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R V ANDRE CHAD PARENZEE

THURSDAY, 8 FEBRUARY 2007

RESUMING 10.45 A.M.

VIDEO LINK COMMENCING 10.45 A.M.

WITNESS PRESENT IN VICTORIA

+ELIZABETH MARA DAX CONTINUING

+FURTHER CROSS-EXAMINATION BY MR BORICK

HIS HONOUR REMINDS WITNESS SHE IS STILL UNDER AFFIRMATION

Q. I want to go back to some of your evidence at pp.883 and 884 of the transcript, which you probably haven't got.

A. No, I don't.

Q. I will explain it to you. You were asked a question as to what Ms Papadopulos said in relation to electromicrographs of the HIV virus and then what she said about it was put to you and part of what Ms Papadopulos said is, line 23, 'That there are no electromicrographs - what is meant to represent, apart from Best and Ushenko 1997 papers, there are no photographs of the banded material to show what they are saying is pure HIV actually is pure HIV' and you were asked 'Do you have any idea what Ms Papadopulos was talking about there?' and you said 'It seems a little difficult to decipher because she's talking about - she would appear to be talking about photographing bands or the material that went to the bands, which is not really terribly sensible because, as I indicated this morning, once the virus is disrupted and run on the gels, there is no longer a virus to photograph'. Now, in that answer, were you referring to Western blot band.

A. Yes. Afterwards I reflected on that. I expect what she is talking about is gel bands, which are in the purification material, the ultracentrifugation of the gels. Is that correct?

Q. Yes.
A. I understand.
Q. Do you understand what she is talking about now.
A. I do. I'm sorry, I misunderstood you at the time.
Q. Actually the question came from the prosecution. Anyway, would you like to comment on that now.
A. I can't give you an answer. I could probably go and look up some literature on that, but, as I have told you before, I'm not an morphologist, I'm not particularly familiar with that literature. However, I can tell you that there are an enormous amount of electron micrographs of the virus in all different situations, and I suspect that I could find an example of that if I looked carefully, but, no, I can't tell you that for sure. I suspect, if you were going to talk to Dr Gallo, as I heard you were, that would be much more a question he would be equipped to answer.
Q. You brought in some photographs of the virus. You referred them to us.
A. I did.
Q. Was the source of those photographs Hans Gelderblom's paper.
A. There are a series of papers from Gelderblom's papers, yes. He is regarded as the early expert in electromicroscopy and micrographs.
Q. He is very highly regarded in viral electron microscopy, isn't he.
A. I presume so. As I've said, again, it is not my field.
Q. Are you aware that Gelderblom stated that all of the HIV pictures, or so-called HIV pictures, illustrate observations made in the laboratory on cell cultures, and he stressed that none of these pictures originated directly from any AIDS patient. Would you accept that.
A. I accept that statement, but I don't believe that that is any longer true. There are many electron micrographs taken from people who have been infected with the virus at this stage, so, again, I'm not familiar with this literature, but I'm sure it could be found.

Q. You referred at one point in your evidence to fluorescently labelled virus. Do you accept the techniques of fluorescence, I understand, use the optical microscope and not the electron microscope.

A. That's true. You can also do fluorescence microscopy, or different techniques of microscopy, where the virus can be lit up in different ways, but that is true, the ones I showed you were true.

Q. I think at that stage you were referring to some green dots.

A. Yes.

Q. I'm putting to you it takes the resolution of the electron microscope to recognise and observe viral particles and the green dots do not represent labelled virus. Do you accept that.

A. No, I don't, because the labels are designed to be specific and bind specifically to the virus.

Q. On a number of occasions during the course of the evidence reference has been made to a third edition of Medical Virology by David White and Frank Fenner.

A. Yes.

Q. In the passages that were referred to under the heading 'Chemical Composition of Viruses', there is a bit about methods of purification I would like to put to you to get your comment on.

HIS HONOUR

Q. Can I indicate to you the chapter that is being referred to is in the third edition. It appears, on my reading of the chapter, that it was written somewhere in the 1980s. I don't know if there are subsequent editions to it. I just make that observation.

A. Yes. I'm not sure if there is a subsequent edition either, because at that time David White would have been unwell and Frank Fenner probably has better things to do than write chapters of books these days.

