HIV has been proven to exist and is the cause of AIDS. Is it possible that in the early 1980s, in the rush to find the cause and cure for a new and deadly malady, claims were made which, in retrospect, were overstated? In her Nobel lecture of 2008 Barré-Sinoussi stressed the importance of avoiding dogma in science. Brent Leung’s video casts a considerable shadow over the HIV theory of AIDS thereby providing the scientific community such an opportunity - to set aside dogma and critically re-evaluate the current “overwhelming scientific consensus”. To quote from *Anthem* by Leonard Cohen, “There is a crack, a crack in everything. That’s how the light gets in”.

ENDNOTES

We thank Anthony Brink for suggestions and editing.

1. The historian and journalist the late IF Stone used “muckraking” to describe “that invidious term for critical and independent journalism”.
2. Hodgkinson N. *Aids: The Failure of Contemporary Science: How a Virus that Never Was Deceived the World*. London: Fourth Estate; 1996.
3. Tahi D. Did Luc Montagnier discover HIV? Text of video interview with Professor Luc Montagnier at the Pasteur Institute July 18th 1997. *Continuum*. 1998; **5**: 30-4.
<http://leederville.net/links/TahiContinuum1998.pdf>
4. Duesberg PH. Retroviruses as carcinogens and pathogens: Expectations and reality. *Cancer Research*. 1987; **47**: 1199-220.
5. As one senior academic virologist said not long after Duesberg’s *Cancer Research* paper appeared, “He was a great virologist until he opened his mouth”.
6. HIV protagonists conveniently lump anyone who questions the HIV theory as a disciple and supporter of Peter Duesberg. The Perth Group is not a supporter of Duesberg’s science and the HIV protagonists are fully aware of this fact.
7. Papadopoulos-Eleopoulos E. A Mitotic Theory. *Journal of Theoretical Biology*. 1982; **96**: 741-58. <http://www.theperthgroup.com/EPE/MitoticTheory.pdf>
8. Papadopoulos-Eleopoulos E. Reappraisal of AIDS: Is the oxidation caused by the risk factors the primary cause? *Medical Hypotheses*. 1988; **25**: 151-62.
<http://www.theperthgroup.com/SCIPAPERS/reappraisalofaids.html>
9. www.theperthgroup.com
10. In 1988 IF Stone could have been talking about the rise of the internet when he wrote of Athens circa 450 BC: “If virtue was knowledge [as Socrates taught], then presumably – like other forms of knowledge – it was teachable. And if it was teachable, then it could not be limited to a few, the old landed aristocracy, but could be learned by the many, the rising middle class of traders and craftsmen, and even to the common people. If they shared in virtue, then the many qualified for, and could not be denied, a share in governing the city”.

