Independent Forensic Services

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A criminal lawyers guide to handling Forensic DNA evidence:

1) **Give yourself time**
I know in most cases this is asking for the impossible but when dealing with forensic evidence, it is highly likely that you will need to obtain further documentation. The forensic reports that are currently issued generally contain limited information. You will find a wealth of additional information in the case files and examination notes.

2) **Read the forensic reports**
The whole report…not just the conclusion. Look at the details including any appendices. For example, where was the sample taken from? It makes the world of difference – make sure you present the full picture to the court and given some context to the big number reported by the Forensic Biologist.

3) **DNA sampling often does not occur in the laboratory**
In many of the states and territories of Australia (NSW included) the laboratory does not handle the exhibit in the majority of cases, they simply receive a tube containing DNA. As such the laboratory report will contain no information regarding the actual exhibit. The actual sampling is often done at the crime scene, or exhibits may also be removed from the crime scene and examined by Crime Scene Officer's at their Local Area Command,. The fingerprint laboratory may also conduct sampling during their fingerprint examination. This opens up a large number of places that you have to look in order to build the whole picture of how a sample was taken, and what testing was conducted prior to DNA analysis.

It is up to you to work out what you are missing – if the DNA analysis report does not mention the examination of an original exhibit, then you will need to look further. Of course you can always enlist in help to put the puzzle together.

4) **You may need to subpoena more than the forensic biology case file [**
In order to get all of the information, it is necessary to subpoena the working notes to get a full picture of what was sampled, how it was sampled, and what tests were done. For example, the Crime Scene Officer's notes should contain: images of the item including where was sampled and how it was sampled; information on what precautions were taken to prevent contamination; and the results of any tests, including controls. The DNA laboratory file will contain the actual DNA profiles which can be invaluable if instructing an expert, as well as helping you to determine what methods have been used to interpret the data (eg STRmix™).

In NSW this will mean issuing at least two subpoenas, one for the forensic biology case file from the Forensic and Analytical Science Services and one to NSW Police Force.

If you are instructing an independent expert, they might also require additional items so it would be advisable to check with them what else they may require, such as the electronic files generated during the DNA analysis process.

If you are looking at the bloodstain pattern evidence, it will be very important to subpoena the 'jpeg' files for the images. The police issue 'pdf' files of the photos by routine, but these do not allow for a thorough examination of the photos and can be extremely limiting to the expert who will be reviewing your photos.

You can also review the notes/file to assess whether there are any procedural issues – i.e. look at the time line on the case file. The crime scene examiner performed a forensic procedure on the suspect before attending the scene. Their view may be biased by what they have seen or heard about the scene before they have attended it.

Check whether everything that was tested has been disclosed in the report. It is not uncommon for us to see tests in the forensic biology files that have not been reported.

5) **Consider whether more testing should have been done**.

One of the major benefits of possessing the working notes/file is that you can use these to determine whether there are there items that have not been examined. The notes may even tell you why they haven't been examined – read the telephone conversations – you would be surprised what is contained in those! The police may have had a suspect, so opted not to collect further evidence. We have seen examples of potential evidence such as shoeprints in blood not collected or photographed in the scene as police has a suspect who had blood on them.

Using the material listed above, you can consider whether more stains found and only one tested? Or was only one item examined? Is there more that could or should have been done. Has everything that has been done been disclosed? Examples we have seen include vaginal swabs not being tested even though traces of semen were detected; additional individuals being present in DNA profiles but have not been disclosed or reported.

6) **Don't be put off by the big numbers**

The new DNA testing techniques are more sensitive and test a greater number of regions in a persons DNA. Therefore the resulting statistic is significantly greater. However, there are some important considerations to be had with DNA evidence that are often overlooked. Don't let the big number scare you.

Many labs now report their findings in a shortened or tabulated format, giving very little information about the DNA profile obtained other than match or no match. As a guide, in NSW a match probability of 1 in 100 billion is their default statistic used for a full match. This means that every area of the DNA tested matches the corresponding area of the DNA of the person of interest. Therefore, anything less that this indicates that the DNA profile obtained is a partial DNA profile (i.e. some areas of the DNA tested did not yield a result) – often warranting further evaluation.

Also consider whether the statistic is a match probability or a likelihood ratio when you are building your case – they are NOT the same thing! If there is a mixed DNA profile, unless there is a very clear major/minor profile you should not see a single source calculation. You should see something along the lines of "the evidence is four thousand times more likely if Mr X and Mr Y are contributors to the DNA profile rather than Mr X and an unknown individual".

7) **Think about the evidence presented in the context of your case.**
More often than not DNA evidence is presented with absolutely no context. For example – in an allegation of rape, trace DNA recovered the victims underwear matches defendants DNA profile. The forensic DNA report simply concludes: DNA detected on the underwear of Miss X matches that of Mr Y. The chance of obtaining these matching DNA profiles if the DNA originated from someone other than and unrelated to Mr Y is in the order of one in one hundred billion. But, what is the expectation of these traces being on her underwear from legitimate contact? For example, if Miss X and Mr Y are housemates, this information hasn't been considered, and should have been. Don't just accept that the DNA matches, ask more questions like 'WHAT DOES THIS MEAN IN THE CONTEXT OF THIS CASE'.

8) **Consider instructing an independent expert**
Prosecutors already have an expert – the scientist who conducted the original work. But, defence lawyers should get their own expert. What you use this expert for will depend on the case.

They will be able to assist you with what you need to subpoena, what the evidence means, what propositions does the evidence support or refute and conduct any re-examinations/independent testing of the evidence. It may also be beneficial to have their assistance in court, not only to provide and alternate view to the prosecution witness, but to assist in lines of questioning for the prosecution witness.

For more information on this topic, and information on organisations and individuals that may be able to assist you, please visit the resources section of our website: http://independentforensicservices.com.au/ifs/resources/

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