Q. I presume there are more updated books on virology.

A. That would certainly be correct.

MR BORICK: I'll obviously attempt to find out the

answer to your question, your Honour, but I can't do it now.

XXN

Q. Under 'Methods of Purification', it reads: 'An essential prerequisite for the chemical analysis of viruses has been the development of adequate methods of purification. Special problems are created by the close association of viruses with the cells they parasitize; it is not an easy matter to free virions of associated cell debris, or even from viral proteins synthesised in excess in the infected cell. Furthermore, the infectivity of virions is very sensitive to inactivation by heat, acid, alkali, and sometimes lipid solvents or osmotic shock. Accordingly, throughout all purification protocols the virus is maintained at near neutral pH and 4 degrees centigrade. The first step in the purification process consists of obtaining virions free from the cells in which they were grown'. Can you comment on what the authors have written there about methods of purification.

A. I can tell you that they are enormously well respected virologists who were commenting on the techniques available, presumably in the mid 1980s from your information, and they would have been authorities on those techniques at that time, but I put to you, as I did at the beginning of the week, that time has moved on. For goodness sake, the techniques that are available now are very different and I don't actually see what that has to do with my testimony, quite frankly, and I think you should ask a virologist more about those types of questions.

Q. Just to finish off on that topic quickly: is it your understanding that you start cell culturing by adding serum from persons suspected of being HIV infected, that is the starting point.

A. That is one method, one method.

Q. Using that method, is that material composed of purified virus.

A. It may be purified virus. That is a stage in purification, but it may not - I think you have a very rigid definition of 'purification' which I don't happen to see as particularly relevant. So, if you have a virus that was somewhat purified, yes, I believe it could be used to add to cells to - well, I know it can be added to cells to propagate the virus in that cell culture.

Q. On another topic, would you agree that multiple tests such as three ELISA, followed by one Western blot -

HIS HONOUR: Is that three ELISA tests?

XXN

Q. Three ELISA tests, followed by one Western blot test, does not constitute multiple independent events. Do you agree with that comment.

A. I don't understand what you mean by 'events' there. If a person were tested with three different immunoassays, not ELISAs - I don't accept that ELISAs are current technology used in practice generally in Australia any longer, but if someone were tested with three immunoassays on different platforms and a Western blot, I would say that were overkill, it would not be necessary to diagnose HIV.

Q. The proposition that is being put is, if you did that, it does not constitute multiple independent events, immediately you have four independent tests. It doesn't mean that, does it.

A. I'm sorry, I don't understand what you're trying to get at because that is not how HIV testing is conducted in this country or in any other countries. As I said to you before, it is all done in a structured way through a series of structured tests, test sequences, that are designed to give you 100% predictive value. So, I'm still not quite sure what you are getting at. Perhaps you can explain it in a different way.

Q. I'll leave that topic now. I don't think we are going to reach an understanding. In your book, in chapter 10, you deal with the laboratory procedures and you are

talking about the Western blot procedures and you made this statement: 'At the completion of each run, reactions should be read immediately, unless otherwise stated by the manufacturer, and then the strip can be dried and stored. If stored, the strip should not be taped but enclosed in a plastic binder. Because the reactions may fade with time, a written record of the reactions, including intensity, or a photocopy of the strips immediately after completion of the assay, must also be included'. Is that still your view today.

A. That would be a method of best practice for preserving Western blots in the laboratory. Such practice would not necessarily be required of all laboratories. It would depend on the quality systems and how they had been arranged. Is this out of the Constantine book?

Q. Yes, it is.

A. That may be so in America. As I have explained to you, Neil Constantine wrote those earlier chapters and they were Americocentric, but that would be an indication of best practice to me, yes.

Q. If the reactions are correctly read and stored, then other people can go and look at them and read them for themselves. That's the point, isn't it.

A. With HIV, certainly people try to preserve what we call 'traceability'. Traceability in the laboratory can be accomplished in different ways. So, usually traceability is retained so that you can go back some years later, such as in this case, and look at the results and follow them. However, I don't believe there is a legal requirement to do that beyond seven years, or something like that. It would depend on the laboratory's quality system and what the National Association of Testing Authorities had agreed to validate for their system, or to approve their system.