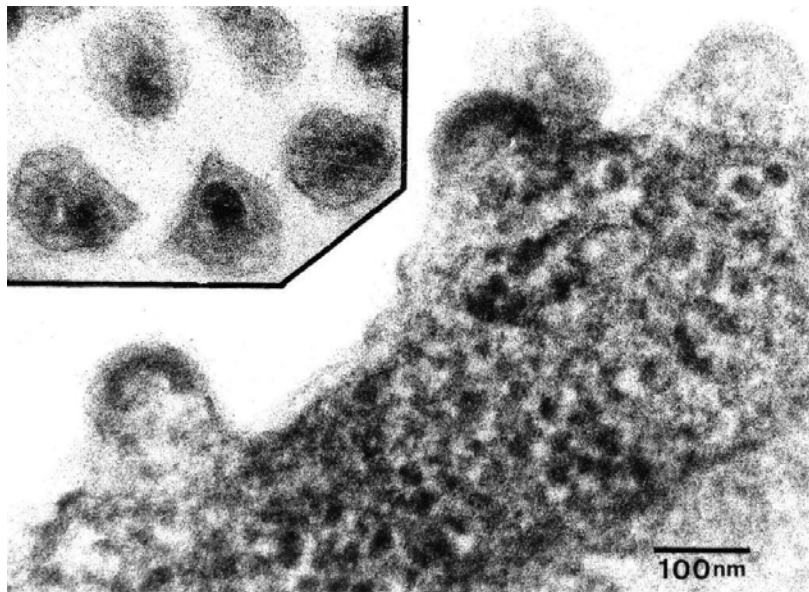
11. Peer-review is no panacea. In a paper published in the *Journal of the Royal Society of Medicine*, Richard Smith, then editor of the *British Medical Journal*, wrote: “PEER REVIEW: MORE EVIDENCE OF HARM THAN BENEFIT Peer review – i.e. asking peers of the authors of scientific studies to review the studies critically before publication – is the process that is supposed to ensure the scientific quality of journals. It is a sacred process – and the phrase ‘peer reviewed journal’ is supposed to guarantee quality. But clearly peer review is deficient. Despite being central to the scientific process it was itself largely unstudied until various pioneers – including Stephen Lock, former editor of the BMJ, and Drummond Rennie, deputy editor of JAMA – urged that it could and should be studied. Studies so far have shown that it is slow, expensive, ineffective, something of a lottery, prone to bias and abuse, and hopeless at spotting errors and fraud. The benefits of peer review have been much harder to establish. As Rennie says, ‘If it was a drug it would never get onto the market’. Nevertheless, no journal would dare to abandon peer review. Editors are convinced – even though they are finding it hard to prove – that peer review is invaluable”.
12. Physics and physician share the same root, *physis*, meaning “nature”. Googling “physics is/and biology” produces millions of hits. There are many scientific journals on physics in biology.
13. Davis P. Rethinking cancer. *Physics World*. 2011.
<http://physics.cancer.gov/global/docs/PWJun10davies.pdf>
14. Davis writes: “Cancer touches almost everyone in some way. It is now nearly 40 years since US President Richard Nixon declared a scientific “war on cancer”, but while many other major killers like heart disease and pneumonia have shown dramatic improvements and spectacular advances in treatment, the mortality and morbidity rates for most cancers have remained almost unchanged (figure 1). Billions of dollars have been spent on cancer research and a million research papers have been published, yet most cancer sufferers have not benefited greatly from that effort, although prevention campaigns – against smoking, asbestos and excessive sunbathing, for example – have proved effective. With the exception of a handful of cancer types, such as childhood leukaemia, progress on treatments has been limited to baby steps, with incremental improvements in drugs leading to marginal extensions of life expectancy. Lacking so far is any major breakthrough that would dramatically transform the human and economic impact of the disease. Cancer biology is a subject about which a vast amount is known but very little is understood. So could it be that researchers cannot see the wood for the trees?” Figure 1 shows the US age profile adjusted death rate per 100,000 people from cancers was 193.1 in 1950 and 185.8 in 2004.
15. In June 1983 Professor Penny reported the first case of AIDS in Australia.
<http://www.ncbi.nlm.nih.gov/pubmed/6602267>
16. From Wikipedia: “Antibodies are produced by a type of white blood cell called a plasma cell. Antibodies can occur in two physical forms, a soluble form that is secreted from the cell, and a membrane-bound form that is attached to the surface of a B cell and is referred to as the B cell receptor (BCR). The BCR is only found on the surface of B cells and facilitates the activation of these cells and their subsequent differentiation into...antibody factories called plasma cells”.

