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And to give your Honour an overview before I go to the details: what Professor Gordon did was he went to a gene bank, I understand you can do this all on-line these days -

HIS HONOUR: Went to a what?

MS MCDONALD: A gene bank. He looked for the genome of HIV, he then focused in on one of those conserved areas, one of those unique areas to this HIV virus, and he then compared that to a number of human genetic profiles to look and see if the genetic profile for the conserved area was found anywhere else in those general human profiles.

So to take you back to the actual document P85; Professor Gordon says at para.2:

'The initial approach taken was to access a complete genome sequence of HIV-1 (accession number NC/001802).'

I just pause there to say my understanding is that is telling us there the virus he was looking at, the particular number given to the virus.

He goes on to say that was from the NCBI, which is the National Centre For Biotechnology Information USA, so that was where that particular profile was stored. He then says:

'Examined nucleotides ... P24 protein.'

What he did then was look at one of these genes that is unique to HIV, and that's the gag gene that was talked about in evidence, and he probably picked that one because there has been so much discussion about P24 because that's the gene that programs for that protein, and that involved looking at the nucleotides 336 to 1838.

So my learned friend is correct in one respect; yes Professor Gordon hasn't conducted a complete analysis of the genome of a HIV virus. What he has done is he has taken the whole genome of the virus and then he has selected one of these conserved areas for the purpose of demonstrating to the court that it doesn't appear elsewhere in the human body.

Professor Gordon goes on to say:

'This sequence was compared with a comprehensive set ... massive number of nucleotides bases.'

So 7,067 profiles were compared against this unique gag sequence of HIV. And there is reference there to what is called a blaston 2.2.15 program. As I understand it that is a computer program that facilitates juxtaposing one against the other. He goes on to say:

'The result of this was no similarity found.'

He does go on to say in the next paragraph:

'The gag sequence was put against the human ... of the gag.'

There might be little areas in there where there is some common nucleotides. He goes to give an example:

'The most significantly similarity occurred with the human ... will be approximately 11%.'

So, in my submission, what Professor Gordon is saying there is if you look hard enough you can find little bits of the gag gene within other areas in the human body, but there is only a very small overlap and such that, if you look at the whole gene, they are completely different and distinguishable. So in my submission in P85 Professor Gordon illustrates why it is that we say that the whole genome of HIV has been sequenced, it can be sequenced from any virus. As a matter of practice it would be completely unnecessary because normally you are doing there to see if the virus is there; you look at the conserved process.

If you are looking at the relatedness of the virus then you are focusing on these areas where there are differences. In that sense, very like the DNA evidence that we present in court where the scientists have selected areas on the various alleles where there is known to be difference because that will give you the best indication.

HIS HONOUR: With the number of alleles.

MS MCDONALD: Yes.

HIS HONOUR: Your submission is, as I understand it,

and I'm only asking you because I want to understand it - I'm sure Mr Borick wants to understand it too because he might want to respond - you are saying that Mr Borick's submission that they have only ever mapped part of the genome is incorrect.

MS MCDONALD: Yes.

HIS HONOUR: That the whole genome has been mapped but they don't analyse the whole of the genome every time that they are considering a sample.

MS MCDONALD: Yes. And perhaps, if there is any confusion that in part arises from the fact that the virus is known to mutate like it does because, as I understand it, if one were look at a genome of the virus from person X and compare it to the genome of the person Y and then compare it to Mr Z they are never going to be identical.

HIS HONOUR: I understand there are variations.

MS MCDONALD: That's right.

HIS HONOUR: But the 'base' will always be the same, if I can call it that, it might be the wrong scientific term. There will be certain basic readings which will be common to all, common to HIV?

MS MCDONALD: Yes. HIV P24 is an example of that.

HIS HONOUR: As I understood the evidence, and again I need to be corrected if I'm wrong, the discussions about P24, a number of witnesses said 'Yes, you can find a molecular weight 24 in other viruses but we have now been able to get the genome or we have now been able to sequence the B24 molecular is HIV and that is unique to HIV'.