Q. Professor Peter McDonald has provided a report to the court. Have you read his report.

A. No, I have not; I was not given a copy of that.

Q. At one stage in it, Professor McDonald says this: 'The

denialist argument about the existence of HIV tends to focus on early experiments and methods which were the subject of legitimate debate; for example, the use of p24 as a marker of growth of HIV'. He goes on to say 'Since that time, the methods have been extensively refined'. Do you know what Peter McDonald was referring to when he refers to the legitimate debate surrounding the use of p24.

A. I think he probably means - I don't want to put words into Professor McDonald's testimony, or his report, but if I were asked that independently, I would suggest exactly as I have to you: that early on we didn't have all the methods that are presently available, so we did debate, scientifically, whether the p24 actually did represent the virus per se, and how we would weed out non-specific reactivity in the various ways we were looking at and so on. But, again, I would put to you that things have moved on. There are very different methods available. Whatever legitimisation there was in that debate I think has been resolved by the development of methods and information.

HIS HONOUR

Q. Can I ask you this: in the early 80s and in the 80s when this debate might have been occurring, how had the development of sequencing of viral genomes got compared to the position today.

A. That was a technique that was starting to be used widely about the mid 80s. The development of PCR would have taken place - the ability to reproduce nucleic acid would have occurred, I think, in the late 1980s, early 90s, but certainly the full sequencing, ability to fully sequence and synthesise, was in its earlier stages, but at that time already - no, in the early 90s people were beginning to use recombinant proteins and peptides widely. Sequencing, I think you would say, was moderately well developed.

Q. Because of the time problems I think the best way of trying to put the Perth's groups point of view and associate it with your point of view is to go to Dr Turner's affidavit which he filed in this court. Have you read that. It would be right at the very beginning of your material if you've got it.

A. I think that was early in his evidence; is that correct? Or is it a separate document from the transcript?

Q. It's a separate document not on the transcript.

A. I'm sorry, I wasn't given a copy of that.

Q. Dr Turner started off his affidavit by outlining what he understood to be the view that you and all the other experts hold about the HIV theory of AIDS. He set that out. And he says 'Hence a person has AIDS when he or she has HIV and develops one or more of these diseases. HIV does not directly cause the approximately 30 different AIDS indicator diseases but indirectly by its effect on the immune system'. Does that correctly state your position.

A. I'm concerned about the way the Perth group actually talks about AIDS. I think on several different occasions I have read they talk about AIDS being 30 different diseases which is an erroneous way and a most peculiar way of putting this because that is not a reasonable explanation of what we see is happening in this day and age. What we see is happening is the virus gradually destroys the immune system by numbers of mechanisms, we know now that there is no single mechanism of the destruction of the immune system but as that immune system fails the person becomes susceptible to infections and other abberations of normal physiology and that can then be defined as AIDS. It's a catch net term, it's a catch net term of what can happen if you have a very low ability to fight off infections or changes in genetic structure that might cause; for example, a tumour or a type of tumour. So, I don't accept that explanation of what happens in HIV

infection. I think it's an aberrant way of describing it that does not take into account the literature, the clinical syndromes, the medicine, etc.

Q. Dr Turner talks about a virus as he says they are a microscopic particle made up of nucleic acid genetic blueprint and some proteins. Viruses are so small they lack the space necessary to contain the raw materials from which to produce the substances and energy required for their replication (reproduction). Hence in order to replicate, viruses, unlike bacteria for example, are obligate parasites of living cells. Particles with the appearances of a virus are not regarded as a virus unless there is proof they replicate in this manner'. Can you comment on that opinion.

A. Well, I think that's true that viruses must be associated to propagate, and we certainly have the huge amount of evidence that HIV propagates in cells. We have it in cell culture, we have it in lymph nodes, we have had in many other cells in the body, including the central nervous system. I think that's - I'm not quite sure if there is any other comment you want me to make.

Q. Whether you've got any argument with that view expressed by Turner.

A. I don't think so. That seems to be a pretty standard sort of description of virus physiology I suppose.

Q. I'm not putting the whole of the affidavit to you. I've got to be a little bit selective for the reason we have given.