17. It may not be literally a test-tube. Read test-tube as a metaphor for any kind of medium that contains the HIV proteins.
18. Blood consists of red blood cells, white blood cells and plasma. The latter accounts for approximately 55% of the blood volume and dissolved in it are numerous substances, including antibodies. When blood clots the blood clotting proteins are depleted, turning the plasma into serum. Antibody testing for infectious agents uses serum and hence is widely referred to as serology. A person who has a positive HIV antibody test is “HIV positive”, “HIV seropositive” or, in context, “seropositive”. All mean the same.
19. According to immunologist John Marchalonis “For many years, it was considered that a single antibody bound only the antigen [protein] to which it was raised...In fact, the concept arose that monoclonal antibodies [all the same molecule] must be monospecific [react with only one protein]. The immunological community was shocked to find that B cells [whose surfaces have antibody molecules attached to them] could be polyreactive in binding multiple antigens to their surface that were complex and ostensibly unrelated to one another”. As long ago as 1969 the eminent Australian immunologist Sir Gustav Nossal wrote, “An antibody molecule made following the injection of one antigen frequently can combine also with a second antigen...in other words, the antibody cross-reacts [= also reacts] with the second antigen”. In 2005 Predki and his colleagues wrote: “The literature is replete with examples of cross-reactive antibodies...Unrecognized, such cross-reactivity can have adverse consequences. The ability to assess and identify antibody cross-reactivity is an important but often inadequately addressed requirement for both research and clinical applications”. He illustrated this problem with a monoclonal antibody he tested and found to react with 40 different protein antigens, binding to 16 of them more strongly than the antigen to which the antibody was raised (Predki PF et al *Human Antibodies*. 2005; **14**: 7-15). In 1997 Achim Kramer published data showing that a monoclonal antibody to the so called specific p24 “HIV” protein reacts with proteins from humans, monkeys, rabbits, rats, fungi and bacteria. The fungi include *Candida albicans*, the agent that causes one of the common AIDS indicator diseases. Nowadays a reaction between an anti-p24 antibody and proteins in a cell culture is considered proof of “HIV isolation” (Kramer A et al. *Cell*. 1997; **91**: 799-809).
20. Papadopoulos-Eleopoulos E, Turner VF, Papadimitriou JM. Is a positive Western blot proof of HIV infection? *Bio/Technology*. 1993; **11**: 696-707.
<http://www.theperthgroup.com/SCIPAPERS/biotek8.html>
21. From Morpheus, the God of dreams in Ovid – “the maker of shapes”
22. Barré-Sinoussi F, Chermann JC, Rey F, Nugeyre MT, Chamaret S, Gruest J, et al. Isolation of a T-lymphotropic retrovirus from a patient at risk for acquired immune deficiency syndrome (AIDS). *Science*. 1983; **220**: 868-71.
23. There are two significant differences between Montagnier’s and Gallo’s experiments. First, Gallo tested more patients. Second, Gallo cultured lymphocytes from AIDS patients with leukaemic (malignant) lymphocytes known as H9 cells. Such cells are immortal, that is, they do not die out in culture. This allowed Gallo to perpetuate his cultures, whereas Montagnier’s cultures died out after several weeks.
24. The HIV theory of AIDS states that HIV causes AIDS indirectly. That is, HIV causes destruction of the T4 cells (= acquired immune deficiency, AID) following which AID

leads to the appearance of the AIDS indicator diseases (AIDS). Nowhere in Gallo's four *Science* papers is there any proof of this theory. In fact Gallo could "isolate" HIV from only 26/72 (36%) of his AIDS patients.

25. "Myself when young did eagerly frequent/Doctor and Saint, and heard great Argument/About it and about: but evermore/Came out by the same Door as in I went".
26. HIV expert Levy defines isolation as a "sample of a virus from a defined source". White as the ability to "identify a totally unforeseen virus, or even discover an entirely new agent". Montagnier and Weiss as "propagating them [viruses] in cells in culture". Wong-Staal asserts "Isolation is essentially getting the virus from the patient and being able to transmit this virus to another cell". If "virus isolation" is to "take a sample of a virus from a defined source", or "propagating them in cells in culture", or "getting the virus from the patient" and "transmitting this virus to another cell", then first one must have prior proof that a virus exists in "a defined source" or "in cells in culture", or in a "patient". If "isolation" defines the existence of a virus the word 'virus' cannot occupy both sides of the definition.
27. Virologists always advise their clinician colleagues to isolate patients with certain infectious diseases such as tuberculosis and hepatitis. This amounts to keeping the patient in a separate room in the hospital, away from, separated from, all other patients who do not have these diseases. Obviously virologists do understand the meaning of isolation. However, either knowingly or unknowingly, they refrain from explaining the vagaries of this term whenever they assert virus isolation to non-virology readers, including the lay public.
28. The misuse of the word "isolation" was taken up by CR Madeley, a virologist at the Department of Infectious Diseases, Ruchill Hospital, Glasgow, and CJ Kay, Director of the Historical Thesaurus of English, Department of English Language, University of Glasgow. Speaking at the 1978, IVth International Conference on Virology they suggested the term "recognisate" should be used in place of "isolate" in virology. They argued that "An isolate may be defined as a microorganism grown in pure culture" but "There is now increasing use of methods for recognising the presence of a microorganism without growing it", and cited examples including the use of antibodies. "To refer to positive results in these tests as "isolates" must be incorrect since they have not been grown and, in the case of stool viruses, often cannot be grown – nor can they be said to be free of other organisms". In other words, what virologists often claim as isolation is not isolation but detection. And detection can only ever be as good as the specificity of the method used for detection Neither does detection separate virus from cells.
29. A vesicle is defined as a fluid filled sac (like a blister in the skin). Microvesicles are microscopic sacs released from cells under both normal and pathological conditions. The fluid is protoplasm enclosed by a membrane derived from the cell membrane. The vesicles contain proteins, RNA and DNA.
30. Physicians use many tests which are measurements of enzyme activity. For example, in the detection of myocardial infarction and hepatitis. No one regards such tests as isolation of the heart or liver.