MS MCDONALD: Yes. Going back to Dr Turner's analogy that he used at the beginning of the trial, your Honour will recall he talked of clinical observations of one who seems to have a broken arm but when you open it up there is no fracture. That is really akin to what we have here: you might have two molecular weights but when you open them up they are completely different.

HIS HONOUR: I assume that if one understands what

Dr Gordon is saying in this statement P85 you can actually go and view the sequences on a database.

MS MCDONALD: Yes, as I understand it from the evidence of one of the witnesses, and I can't remember who it is at the moment, but that you can log onto the Internet and look them up. I think the evidence went as far as establishing that the reason for that is so that scientists around the world can scrutinise these viruses.

I believe the evidence was also that it's a prerequisite to some studies that the authors publish their findings to leave them open to be scrutinised. As I understand it it's a very open process.

That Padian response that I was referring to earlier was P39.

Just as an aside on this issue of the genome of the virus: the evidence from Professor Higgins at the trial was in fact that the applicant's virus had been sequenced on three separate occasions. And there is a page reference to that in my written submissions. But it happened not once but on three separate occasions that the virus was sequenced, and that's what was compared against Ms Crispin's virus.

HIS HONOUR: I'm not sure how much that evidence helps me other than in the general sense that Professor Higgins confirms in his evidence, but not in the detail that I've heard it that there is a genetic sequence and it can be compared to other viruses, or it can be compared to other sources of the viruses.

MS MCDONALD: The other relevance is in this sense: presumably in terms of this fresh evidence what some aspects of it is going to is suggesting to a jury that we have proof that Mr Parenzee, as opposed to man X on the street has been properly diagnosed as being HIV positive, and the problems that will then flow from the prosecution case from that point of view, so in one sense it's all well and good to talk about theoretical people, but if this evidence is to have any legs it has

to be relevant to Mr Parenzee's circumstances. Those are of a man who has had the reactive result and the Western blot test.

HIS HONOUR: That all starts from the premise that there is a virus called HIV, that if it goes untreated it will develop into AIDS, and a person having it, their immune system will be depleted, they would have one of the recognised diseases and if they are not treated they will eventually die. I mean, that's where this all starts.

As I understand one of the positions - it's not the only position taken by the applicant in this matter - is that it hasn't been established that there is such a thing as an HIV virus. If it has been established then it's not been established that it causes AIDS. Then there is the other aspects of it about sexual transmission etc.

MS MCDONALD: Yes. In my submission, Mr Parenzee's circumstances are also relevant to the question of sexual transmission in that it's relevant for your Honour to take into account what the evidence was about the relatedness of his profile with that Ms Crispin's. I set out the reasons in my written submissions. She was a woman who not in any known risk group, she had not had a sexual relationship with anyone else, she was in a sexual relationship with the applicant for some time and lo and behold when she is diagnosed as HIV positive her genetic profile is the most closely related to her on the database in the facts of this case for the fact that it was sexually transmitted in this case.

My learned friend made some observations, maybe criticisms, of the respondent's written submissions and in particular of para.3.1.27 which appears at p.26. And he was there referring to the paragraph that reads:

'A knowledge and research into the genetic research of HIV ... and also address the problem of the genetic variability of the virus.'

The first criticism to be made is there is no such

vaccine yet. That is right. They are being developed. That is the point of the paragraph.

That reference to the variability of the virus arises from the evidence of Professor Gallo at 1248 of the transcript. And this was where Professor Gallo attempted to explain his views about what needed to be done to develop a vaccine. Your Honour will recall he talked about the virus attaching to the receptors on the molecules of the cell:

'This is the cell and my knuckles are the ... immune response will have to last.'

I'll stop there. That is what we were referring to in para.3.1.27 by the reference to the problem with genetic variability. It's a problem in creating a virus and meeting the challenge that the virus presents, not a problem about whether or not HIV exists; whether it has been isolated. It is a very specific problem to moving ahead with the treatment.