A. We are used to that, yes.

Q. Turner 'Retrovirus particles can only be visualised and their morphology studied using the electron microscope. The latter is an instrument in which an electron beam, rather than light, is used to illuminate the object being studied. The advantage of the EM is its ability to visualise and resolve features of those objects not possible to perform with the light microscope'. Do you agree with that comment.

A. Yes, if you have a very small particle you need larger

and larger magnifications. There is much experience in that. My son is an astrophysicist. He can't use a pair of binoculars to study the universe, and his way of looking at it is to use vast telescopes spread across the earth. So it doesn't seem to me a foreign concept at all. You need greater magnification.

Q. Do you agree that retrovirus particles can only be visualised by using the electron electron microscope.

A. No, I don't think. I've already cited many other ways that morphologists can use and different techniques that can be used in this day and age so, no, I do not agree.

Q. Further down Turner says 'Controls are an essential component of retrovirus isolation experiments because 'retrovirological phenomena' may arise, even spontaneously, in material known not to be infected with a retrovirus'. I take it from what you've already told us you agree with that statement 'Controls are an essential component of retrovirus virus isolation experiments because retrovirological phenomena may arise, even spontaneously, in material known not to be infected with the retrovirus'.

A. I'm not sure what he means by 'retroviral phenomena' but I would say to you that in any scientific experiment that controls are vital, and unless the controls are well and carefully one thing at a time the experiment would not be considered as scientifically valid.

Q. Further down Turner says 'However, what Montagnier reported as isolation was detection of an enzyme activity, that is reverse transcription - not purification of virus -'

A. Reverse transcriptase?

Q. No. I'm quoting. 'that is reverse transcription' and then a hyphen 'not purification of virus-like particles proven to be infectious.' Would you agree with that description of Montagnier's experiment.

A. As I told you before, I'm not particularly familiar with the steps of purification, it's not my particular expertise. But what I would say to you is I see nothing

wrong in an experiment where you are trying to purify a material of having indirect measurement of that and finally ending up with something - a material that you can then conduct experiments on in further experiments to show that the material you purified did in fact relate to whatever you were trying to put together to purify. So there are many ways to relate the object of purification to your final product. So, if he used reverse transcriptase to follow the purification I would not - have a reverse transcriptase activity, I wouldn't have a problem with that, no.

Q. Turner goes on to say 'Subsequent researchers have not performed experiments substantially different from those reported by Montagnier and his colleagues. Hence, based on current available data it is not possible to claim that a unique retrovirus has been isolated - that is as in purified - from the tissues of the AIDS patients'. I've added the words 'as in purified'.

A. I would say that was absolute innocence. I'm sorry.

Q. I think that answers the question.

A. I can't get any further than that it's nonsense.

Q. He then goes on to say 'Notwithstanding, virus isolation is not the routine method of diagnosing HIV infection because it is technically demanding, time consuming and expensive'. Do you agree with that.

A. Viral isolation, that is correct.

Q. He continues 'From 1983/84, that is from the time reports of the discovery of HIV appeared in the scientific literature, scientists have attempted to use tests to detect antibodies to diagnose infection with HIV. Such tests became generally available in 1985 and their current widespread availability and use are largely dependent on test kits supplied by biotechnology companies'. Do you agree with that.

A. I do.

Q. He continues 'Individuals who fulfil criteria deemed a positive test result (which vary considerably) are referred to as being "HIV antibody positive". This term

is synonymous with "HIV positive" and neither term means HIV particles have been isolated from a person.' And again I add my comment by 'isolation' in that sense he means purify. Do you agree with that statement.

A. No, I don't because it's a distorted point of view because, as we have discussed, nobody out of the blue calls somebody HIV positive. The testing is conducted in a series of events that are statistically balanced, and, furthermore, it ignores that the HIV testing has been verified in numbers of ways and, yes, you can't do the isolation on every single subject, but there is an overwhelming volume of evidence that suggests that, if someone in a well-constructed strategy using appropriate tests has put together that, you can be sure that that virus can be - that virus can be isolated from that person. And there are very few subjects in the literature who have been shown to be HIV positive where the virus can't be isolated or that you can demonstrate the presence of the virus by direct means such as RNA testing, DNA testing in the cells or even viral purification from the tissues, or even the plasma, depending on the viral load. We know that purification or isolation of the virus from the plasma depends on the viral load. But again I put to you the most frequently-used method for directly confirming viral presence is the presence of nucleic acid in the plasma or tissue.