31. This is not the first time virologists have been misled by a chemical “surrogate marker” for retroviruses. In the 1950s an enzyme called ATPase was used to both detect and quantify retrovirus particles. When scientists realised this enzyme is ubiquitous its use quietly disappeared.
32. Although RT activity is a *sine qua non* of retrovirus particles, Gallo’s criteria in 1984 permitted isolation of HIV in the absence of RT activity: “Samples exhibiting more than one of the following were considered positive [for HIV isolation]: repeated detection of a Mg²⁺ -dependent reverse transcriptase activity in supernatant fluids; virus observed by electron microscopy; intracellular expression of virus-related antigens detected with antibodies from seropositive donors or with rabbit antiserum to HTLV-III [HIV]; or transmission of particles, detected by RT assays or by electron microscopic observation, to fresh human cord blood, bone marrow, or peripheral blood T lymphocytes”.
33. In 1984, in similar experiments, Gallo detected RT activity and published an electron micrograph showing particles resembling retroviruses (like Montagnier’s particles with type-C, not lentivirus morphology). He reported “The concentrated [culture] fluids were first shown to contain particle-associated RT [activity]”. Anyone reading this paper may have assumed Gallo had proof that the particles were the source of the RT activity. Gallo had no such proof. The only reason the two were “associated” was because they were detected in the same culture.
34. Gallo RC, Sarin PS, Wu AM. On the nature of the Nucleic Acids and RNA Dependent DNA Polymerase from RNA Tumor Viruses and Human Cells. In: Silvestri LG, editor. *Possible Episomes in Eukaryotes*. Amsterdam: North-Holland Publishing Company; 1973. p. 13-34.
35. If Montagnier followed the rule of always presenting one’s best pictures then the single electron micrograph of HIV Montagnier showed at his Nobel lecture illustrates that whatever he discovered was not a retrovirus HIV. Who can classify the particles in the image Montagnier showed at his Nobel lecture?



Montagnier Nobel Lecture EM of “HIV”

<http://www.theperthgroup.com/Nobel/MontagnierEMNobel.pdf>

36. Panem SC. Type Virus Expression in the Placenta. *Curr Top Pathol.* 1979; **66**: 175-89.
37. In 1993 Robert Dourmashkin reported the presence of retrovirus-like particles in human umbilical cord lymphocytes. "Electron microscopy (EM) of cell sections showed cell associated virus-like particles (VLP), 50-60 nm in diameter, budding from the membrane of human lymphoid cells in culture. The particles had an envelope continuous with the cell membrane and a dense core that almost filled the particle. Particles 70-80 nm in diameter with prominent external spikes were found in the culture medium by negative staining (medium-associated VLP). Cell-associated VLP were also present in cord lymphocytes, both on initial separation and after culture with or without foetal calf serum, and therefore were considered to be endogenous to the cells...VLP were observed in most of the lymphoid cell lines examined". *J Med Virol.* 1993; **39**: 229-32.
38. Wong-Staal is incorrect. By definition all viruses are infectious. Perhaps Wong-Staal was conceding not all particles which look like viruses are viruses.
39. In 1973 Barré-Sinoussi (then Sinoussi) published a paper on purification of mouse retroviruses. To validate purification she used electron microscopy, writing "From the electron-photo micrographs these [density gradient] fractions contained mainly typical spherical C-type particles...No apparent differences in physical appearances could be discerned among the viral particles". That is, her electron micrograph confirmed the majority of particles had type-C morphology thus demonstrating the retroviral nature and purity of the density gradient material. It remains a mystery why Montagnier and Barré-Sinoussi did not apply the same rigor to the first isolation of "HIV".
<http://www.theperthgroup.com/OTHER/Sinoussi.pdf>
40. Viewers/readers may wonder if retrovirus-like particles have ever been seen and purified. They have – see for example figure 6 in Toplin 1973.
<http://www.theperthgroup.com/OTHER/Toplin.pdf>
41. Gel electrophoresis bands must not be confused with density gradient bands (or Western blot bands). The word "bands" is used as a descriptor in three different methodologies. The Western blot is an antibody test used to "confirm" a positive screening ELISA antibody test. In this technique the patient's serum is added to proteins said to be unique to HIV, separated along the length of a nitrocellulose strip. At the sites where antibodies and proteins react a colour change occurs producing a series of horizontal bands along the length of the strip. Unlike the ELISA antibody test, in which the serum is added to a mixture of the "HIV" proteins, the Western blot allows the identity of each participating protein to be detected. HIV experts claim the Western blot is more specific than the ELISA. There is no scientific evidence for this claim or that the ELISA or Western blot or any other "HIV" antibody test detect HIV antibodies.
42. The usual practice is to perform several electrophoresis experiments in parallel gels. Each electrophoresis is called a "lane" and marker proteins are commonly electrophoresed in an outermost lane.
43. Immunologists endlessly anthropomorphise the immune system*. Including antibody/antigen reactions. They claim antibodies "recognise" the viral proteins (and presumably don't "recognise" non-viral proteins). Recognise means "to perceive something or someone as already known". Antibodies do not recognise anything. Molecules just react, and they react because they can. It's a pretence to say antibodies

