

Researchers discover a new silver species of *Staphylococcus*

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Scientists from a pioneering Northern Territory-based research project have uncovered two new species of staphylococcus. One of the two has been officially registered as *Staphylococcus argenteus*, or more commonly Silver Staph.

Menzies School of Health Research (Menzies) senior research fellow Associate Professor Steven Tong says both species; *S. argenteus* and *S. schweitzeri* may not be distinguished in the laboratory from golden staph (*Staphylococcus aureus*) using standard laboratory techniques. *S. aureus* causes a heavy burden of disease across the world, especially in the NT where it is the most commonly isolated bacteria in the Royal Darwin Hospital.

“The discovery is important because it deepens our understanding of the whole group of Staphylococci which are a major cause of human disease,” A/Prof Tong said.

The research group has spent the past 10 years looking into the genetic sequences of golden staph recovered from NT communities. Some strains looked different with regards to their DNA sequence, leading to further investigations.

“We came across some unusual results while investigating the genetic sequences of golden staph from the NT and across the world. During this process we noticed some strains isolated from monkeys in Africa also looked unusual so we decided to combine efforts with collaborators in Munich, Germany who had collected these monkey strains. Further investigations showed us we were dealing with three entirely separate species. These weren’t just different makes of cars, but different types of vehicles,” A/Prof Tong said.

Menzies have been using the latest DNA sequencing technology in collaboration with the Wellcome Trust Sanger Institute in Cambridge, UK to definitively show that there is sufficient genetic distance between *S. argenteus*, *S. schweitzeri* and *S. aureus* for them to be formally recognised as different species.

“While initially concerning more recent studies have shown that silver staph causes less severe disease. However, the silver staph has demonstrated an ability to become resistant to penicillin like antibiotics just like golden staph which has become methicillin-resistant *Staphylococcus aureus* (MRSA). In fact, these different species can swap genes with each other – a bit like bacteria having sex.”

Menzies director, Professor Alan Cass said the study highlighted the world-class quality of research being undertaken by Menzies and its key partners.

“This is a perfect example of how Menzies researchers are working collaboratively on discovery research that has the potential to greatly improve the health of Indigenous Australians and millions of others around the world.”

When asked why the discovery is important A/Prof Tong explains, “researchers and doctors all over the world are now able to look more specifically at the kinds of disease that these new species cause. It is likely that infections due to the different species can be treated differently. Additionally, the scientific community can now look at what sets *S. aureus* apart from the other two species and understand why it is better able to cause disease”.

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View the article on the International Journal of Systematic and Evolutionary Microbiology website:
http://ijs.sgmjournals.org/content/65/Pt_1/15.long

Media note:

Associate Professor Tong is an infectious diseases physician with research interests in infectious diseases affecting Indigenous people. He aims to combine clinical epidemiology with molecular genetic approaches to better understand the patterns and transmission of diseases due to agents such as *Staphylococcus aureus*, hepatitis B, and influenza.

View his profile at: http://www.menzies.edu.au/page/Our_People/Researchers/Steven_Tong/

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Menzies Background

Menzies School of Health Research is Australia's leading Medical Research Institute dedicated to improving Indigenous, global and tropical health. We have a 30 year history of scientific discovery and public health achievement. Menzies works at the frontline, joining with partners across the Asia-Pacific as well as Indigenous communities across Northern and Central Australia. We collaborate to create new knowledge, grow local skills and find enduring solutions to problems that matter.