

# DNA Doyenne



## **A female scientist in the US has been recognised for her work in using innovative DNA technology to help police convict perpetrators of serious sexual assaults. Carol Jenkins talks to Ria David from Cybergenetics.**

When US scientist Ria David of Cybergenetics took to the stage to receive her P.O.W.E.R Award from the Women in Bio organisation recently – she was accepting the award of behalf of the many female victims of sexual assault that have achieved justice as a result of her work.

The Women in Bio organisation is a national science and technology organisation that recognises the efforts of females working in the field by presenting them with the P.O.W.E.R Award.

### **Advanced**

Together with her co-founder Mark Perlin, Ms David has been pioneering an advanced technology called TrueAllele that can analyse DNA samples, particularly on those that are too minute for other methods to return a result. TrueAllele is an automated computerised DNA interpretation system, thought to be one of the most advanced in the world.

It is particularly expert at providing highly intelligent and accurate analysis of mixed samples involving more than one person's DNA. Cybergenetics is well established in the US and has also worked with UK forces on a number of successful major cases.

The reason Ms David received the P.O.W.E.R award was for her work in bringing perpetrators of serious sexual assault cases against women to justice by using TrueAllele to prove their culpability.

### **Funding**

An important development came following a decision by her home state of Pennsylvania to pass legislation to deal with a backlog in sexual assaults. As a result, extra funding was made available and there was a major local impetus to try and tackle the worrying backlog.

"I explained to the Women in Bio group that it was extremely positive that extra funding was provided for the sexual assault backlog.

However, when the rape kits are processed and you have the DNA data you hit the usual road blocks around the fact that laboratories cannot necessarily interpret their data."

She explained how futile the exercise would be as many cases would have stalled at the analysis stage and not produced useful identification information.

"What we were seeing is there was a lot of public funding going towards processing these rape kits but you are still only half way to solving the problem."

### **Concern**

The Women in Bio organisation was concerned about this situation and began a dialogue with the Allegheny County District Attorney Jan Necessary, a local leading sexual assault prosecutor to discuss their concerns.

DA Necessary had previously used the TrueAllele technology in the successful conviction of a repeat sexual offender.

Since then Cybergentics has built up an expertise in using TrueAllele in a number of complex sexual assault cases including local incest and molestation cases involving children.

"In cases involving sexual assaults against children, it is vital to be able to present robust DNA evidence as children and teenagers are often not your best witnesses on the stand," said Ms David.

### **Objective**

Cybergentics is also proud of the fact their technology is the only technology that is completely objective which means that when included in a sexual assault case it makes for compelling evidence.

"There is no risk of personal interpretation or cognitive bias due the fact that you put the data and it doesn't care or discriminate the data. You don't manipulate it or change it at all. There is no threshold so it uses all the data and the information that's there."

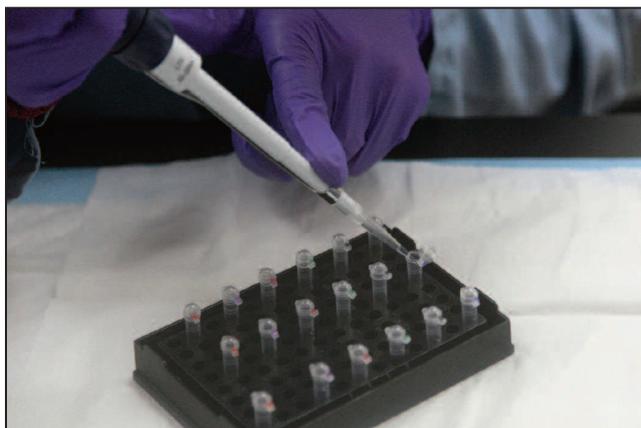


*Ria David (second from left) holds the City Council proclamation.*

Ms David feels strongly that using such robust DNA technology is helping provide a voice to victims who have often undergone shocking attacks by increasingly violent offenders.

### **Convictions**

In one case on the West Coast, a man was targeting immigrant women and their children and carried out a number of horrific attacks on them. TrueAllele was able to identify a very small amount of DNA evidence that tied him to a crime scene and he was convicted at court.



In a case on the East Coast in Baltimore, an offender was targeting alleged prostitutes because he knew there would be an issue around consent. The man's efforts were becoming more audacious and he went onto rape a teacher who proved to be a more credible witness and the DNA evidence provided by Cybergenetics corroborated her story which resulted in a successful conviction.

"These are examples of serious crimes where our DNA interpretation was central," explained Ms David. "None of the other approaches could interpret this complex level of DNA."

### Compelling

In the UK, Cybergenetics worked with Hampshire Police in 2014 to provide DNA evidence to prove that Stuart Burton dubbed the 'New Year rapist' carried out an attack on a woman in a local park.



*Stuart Barton*

Burton and 12 others were found in a search of the National DNA Database.

Previous attempts to analyse a trace amount of semen from a swab proved inconclusive. As a result of the compelling DNA evidence against him, Burton pleaded guilty and was sentenced to 12 years in prison.

TrueAllele has also been used to help exonerate two men in the US in Indiana who have been jailed, one for 24 years and one for 17 years, for their false implication in a vicious sexual assault.

Cybergenetics was able to demonstrate through TrueAllele that their DNA was not in the mixtures found in the evidence from the crime scene.

The reason for the mix-up was due to the fact a lab had to find the DNA of all five



people who were thought to have been the perpetrators. It was unable to separate minor contributors to the complex mixtures. Cybergenetics could not only separate out those mixtures, it was able to show that three of the contributors shared a lot of their DNA and were probably brothers.

"We are increasingly finding cases like this where labs are unable to interpret or identify the contributors in a three or four or even more person mixture. They don't even see there is a third or fourth contributor so the worry is that they could be targeting the wrong person."

### Justice

Looking to the future, Ms David says the company is determined to continue to develop its expertise in serious sexual assault cases and to provide justice for more victims. There are plans to develop the TrueAllele technology even further and make it even faster and more efficient.

"My message to women in the US and UK where incidents of sexual assault are still low, is not to be ashamed and to think that the best thing to do is to go home and shower and remove the evidence. I want to stress that information is power, this information is your strength and your way to fight back and ensure justice is done."

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