recognise proteins. It produces the illusion of antibodies identifying suspects in police lineups. Sodium and chlorine react to produce common table salt. You don't hear chemists saying sodium recognises chlorine or chlorine recognises sodium. From what Marcholanis, Predki and Kramer for example have reported, antibodies make far from ideal witnesses. *See also www.abc.net.au/science/articles/2011/03/31/3177528.htm

44. See http://kirshner.bio.purdue.edu/BIOL537/Reading/HIV_Montagnier_1983.pdf If the link has disappeared search in Google Scholar for the title of the paper: "Isolation of a T-lymphotropic retrovirus from a patient at risk for acquired immune deficiency syndrome (AIDS)".
45. In the experiment adding the BRU serum (antibodies) to the 1.16 g/ml density gradient material Montagnier performed another step. After adding the antibodies he left the mixture for several hours ensuring sufficient time for all reactions to take place. Then he removed all the proteins in the mixture that had not reacted with the antibodies. Thus the only proteins that were electrophoresed were those which had reacted with the BRU serum. Since according to Montagnier's thinking the proteins he removed could not have been retroviral proteins (not being "recognised" by antibodies in BRU), this unknown number of extra proteins, as well as p45 and p80, signify even more contamination of the "purified virus".
46. A person's immune system does not normally make antibodies that react with his or her own constituents. But it can and does and such antibodies are called auto-antibodies. Auto-antibodies are associated with many diseases. AIDS patients have a plethora of auto-antibodies.
47. Consider this experiment: You ask a laboratory technician to prepare two test-tubes each containing an aqueous solution of a single, unknown compound. You label the tubes A and B and then take them to a scientist requesting he do an experiment to determine the identity of each of the two unknown compounds. The scientist takes tube A and to it adds a few drops taken from tube B. Immediately he does so solid clumps of material (precipitate = proof of a chemical reaction) form in tube A. The scientist then cries "Eureka!" and pronounces the solutions are silver nitrate and sodium chloride. He then writes a paper describing this experiment and sends it to a highly respected, peer-reviewed, leading scientific journal where it is rapidly published. Who would believe this experiment proves the scientist's claims? Everyone! Because he is a renowned scientist working at a world class institution and his paper is published in a reputable journal with a high impact factor. Of course A and B may contain silver nitrate and sodium chloride respectively but they may also contain magnesium chloride and sodium hydroxide. Or barium chloride and sodium sulphate. And many other pairs of compounds which, when mixed, react and produce a precipitate. In these examples there are only two unknowns but in the Montagnier experiment there were many proteins and many antibodies and thus many unknowns. Who knows what produced the reactions? If one accepts Montagnier's interpretation of the antibody/p24 reaction one must accept there is no need for analytical chemistry.
48. A significant and inexplicable omission from the Montagnier experiments was the failure to perform appropriate control cultures. A control is a culture run in parallel with the test culture treated in exactly the same way as the test culture. Montagnier's experiments should have included control cultures obtained from sick individuals similar to BRU but

thought not to be infected with a retrovirus. The reason for controls is to ensure that the reverse transcriptase activity, particles and antibody/protein reactions are not the result of unforeseen factors which have nothing to do with a retrovirus infection. And in order to avoid bias both sets of experiments (test and control) must be performed blindly. That is, without the scientist knowing which is the test and which is the control. For example, it is possible that lymphocytes obtained from patients similar to BRU, patients of the same gender, age, history, clinical and biochemical abnormalities may have also reverse transcribed in cultures incubated with PHA. Recall Gallo proved that cultures of PHA stimulated normal lymphocytes reverse transcribe. In 1978 Robin Weiss published a paper warning biological scientists that retrovirological phenomena such as RT activity and retroviral-like particles “can effect the results of seemingly unrelated experiments”. Montagnier’s omission of controls, a significant omission from virtually all HIV research, is sufficient cause of its own to negate any possibility of drawing definite conclusions from his experiments.