My learned friend also made an observation about para.3.1.30 and that is a paragraph that relates to endogenous retroviruses and made the point that there is only a footnote for the last paragraph. Just to make it clear: that footnotes relates to all of those sub-paragraphs. It is a footnote that goes with that para.3.1.30.

It's not as though we have made up those earlier statements and found some evidence of the last one. Those references cover the field, if you like, on that topic.

Just whilst referring to Professor Gallo in passing, over lunch I've endeavoured to go back and look at those early five articles, and I was of course reminded that your Honour we needed better quality of the copies because in part the beginnings and ends are obscured. Because of that, in my submission, there may well be an answer to some of the criticisms Mr Borick made, but I need to get those clearer copies because it relates to some footnotes of some things that are now obscured.

If there is anything extra that I need to put to your Honour in terms of the very specific submission made by my friend this morning, I can do that in writing in the next couple of days and provide that along with the fresh copies of the articles for your Honour. There was too much that was illegible to actually get to the bottom of it.

HIS HONOUR: Have you any objection to that Mr Borick?

MS MCDONALD: And if your Honour pleases, those are my submissions unless there is anything in particular I can assist your Honour with.

HIS HONOUR: So you really rely on your written submissions plus -

MS MCDONALD: Yes.

HIS HONOUR: Yes Mr Borick, is there anything you wish to put in reply?

MR BORICK: My friend referred to Mr Parenzee being sequenced on three separate occasions, on my understanding of the evidence from IMVS it was still only a part sequence, that is in the region of 12% of the whole sequence, and when you look at Dr Gordon's, and I think first of all you as judge, and we as lawyers, need to be careful about how we interpret this document, because there hasn't been a lot of evidence on it, but when he refers to:

'A number of human proteins had ... partial reasons of the gag'

He is saying the human proteins are clearly not the same as the viral proteins but there is some similarity and then he concludes from that, over the page 'this analysis indicates'. Now I don't think 'indicates' is sufficient for your Honour to place any reliance upon that report from Dr Gordon unless there is another area perhaps where both sides have heard what each has had to say about it. I might be able to give you further written assistance in the next few days because I would, personally, having heard what my friend has argued, would like to consider the position further and respond

with a little bit more science behind me than what I have got at the moment.

HIS HONOUR: I'm certainly not inviting this matter to keep going because it will never finish, but if we are trying to interpret a document produced by Professor Gordon, who is available, Ms McDonald?

MS MCDONALD: He is in Adelaide.

HIS HONOUR: Wouldn't we be better off to ask Professor Gordon what he means, rather than two lawyers at the bar table, with some assistance from whoever assists them, trying to interpret a document where we know who the author is. I mean under normal circumstances Professor Gordon would have been recalled to give the evidence, and everybody agreed to him responding in writing, but now we seem to have some, I wouldn't put it as high as issue necessarily, but some difference about how one might interpret what he said, perhaps it might be easier if he were to come and tell me and explain what he meant.

MS MCDONALD: That can be arranged -

HIS HONOUR: I'm in your hands, Ms McDonald, and Mr Borick, if you think I should go ahead and try and do my very best with this document, based upon the submissions, I will, but it's a document that's been prepared by a witness in the course of his evidence and if there is any real concern about what it actually means I wouldn't be averse to having him back to explain.

MR BORICK: Or alternatively he could let both of us know what he meant by it and I could get some further advice then and I could get back to you.

HIS HONOUR: If there can be an agreed position on what he is talking about, fine.

MR BORICK: Can we have a go at that first?

HIS HONOUR: Yes, I'm certainly content to do that, if there can be an agreed position about it, but in some respects it might be just as easy to get him back to tell us what he meant.

MS MCDONALD: That's my opinion. We haven't been able to agree on much so far and if my friend takes issue with the word 'indicates' in Professor Gordon's evidence, I don't think there is much prospect of coming to -

HIS HONOUR: On my understanding of scientists, it's very hard to get a scientist to tell you something is black or white, Their DNA evidence causes no end of difficulty for lay people to understand but they say that's the way they scientifically have to give it; they can't give a definitive response, they can't say 'DNA matches'. We would all like them to say that but they scientifically can't say it. So I don't know what 'indicates' means -

MR BORICK: I am happy if he comes back, just if I can get a couple of days advance notice of what he is going to say, just a bit of a statement from him and I can get advice.