Q. Para.20, I apologise we have been over this but I want to add 'To perform a test to determine whether there are antibodies that react with HIV two things are required: (a) the HIV proteins and (b) a serum specimen from the person being tested. To obtain HIV proteins first it is necessary to purify the virus particles. This is because viruses replicate only in cells and cells themselves, like viruses and living matter in general, are also made up of RNA and proteins'. He adds 'Luc Montagnier, the discoverer of HIV, agrees with this commonsense requirement'. And I add that the reason for

that is to provide a link between the current tests and the original Montagnier virus.

A. Mr Borick, I think that that statement begs the question that the virus has been sequenced, that no longer do the tests use virus as a basis for their antigens but they use recombinant or synthesised proteins from the conserved region of the virus that I've talked about, so the tests are required to recognise all types of virus, that being their sub-types and HIV-1 and 2 plus the outliner streams. So all the tests use those combinations of recombinant or synthesised proteins, they don't rely on isolating the virus. The virus was isolated, purified, sequenced and, as Dr Cooper has told you, that is now the way we identify the virus; we identify it ultimately by its sequence. There is sequence banks available, the most famous being the Las Alamos Sequence Bank, and so the link was made, there is no doubt in my mind the link was made by most people. And certainly by people in science. That's a common way to link the development of the tests and the science surrounding the virus. So I think we need to move on from that point of view, it's really outdated.

Q. Turner goes on 'Yet in their 1983 "Science" paper in which Montagnier and his colleagues claimed to have first isolated and purified HIV, they did not publish any electron micrographs to prove that the material which they called "purified virus" contained particles bearing the morphology of retroviruses'. Do you agree with that proposition.

A. No, not particularly. Montagnier and Gallo - and you might like to ask them - had studied retroviruses for many years. They knew how to handle viruses and they knew how to identify retrovirus. Those were the first papers announcing the discovery of the papers. There was a race going on, there was controversy going on; these were the first announcements. I know that they might not have been perfect examples but they unequivocally drew the tie between people who were

suffering from the illnesses used by some ineffective agent, that was determined, it was new, it was an ineffective agent because it could be transmitted by blood and other bodily fluids by sexual contact. The epidemiology shows that. And we knew that if someone who was infected became ill with AIDS-like illnesses, gave blood, that other people would become infected. This is not a paper that was designed or conducted in isolation. There was a huge body of information behind it. So, no, I don't accept such statements. I don't think it's relevant. I think it's seminal but not relevant.

Q. Turner goes on 'Even if there was proof these proteins are those of a purified, infectious particle proven to be a retrovirus, the fact that patients have antibodies that react with these proteins is not proof the antibodies are caused by infection with HIV. This is because antibodies induced by a particular antigen react not only with that antigen but may also react and with other antigens.' He says 'This is a critically significant issue'; do you agree with that.

CONTINUED

A. I acknowledge - no, I don't agree with it, I don't agree with that statement and, again, I think that if we look at the whole literature, the whole science of it, I don't agree with it. It is true that some antibodies are cross-reacting, but in the case of HIV and HIV tests those non-specific findings have been minimised by numbers of techniques, a large number of techniques and I have told you that in Australia that is monitored and the non-specific finding is extraordinarily low, way less than 1%. So, no I don't agree with that. And I think it is absolutely folly this nonsense about that and I just don't think that anybody is getting a service out of propagating such a point of view. I think you are doing a lot of harm.

Q. 35. 'The only means by which anti-body reactions can be proven specific for a reputative agent is to compare the reactions with that agent. This is a wholly empirical exercise best illustrated by familiar exemple', and he gives his pregnancy example that you are aware of.

A. Which I reject because it is not a good analogy.

Q. The statement: 'The only means by which antibody reactions can be proven specific for a reputative agent is to compare the reactions with that agent'; do you accept that.

