

Bite mark bacteria provide potential forensic clues

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(Medical Xpress) -- Oral bacteria lifted from bite marks may provide a new source of clues for forensic experts, thanks to research projects completed by students at the Sir John Walsh Research Institute in the University of Otago's School of Dentistry.

Bite marks are often left on [human skin](#) following assaults, particularly in sexually motivated attacks but Dr Geoffrey Tompkins, a molecular [microbiologist](#) and senior lecturer at the School, says evidence based on the morphometric examination of the shape and size of those marks is increasingly being challenged in criminal courts.

“Bite marks have been used as evidence using morphometric analysis but there is no scientific evidence that people have unique dentition and there has always been some subjective element in matching bite marks to teeth” he says.

“But it appears that each person’s mouth has a unique collection of bacteria with their own distinct genotype, so the bacterial DNA profiles could potentially be matched and used as evidence.”

The dental school has now had a series of undergraduate dental summer studentships that have taken this concept and explored it.

Dr Tompkins says one of the potential problems is that [oral bacteria](#) don’t live for long outside the mouth, but a recently published paper by student Lillian Hsu showed that the DNA of dead streptococci can be

recovered from bite marks to produce DNA profiles.

The technique used left potential for false positives but a more recent, as yet unpublished project, by Otago PhD candidate Darnell Kennedy, successfully used a more sophisticated means of DNA analysis.

“It is a much more accurate means of testing and much more robust statistically,” says Dr Tompkins.

The summer studentships have allowed the dental students involved to get a taste of molecular microbiology research.

Dr Tompkins says the latest findings are the third publication of research findings by undergraduate dental students exploring this concept at the School of Dentistry.

"I am extremely proud of the efforts of these students. To complete such projects in just 10 weeks and then get them published in scientific journals is quite an achievement."

Provided by University of Otago

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