49. About 30% of normal, healthy, non-HIV infected individuals at no risk of AIDS have antibodies that react with at least one of the “HIV” proteins, most commonly the p24 protein.
50. See Gelderblom <http://www.theperthgroup.com/Nobel/MontagnierEMNobel.pdf>
51. Kuznetsov YG, Victoria JG, Robinson WE, Jr., McPherson A. Atomic force microscopy investigation of human immunodeficiency virus (HIV) and HIV-infected lymphocytes. *Journal of Virology*. 2003; **77**: 11896-909.
52. HIV experts still cannot agree on the number of knobs the HIV particle possesses. The knob count has been claimed to be 80, 72, approximately 14, 10 (on average), 0.5 (on average), possibly zero and actually zero.
53. In 1987 retrovirologist Peter Duesberg published a paper in *Cancer Research* in which he questioned whether retroviruses are pathogens. This paper included a section arguing that HIV does not cause AIDS. Unlike all other dissidents, including the Perth Group, Duesberg was of such status he could not be ignored. Duesberg’s position was investigated by *Science*, the journal responsible for publishing Montagnier’s and Gallo’s five papers which the scientific community accepted as proof for the existence of HIV and its causal role in AIDS. In 1994 *Science* published an eight-page investigation of Duesberg’s claims under the title “The Duesberg Phenomenon. A Berkeley virologist and his supporters continue to argue that HIV is not the cause of AIDS. A 3-month investigation by Science evaluates their claims”. The article states “Peter Duesberg and his critics in the community of AIDS researchers disagree violently about the cause of AIDS. But they agree on one thing: Hemophiliacs provide a good test of the hypothesis that HIV causes AIDS. Hemophiliacs offer a unique window on the effects of HIV infection because there are solid data comparing those who have tested positive for antibodies to HIV – and are presumably infected – with those who have tested negative. In addition, the health status of hemophiliacs has been tracked for more than a century, providing an important base line. And unlike homosexual groups, hemophiliac cohorts are not riddled with what Duesberg thinks are confounding variables, such as illicit drug use”. Based on his harmless retrovirus hypothesis, Duesberg predicted that two groups of haemophiliacs, one HIV positive, the other HIV negative, with both groups receiving the same total dose of factor VIII, will not have any differences in AIDS morbidity or

mortality. Unfortunately, this experiment could only prove the dissidents wrong because there is a proven correlation between a positive antibody test and AIDS in all the risk groups, haemophiliacs included.

54. Papadopulos-Eleopulos E, Turner VF, Papadimitriou JM, Causer D. Factor VIII, HIV and AIDS in haemophiliacs: an analysis of their relationship. *Genetica*. 1995; **95**: 25-50. <http://www.theperthgroup.com/SCIPAPERS/ephemophilia.html>
55. In the foreword to this special edition of *Genetica*, Editor-in-Chief John McDonald wrote: "Challenges to the mainstream view that AIDS is caused by HIV have been receiving increasing attention in recent months especially in the popular press. Part of the reason for this attention is no doubt grounded in wide-spread frustration resulting from the fact that after more than a decade of intensive research, there is still no cure for this deadly syndrome. A second issue which seems to be adding fuel to the controversy is the claim that a *de facto* conspiracy exists within the scientific community to prevent dissenting views and alternative AIDS hypotheses from being presented to the scientific and general public (see, for example, the recent London *Times* article by Neville Hodgkinson entitled 'HIV: A Conspiracy of Silence' recently reprinted in the June/July 1994 issue of *The National Times*). According to the Popperian dictum, a valid scientific hypothesis can ultimately only be strengthened by the challenge of alternative views. On the other hand, ignoring charges of scientific censorship can only work to undermine the public's confidence not only in the prevailing scientific view but also in the entire scientific establishment. In providing this forum for alternative AIDS hypotheses, *Genetica* hopes to dispel the notion that a 'conspiracy of silence' exists within the scientific community. In addition, it is hoped that this special issue will provide interested readers with a convenient central location where they can familiarize themselves with and evaluate essentially all of the major current challenges to the HIV-AIDS hypothesis. *Genetica* recognizes its responsibility to provide our readers with a balanced presentation of the issues involved in this controversy and so welcomes the opportunity to publish replies by qualified individuals to views presented in this issue".
56. Layne SP, Merges MJ, Dembo M, Spouge JL, Conley SR, Moore JP, et al. Factors underlying spontaneous inactivation and susceptibility to neutralization of human immunodeficiency virus. *Virology*. 1992; **189**: 695-714.
57. Gelderblom HR, Özel M, Hausmann EHS, Winkel T, Pauli G, Koch MA. Fine Structure of Human Immunodeficiency Virus (HIV), Immunolocalization of Structural Proteins and Virus-Cell Relation. *Micron Microscopica*. 1988; **19**: 41-60.
58. Gelderblom HR, Hausmann EH, Özel M, Pauli G, Koch MA. Fine structure of human immunodeficiency virus (HIV) and immunolocalization of structural proteins. *Virology*. 1987; **156**: 171-6.
59. Gelderblom H, Reupke H, Winkel T, Kunze R, Pauli G. MHC-antigens: constituents of the envelopes of human and simian immunodeficiency viruses. *Zeitschrift für Naturforschung C. Journal of Biosciences*. 1987; **42**: 1328.
60. Even though "viral load" tests can at times detect RNA molecules in numbers that HIV experts assert signify millions of viral particles per ml of plasma, not one HIV expert has been able to provide even one electron micrographic image to show the presence of even one "HIV" particle in the plasma of even one patient. Factor VIII is made by