A. Yes, I do and I accept that it is being done widely and by a number of different techniques for HIV and HIV testing.

Q. Para.37: 'HIV isolation is problematic. This gold standard verification cannot presently be done. In my view there are no scientific reasons for asserting that a person who is HIV antibody positive is infected with a retrovirus HIV. This conclusion does not negate the facts that (a) the antibodies are present; (b) whatever the genesis within the age risk groups, they predict the presence or development of illness'.

A. I totally reject that statement. I totally reject that statement.

Q. He says that 'HIV experts are aware that persons may

have antibodies that react with one or several of the HIV proteins and, yet, not be infected with HIV. In fact they explain these as biological force positives caused by cross-reacting non HIV antibodies': can you comment on that statement.

A. Well as I explained to you, it is possible that on the Western blot - I presume what he is referring to is there may be bands on the Western blot, that in people who are subsequently shown to be anti-HIV negative. We have been through the fact that proteins that are on the Western blot run under the electron theories according to the molecular weights so there may be other proteins, that's true. And I think that's the type of blots that Dr Turner is talking about when he makes such statements, but over the years we have learnt ways to make those blots far more specific and it is most unusual for people to react to multiple proteins at those molecular weight band levels that HIV - it is even more uncommon for people to demonstrate multiple reactivities that - well, it is almost unheard of to demonstrate those multiple reactivities in accordance with the patterns that we associate with HIV positivity.

Q. Turner goes on to say -

A. There's a huge amount of clinical epidemiological blood transfusion-generated, molecular technique-generated evidence that suggests that these HIV tests are highly sensitive, specific, predictive, operate under with great precision and follow high quality mechanisms of preserving their ongoing performance.

Q. Turner continues: 'HIV experts claim they could distinguish between true (caused by HIV) and cross-reactions (not caused by HIV) by using second, third and fourth generation antibody tests and arranging these into various test algorisms. By developing such methods they claim HIV tests can be diagnosed with utmost accuracy. I reject such claims because no amount of technological tinkering can obviate the fundamental need to verify all antibody tests no matter what tests

are used and in what arrangements they are conducted against the virus isolation gold standard'. Can you comment on that.

A. Well I disagree. I think he just doesn't understand what we are - what the evidence is. I think Dr Turner unfortunately, as I said before, has a such a blinkered point of view. He thinks that there is only one or two anti-agents. He thinks that there is a single method of screening HIV antibodies. He thinks that there is one single way to compare antibodies with the presence of virus and I reject his point of view. The overwhelming body of evidence is against that point of view and I think Dr Turner needs to read with more open mind. By the way, Dr Turner has already indicated in his testimony that he takes all the normal precautions of somebody who is HIV positive. I see that. I would challenge Dr Turner and Mr Sidopoulos to - if they are so sure that anti-HIV positivity does not constitute a relationship with HIV infectivity, why don't they put out their arms like Deusberg who was a great proponent of this point of view; when he was asked to put his arm he withdrew his points of view.

Q. Turner, in talking about the Western blot, says: 'The Western blot test is reported according to the number and pattern of bands that appear on the strip. HIV experts assert that certain Western blot band patterns prove HIV infection and only these patterns are recorded as positive. In Australia, a negative Western blot is one with no bands. Any pattern that is neither positive nor negative is reported as indeterminate. Most indeterminate results are not due to HIV infection'. Do you agree with that comment.

A. Indeterminate results are usually not associated with HIV infection, however during - what we are really concerned with, indeterminate is the reading of the blot during that time when the antibody response is developing and the pattern is incomplete, that's the - because once the HIV antibody response has occurred, as

I showed you the other day, most - all people will display that full Western blot. It is during the time when the antibodies are developing that the complete pattern may not be there and so we are most concerned, at that time, that we don't call a blot indeterminate and not follow it up. We ask that the testing be followed up. Usually, if somebody is sero-converting, then, at that time, the blot will change and the full pattern will become available. I wonder if Dr Turner has ever seen the development of a Western blot or the development of HIV tests becoming positive because that is one of the key areas of validation of these tests that we look at the development of the patterns and these patterned developments are now very widely available and understood and those are the very ones we want to weed out from the non-specific - those caused by a non-specific finding of one sort or another. Again, I emphasise to the court and people who are not technically versed with these tests, the reason that we do the immuno assay first, before we ever look at the Western blot, is to weed out those non-specific - those people who are clearly negative and then when we are looking at those people, we have to sought having reactivity that is specific from that that is non-specific. And I think Dr Turner presents it as though the Western blot is used in isolation and it's just not true.

