Australian National University

TECHNICAL SUMMARY

# Lipid Bound Iodine - Antimicrobial Resistance Minimising Solution


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Infections cause a significant economic and social burden to be placed on society. Treatments for infections, where available, are typically specific for the type of infectious agent and, in the case of antibiotics in particular, use is limited due to the development of drug resistance. In this regard, the resistance of common human pathogenic bacteria as one of the top ten global public health threats facing humanity.

The antimicrobial effects of iodine have been investigated for nearly 200 years, with diatomic iodine being shown to have broad antimicrobial activity. Despite widespread use, resistance of bacteria, viruses and parasites to iodine has not been demonstrated and, unlike existing therapies, iodine is an effective antimicrobial after prolonged use.

## Technology (TT2020-019)

Researchers at The Australian National University (ANU) have overcome these limitations by developing a novel lipid bound iodine comprising of diatomic iodine and amphipathic molecule while minimising the systemic administration and the resultant iodine overload observed with existing iodine-containing therapeutics. It has shown bactericidal and virucidal properties and has been tested as a treatment for multiple ailments including urinary tract infections, bacterial peritonitis, surgical site infections, abscesses, burns, upper respiratory tract infections and as a broad-spectrum antiseptic solution. Potential use in veterinary care is also currently being explored.

## Potential benefits

> **Cost Effective:** Easy to source active materials and the agent requires no costly storage and handling conditions.
> **Stability of material:** Can be stored in a powder form, stable in aqueous solutions without the iodide and iodate leading to significantly lesser patient exposure to total iodine.
> **Ease of use:** Purpose-tailored delivery with easy administration as a topical agent, a dry powder for inhalation or dissolved in a saline solution for injection
> **Multitude of applications:** Suitable for the treatment of multiple ailments due its antimicrobial, antifungal, disinfectant and antiseptic properties.

## Potential applications

> Human and livestock infection control
> Medical Therapeutics
> Surface disinfectant
> Antibiotic Resistance

## Opportunity

ANU is seeking engagement with industry partners to work collaboratively to further develop, optimise, and advance various treatment methodologies and to establish distribution chains with global partners.

## IP status

The IP is owned by the ANU and is a subject of a patent application.

## Key research team

> Klaus-Martin Schulte, Professor, John Curtin School of Medical Research and ANU Medical School
> Anne Steins, Research Fellow, ANU Medical School
> Christina Carroll, Research Fellow, John Curtin School of Medical Research and ANU Medical School
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