pooling plasma from 2000 to 30,000 individuals, amongst whom at most, there will be only a few HIV seropositives. Hence, if such particles were present, by the time individual plasma donations are shared amongst individual haemophiliacs, the number of particles will be substantially reduced.

61. Since the early 1980s it has been known that many HIV negative haemophiliacs have low T4 cell counts. See reference 54.
62. Is Montagnier a dissident? Has Montagnier been a dissident since shortly after discovering HIV? In 1985 Montagnier stated that immune suppression precedes HIV infection: "This syndrome occurs in a minority of infected persons, who generally have in common a past of antigenic stimulation and of immune depression before LAV [HIV] infection". That is, the cause (HIV) follows the effect (immune deficiency). Montagnier's view that immune deficiency leads to HIV infection put him at odds with all his colleagues who maintain HIV leads to immune deficiency.
63. Montagnier is not alone. His response, "Yes...this is a question...we have to explain how haemophiliacs have been so easily infected with plasma products", is a matter the Perth Group raised at the second meeting of the South African Presidential Advisory Panel on AIDS in Johannesburg in July 2000. No one was able to provide any explanation, including such prominent HIV experts as Professor Salim Abdool-Karim, Dr Stefano Bertozzi, Dr Awa Marie Coll-Seck, Dr Helene Gayle, Dr Clifford Lane, Dr Malegapuru Makgoba, Professor Jerry Coovadia, Dr Glenda Gray, Professor James McIntyre, Dr Lynn Morris, Professor Barry Schoub, Professor Allan Smith, and Dr Carolyn Williamson. HIV dissidents Professor Peter Duesberg and Dr Joseph Sonnabend, who accept HIV infection in haemophiliacs, also remained silent. Finally one expert sought permission to present an answer before the three day meeting concluded. The facilitator, Professor Stephen Owen, after consulting with his two co-facilitators, agreed to this request. That was 11 years ago and we are still waiting for the answer. If "Haemophiliacs provide a good test of the hypothesis that HIV causes AIDS", but no HIV expert can explain how haemophiliacs get infected with HIV, then the HIV theory of AIDS is in big trouble.
64. Bess JW, Gorelick RJ, Bosche WJ, Henderson LE, Arthur LO. Microvesicles are a source of contaminating cellular proteins found in purified HIV-1 preparations. *Virology*. 1997; **230**: 134-44. <http://leederville.net/links/Bess.pdf>
65. Gluschkof P, Mondor I, Gelderblom HR, Sattentau QJ. Cell membrane vesicles are a major contaminant of gradient-enriched human immunodeficiency virus type-1 preparations. *Virology*. 1997; **230**: 125-33.
66. It is important to stress that both groups recognised the importance of electron micrographs in addressing the purity problem. No number of "chemistry experiments" can ever demonstrate the existence and purity of retroviral particles.
67. It's important to note that the type and distribution of particles in the density gradient material may not be uniform, which means a false impression may be gained from a single examination. Also, in any electron micrograph it is usually possible to locate an area where the particles have more uniform appearances than in other areas. If this area is chosen to be the published image (the limit being a single particle), the true state of particle morphology and purity will never be known. To avoid such sampling errors

several samples should be examined. One should remember that scientists always present their best pictures.