MR BORICK: I think my time has expired.

HIS HONOUR: I'm not sure why at 11.30 it has expired.

A. I have another engagement. I can go for a couple of minutes longer.

HIS HONOUR

Q. You tell us when you need to leave.

A. Okay. If we can wind up please, that would be, you know, just - but I'm prepared to - I think this is an extremely important matter and so I'm prepared to keep going for a little bit longer if necessary.

Q. Turner continues: 'It should be noted that 40% of healthy blood donors have least one Western blot band. HIV experts assert that these bands are not caused by HIV antibodies but by cross-reacting non HIV antibodies. Hence, antibodies reacted with the HIV proteins but are not caused by HIV and are highly prevalent in healthy people and are at no risk of developing AIDS'. Do you agree with that.

A. No I don't. That number is way too high in this day and age. The non-specific bands that may appear in HIV negative people that are on the blots are usually faint, they usually occur at the less important band levels and they - these experiments, the types of findings that you are referring to, were performed very early, in the early stages of using Western blots to help understand the band patterns, so I don't accept that statement at all and the very reason that we do EIAs first is to eliminate those types of reactivity on the band. So this is a mischievous constant propagation of the Perth group and it is no more than mischievous.

Q. Turner says that: 'The specificity of the Western blot has not been determined using a virus isolation gold standard, but I take into that meaning, a purified virus gold standard'. I take it you disagree with him.

A. Yes I think we have gone over that. I think, again, it is not an accurate statement.

Q. He says that: 'According to HIV/AIDS experts, HIV is a retrovirus with a unique RNA genome. The term 'genome' is defined as the full complement of genes and the genome is necessary for the HIV particles to reproduce the virus particles'; do you agree with that.

A. More or less, more or less, yes. I mean, if you wanted to get pedantic about it you could argue that, but more or less yes.

Q. I'll just skip through a little bit in para.5 under 'viral load test'. He says 'However (a) there are no published correlations between the viral load, that is,

a number of RNA molecules and the number of particles considered to be HIV in the blood. This is because, today, no HIV research has published one electron micrograph; (b) RNA molecules are not viral particles and viral particles are needed for infection to take place. Hence, the term 'viral load' is both unfounded and misleading'. Can you comment on that. I think you probably answered the first part, part (a), but the second part, if you can comment on 'RNA molecules are not viral particles and viral particles are needed for infection to take place'.

A. It is quite clear that RNA in a particle equates one RNA molecule which equates pretty much to one virus. I'm sorry, but what you say is just not true because for example, the experiment of David Hoe, showing people with high viral loads, would decrease in response to antiretroviral treatments which show, quite clearly, that the numbers of viruses and the number of particles are decreased as you treat. And then there is the whole range of clinical evidence against that so, you know, just because every person has not had a virus isolated does not mean that the statement is not true. It means, by inference, you can show that it has been shown that - you know, why would you do it in every single person? The overwhelming evidence is that an anti-HIV positive person has been exposed to the virus. They will have RNA in their blood, they will have a virus propagating in their cells, particularly in the lymphoid tissue. If he removes the lymph nodes you can demonstrate the virus in those lymph nodes. You can demonstrate the RNA in the lymph nodes. You can isolate the virus that it is propagating in. It makes its way to the placement and the more the RNA levels. If you want to, the higher particles, but we don't do that, you are right, but that does not mean that's not what is going on. I mean, I think it's been shown by different methods over and over again.

Q. Just a couple more questions. He states that - and I'm

talking about CD4 cell counts now. 'Physicians treating HIV positive and AIDS patients monitor the number of CD4 cells in the peripheral blood. A decline in their numbers is interpreted as proof. The cells are being killed as a consequence of HIV infection'. Do you agree with that statement.

A. I did - I agree on a lay level, but on a technical level I think that's a very poor explanation of what's going on, but I think it's an acceptable, very lay level.

Q. He goes on to say: 'The fact that CD4 cells are diminished in the bloodstream, does not mean blood cells are being killed'.