HIS HONOUR: Well, Mr Borick, I think the easiest thing might be for him to come in and give his evidence about it and if you need time to get some advice about it I'll give it to you, because otherwise we are going to find that you didn't understand his explanation or something goes wrong, it might be just easier to get him in and ask him.

Ms McDonald, I saw Professor McDonald head out the door, was he going to check Professor Gordon's availability?

MS MCDONALD: Yes. In particular see if he is available tomorrow morning, to get it over and done with.

HIS HONOUR: If he was available tomorrow morning that would be very helpful. We have some time set for tomorrow.

MS MCDONALD: I can indicate for my friend's benefit on getting his advice, that what I put from the bar table is my understanding of what Professor Gordon is going to say. So perhaps he can deal with it preemptively in

that sense.

HIS HONOUR: I assumed you weren't talking off the top of your head.

MS MCDONALD: No, I'm not that clever.

HIS HONOUR: Mr Borick perhaps we might just see what the position is because I think that might be easiest. And you'll have the transcript of what Ms McDonald put to me, so insofar as that is of assistance to you you'll be able to refer that back to your advisers and if you need a bit more time after he has given his evidence I'll certainly give it to you.

MR BORICK: Thank you. The hearing, then, tomorrow morning will be confined to P85.

HIS HONOUR: Yes, absolutely. I don't want to open the whole subject up again.

MR BORICK: The balance of my response. My friend referred to the misunderstanding of the causation issue involved and I have difficulty with sort of sorting out what is the causation issue involved. I can give a couple of examples which I think comes to what I'm saying about this.

That you can have causation in the case of cause death by dangerous driving and the issue is whether death was caused by the dangerous driving, but as your Honour is well aware, there are lots of other factors can come into play and it's those other factors which determine the result. And similarly if you have causation in a homicide case, let's say the cause of death is said to be drowning but then drowning can arise from other factors, such as, for example, an anaphylactic fit, or something of that nature. So you look to see those other factors.

So it's in that light that I'm referring to causation in this case and the causation question is, as I put it in my final question - almost final question to Professor McDonald 'Do you agree there must exist a reasonable doubt that HIV, even of itself, will cause a life-threatening disease'. That expression I

deliberately used.

MS MCDONALD: As I understand it, Professor Gordon's staff are getting him out of his clinic at the moment to speak to him about his availability tomorrow, but a cursory look at his diary looks like it should be okay. But that's his staff speaking on his behalf at the moment.

HIS HONOUR: Why don't we adjourn for a few minutes so that we can get a definitive answer because otherwise problems are going to arise, if his staff are not aware of something he is going to be up to then there will be a whole raft of telephone calls in an attempt to find a time. So I would hope that if I were to adjourn for 15 minutes you should be able to give me a response.

MS MCDONALD: That should be plenty of time.

HIS HONOUR: Is that convenient Mr Borick?

MR BORICK: Yes, your Honour.

HIS HONOUR: I will adjourn for 15 minutes, then we will come back and if we could hear his evidence tomorrow at 10 a.m., that would be a good thing and then we can finalise the matter.

ADJOURNED 2.59 P.M.

RESUMING 3.17 P.M.

HIS HONOUR: Yes, Ms McDonald.

MS MCDONALD: Professor Gordon will be here at 10 o'clock tomorrow.

HIS HONOUR: We will adjourn the matter -

MR BORICK: I have some clean copies of the Gallo papers that I could lend to my friend overnight so that we can perhaps complete that part of it as well.

HIS HONOUR: Yes. Thank you, Mr Borick. 10 o'clock tomorrow. Ms McDonald, you might be able to make an oral submission rather than a written one.

MS MCDONALD: Yes, I will, now that I have these tonight.

ADJOURNED 3.19 P.M. TO THURSDAY, 1 MARCH 2007 AT 10 A.M.