68. <http://leederville.net/links/GluschankofEM.doc>
69. The presence of the word “contamination” in the title of the Bess paper, “Microvesicles are a source of contaminating cellular proteins found in purified HIV-1 preparations”, can only mean that “purified HIV-1 preparations” are not purified HIV-1 preparations. Bess dismissed this problem with the oxymoron “cellular proteins that copurify with virions”. If Bess were to prefer his whiskey neat, but was offered whiskey on the rocks, presumably he would accept the waiter’s excuse that the ice and whiskey “copurify”.
70. <http://leederville.net/links/BessEM.doc>
71. In the latest revision of viral taxonomy the lentivirus diameter has been revised downwards 20 nm. “Virions consist of an envelope, a nucleocapsid, and a nucleoid. Virus capsid is enveloped. Virions are spherical to pleomorphic. Virions measure 80-100 nm in diameter”. See Virus Taxonomy Online: <http://www.ictvdb.org/ICTVdB/index.htm>
72. The diameters create another dilemma. Density is mass/unit volume. If the Bess “HIV” particles were a retrovirus their density would be 1.16 g/ml. Since volume is proportional to the cube of the diameter the Bess particles must have approximately 8 (2X2X2) times the mass of the Gluschankof particles – an impossibility for one and the same virus. <http://leederville.net/links/BessEM.doc>
73. Margaret Heffernan. Wilful blindness – why we ignore the obvious at our peril. *New Statesman*. 8 August 2011. <http://www.newstatesman.com/ideas/2011/08/wilful-blindness-essay-news> She writes: “Scientists can be just as myopic. In 1956, the Oxford-based epidemiologist Alice Stewart demonstrated, with startling data, that the chances of childhood cancer were vastly increased by X-raying pregnant mothers. At the time, these cancers were killing one child every week, yet it took 25 years before the practice was abandoned by the British and American medical establishments. Stewart’s data flew in the face of current epidemiological theory – “threshold theory”, which maintained that, while a large dose of anything could be dangerous, there was always a point, or threshold, beyond which it was bound to be safe. Her research indicated that there was no safe level of radiation for fetuses. Stewart was fiercely opposed by Britain’s foremost epidemiologist of the time, Richard Doll, who was famed for identifying the link between smoking and cancer. Not until 1997 did he quietly retire the threshold theory with the most modest of *mea culpas*”.
74. <http://leederville.net/links/BessGelElect.jpg>
75. The ELISA (enzyme-linked immunoabsorbent assay) is one of the two commonly used antibody tests used to diagnose HIV infection. In all countries it is the initial “screening” test for HIV. If the ELISA is positive it may be followed by a supplemental antibody test said to “confirm” the first test a true positive (otherwise it’s a false-positive). The supplemental test differs between laboratories/institutions/countries. No HIV antibody test has ever been proven specific by comparing positive and negative results against HIV itself. That is, antibody test *versus* HIV. Without these data it is impossible to know how many, if any, HIV positive individuals are infected with HIV.

76. White and Fenner: authors of the textbook *Medical Virology*. JC Chermann: co-author of 1983 Montagnier *Science* paper. Professors David Gordon, Dominic Dwyer and David Cooper: Australian HIV experts in the fields of Microbiology, Immunology and Infectious Diseases. Professor Dwyer is a retrovirologist and Montagnier collaborator. Professor Cooper is Director of the Kirby Institute for Infection and Immunity in Society. All three scientists were prosecution expert witnesses at the Parenzee hearing in 2006/2007. The annotations beginning with T are the page numbers of the Parenzee hearing transcripts. http://www.tiq.org.za/Parenzee_prosecution_transcripts/index.htm
77. Gallo RC. *Virus Hunting*. New York: Basic Books; 1991.
78. Gallo's attitude to electron micrographs is as puzzling as Montagnier's. He told Leung "You don't use electron microscopy in those days [1984] except one or two pictures just to confirm, or to see the structure of this particular retrovirus". "[J]ust to confirm...the structure of this particular retrovirus" must rate as the superclass of all understatements. Isn't "to confirm" what it's all about? Just in case there is no retrovirus?
79. Gallo RC, Salahuddin SZ, Popovic M, Shearer GM, Kaplan M, Haynes BF, et al. Frequent Detection and Isolation of Cytopathic Retroviruses (HTLV-III) from Patients with AIDS and at Risk for AIDS. *Science*. 1984; **224**: 500-3.