A. No, it is more to do with the cells are not present in the body because they are declining in terms of their production. I mean, it is not just - what happens in the blood is evidence - is really what is happening in the lymph nodes. That has been shown over and over again. As HIV immunodeficiency proceeds, the number of - the lymph nodes are gradually destroyed and the number of CD4 plus cells available to the body decreases and a number of HIV - and I have to congratulate a number of HIV people who donated their lymph nodes to demonstrate this very point.

CONTINUED

Q. Finally, Turner makes the point 'There are data in the AIDS risk groups, such as drug addicts and haemophiliacs, individuals may develop low CD4 cells before they become HIV-positive. In other words, the cause (HIV) follows the effect (low CD4 cells)'. Can you comment on that.

A. There are other reasons that people may have lower CD4 cell counts, that's true, but if you look at people generally, that is not true. They maintain their CD4 cell level until the progression of immuno deficiency is well advanced, in terms of normal levels. It is only when the levels dip below normal that we become particularly concerned that those people may develop AIDS-defining illnesses. That is one reason we follow the CD4 cell counts because it gives us an indication of how the immuno suppression is progressing, if you like. There's a range of normal, there's certainly a range of normal.

Q. I suspect that is all we have got time for.

A. Thank you.

HIS HONOUR

Q. Para.43, it was put to you 'It should be noted that 40% of healthy blood donors have at least one Western blot band'. Are you able to comment on that.

A. Yes, maybe I didn't make myself clear. If you take HIV negative people and run their plasma on a Western blot, some Western blots - and don't forget there are many different types - you will get bands. I think 40% is far too high and it would depend on the band and how the blot were made. It is true that HIV negative people do demonstrate bands on the blot, however, that is exactly why we don't use the blot in isolation but we carefully screen out negative people, using that first test. If you remember, the negative predictive value of tests - that is antibody tests - are constructed so that they recognise - even any antibody at all removes a lot of people who may have shown a band - a non-specific band, a band not related to HIV, which perhaps has the same

molecular weight of a Western blot.

Q. I needed to ask that question, because, in his evidence, Dr Turner arrives at a number of conclusions and one of his slides sets out certain figures and, although he did say in his evidence that it was mere speculation, I just wanted to understand whether the starting point was correct.

A. I don't believe Dr Turner has ever conducted Western blot testing or is able to read Western blots. It is a skill, as I tried to show you with bringing in some of those Western blots, just to show you that it is something of a complex skill to read them carefully, to develop quality management systems and quality systems around their reading and to validate them over many years and over many samples and against no panels of positive-negative seroconvertive samples and so on. I don't believe Dr Turner has ever had the opportunity to follow that through, or perhaps he would understand it a little better.

+RE-EXAMINATION BY MS MCDONALD

Q. In your evidence, you talked about the preparation of plasma products and removing the virus from the plasma.

A. Correct.

Q. Can you just explain to us what you meant by that and when that occurs.

A. Plasma products are preparations of proteins and other biologics that are drawn from plasma and they are made from huge pools of plasmas, so that plasma is collected from blood donations - let's talk about Australia - where about a million blood donations are made every year. A large proportion of the plasma, or the liquid part of those donations, goes into preparation of plasma products, and that includes proteins that help haemophiliacs, help coagulate what they need: gamma globulins for people with immuno deficiency, they can be given antibodies to particular diseases or generally they help in that situation and so on. To make these products, large pools of plasma are put together of

thousands of units. If you have an infected unit, you can imagine how many people might be infected from those plasma products, so we have to understand viral purification, to the nth degree, to make sure that no virus ever gets into those plasma products. Our plasma producer in Australia, CSL Bioplasma, goes through a huge number of steps to make sure that every area of the purification of the virus is, in a sense, reversed, so they're not trying to end up with virus, they're trying to exclude the virus. There's numbers of methods that are used, in sequence, to make absolutely sure that those plasma products are virus-free, if you like, it is the process of purification coming up with the virus, in a sense, reversed, so that it is completely eliminated from those products.

NO FURTHER QUESTIONS

WITNESS RELEASED

+THE WITNESS WITHDREW

VIDEO LINK CONCLUDED 11.55 A.M.