

**IN VITRO TESTS USING PHOTOSOFT™ EFFECTIVE AGAINST  
MRSA SUPERBUG. E. COLI BACTERIA AND CANDIDA ALBICANS FUNGUS**

**Highlights:**

- **Photosoft™ compounds showed activity *in vitro* against multiple strains of antibiotic-resistant MRSA bacteria, *Escherichia coli* bacteria and *Candida albicans* fungus in tests undertaken at the Australian Centre for Antimicrobial Resistance Ecology (ACARE), University of Adelaide**
- **MRSA is an antibiotic-resistant bacterium that is difficult to treat, with the World Health Organisation (WHO) having declared antimicrobial resistance (AMR) as one of the top 10 threats facing humanity**
- **Photosoft™'s mode of action has the potential to make it unlikely for superbugs to develop resistance**
- **Broad-spectrum activity against multiple infectious diseases including viruses, bacteria and fungi have been demonstrated using Photosoft™ compounds**

**MELBOURNE (AUSTRALIA) 26 October 2022:** Invion Limited (ASX: IVX) ("Invion" or the "Company") is pleased to announce the first *in vitro* test results on Photosoft™ that were undertaken by the Australian Centre for Antimicrobial Resistance Ecology (ACARE), University of Adelaide, in partnership with Invion.

The studies tested activity of Photosoft™ compounds across a range of pathogens and found the following:

- Five of the seven Photosoft™ compounds tested against two strains of methicillin-resistant *Staphylococcus aureus* (MRSA) bacteria displayed antimicrobial activity. MRSA is described as a "superbug" as the bacteria is resistant to several antibiotics and is difficult to treat. The World Health Organization (WHO) calls antimicrobial resistance "one of the top 10 global public health threats facing humanity" and cites the misuse and overuse of antibiotics as the main drivers in the development of drug-resistant pathogens<sup>1</sup>.
- ACARE also found that the same five compounds mentioned above were very active against two *Candida albicans* strains (a type of yeast that causes fungal infections) strains on exposure to a specific wavelength (660nm) of light. *Candida albicans* normally lives on our skin and in our bodies without problem. But it can cause vaginal candidiasis and infections in the bloodstream and internal organs if it grows out of control or enters deep into the body. The global yeast infection treatment market is forecast to grow at a compound annual growth rate of 6.1% to hit US\$6.23 billion by 2029 and *Candida* accounts for the largest pathogen segment in this market.
- Further, the Photosoft™ compounds tested showed potential to be used against *Escherichia coli*. *E. coli* bacteria, which can be found in the intestines of healthy people and are mostly harmless. But some pathogenic strains can cause severe diarrhoea whilst others cause disease outside the gut such as wound and urinary tract infections as well as blood poisoning.

<sup>1</sup> <https://www.who.int/news-room/fact-sheets/detail/antimicrobial-resistance>

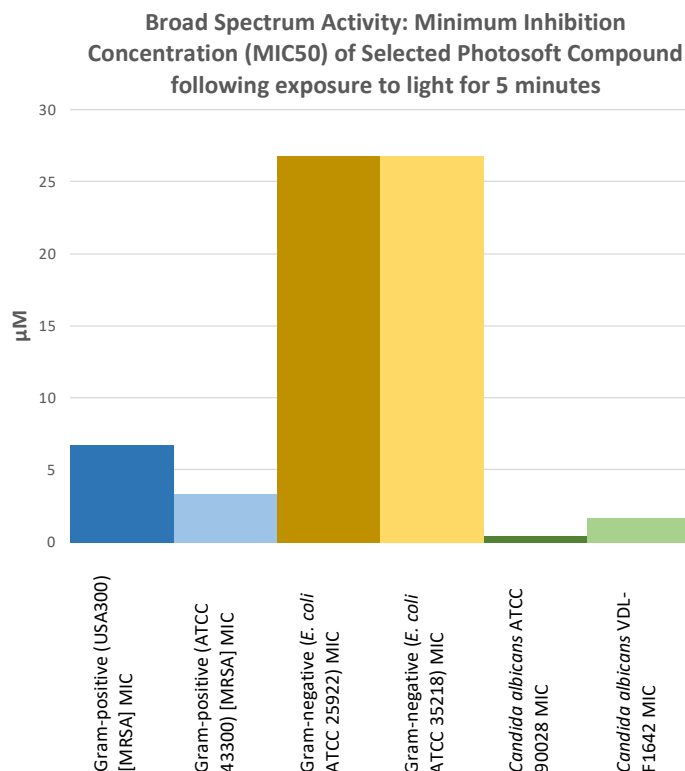
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While more work needs to be done before drawing strong conclusions on the interactions between Photosoft™ and these pathogens, ACARE believes the results look promising.

“We found that Photosoft™ technology has the potential to kill a wide variety of superbugs. This would also be an added advantage against polymicrobial infections, for example biofilms<sup>2</sup> and skin wound infections,” said Prof Darren J. Trott, Director of ACARE.

“Given the general mode of action of PDT compounds, we surmise that it is unlikely for superbugs to develop resistance to the compounds which could be an advantage over other antimicrobial agents that have specific targets/sites of action. This will be the subject of further investigation in resistance development experiments.”



Note: The *in vitro* studies that were conducted at the University of Adelaide used enrofloxacin and amphotericin B as control antibiotics for the antibacterial and antifungal tests, respectively.

“These early results demonstrate very promising antimicrobial activity for selected PDT compounds and warrant further *in vitro* experimentation to characterise their antimicrobial activity for subsequent *in vivo* efficacy testing,” said Invion’s Executive Chair and Chief Executive Officer, Thian Chew.

“With these latest studies, added to previously announced activity against multiple viruses including SARS-CoV-2 (omicron and delta variants), Photosoft™ has demonstrated broad-spectrum activity against a range of infectious diseases including those caused by viruses, bacteria and fungi. This opens up significant and exciting possibilities for our technology’s clinical applications which we will explore going forward.”

<sup>2</sup> Biofilm is a complex structure of microbiome having different bacterial colonies or single type of cells in a group. Bacterial biofilms are serious global health concern due to their abilities to tolerate antibiotics, host defence systems and other external stresses; therefore it contributes to persistent chronic infections. <https://aricjournal.biomedcentral.com/articles/10.1186/s13756-019-0533-3>

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This announcement was approved for release by the Board of Directors.

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### About Invion

Invion is a life-science company that is leading the global research and development of the Photosoff™ technology for the treatment of a range of cancers, atherosclerosis and infectious diseases. Invion holds the exclusive Australia and New Zealand license rights and exclusive distribution rights to Asia Pacific excluding China (other than Hong Kong, which is included in the Territory), Macau, Taiwan, Japan and South Korea to the Photosoff™ technology for all cancer indications. It also holds the exclusive rights to the technology in Asia Pacific (excluding Greater China) for atherosclerosis and infectious diseases. Research and clinical cancer trials are funded by the technology licensor, RMW Cho Group Limited, via an R&D services agreement with the Company. Invion is listed on the ASX (ASX: IVX). For more information, visit [www.inviongroup.com](http://www.inviongroup.com).

### About Photodynamic Therapy (PDT)

Invion is developing Photosoff™ technology as a novel next generation Photodynamic Therapy (PDT). PDT uses non-toxic photosensitisers and light to selectively kill cancer cells and promote an anti-cancer immune response. Less invasive than surgery and with minimal side effects, PDT offers an alternative treatment option aimed at achieving complete tumour regression and long-lasting remission.

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