

## **Ondine Awarded Innovation Prize at ICPIC 2021 for Photodisinfection Efficacy Results against SARS-CoV-2 Variants including Delta**

- Ondine's nasal photodisinfection technology has been shown to eliminate the RNA signature of SARS-CoV-2, including the dominant Delta variant, in *in vitro* research.
- A two-minute Steriwave treatment was also shown to destroy the RBDs, spike protein and nucleocapsid protein of all major SARS-CoV-2 viral variants, including the Delta strain.
- *In vivo* case studies demonstrating safety and efficacy of nasal photodisinfection were presented at ICPIC2021
- These results support the use of nasal photodisinfection as a potential method of SARS-CoV-2 suppression.  
work

Canadian medical device innovator, Ondine Biomedical, was the Prix Hubert Tuor: #ICPIC2021 Innovation Academy second prize winner at the 2021 International Consortium for Prevention and Infection Control (ICPIC) in Geneva last week. Ondine presented two *in vitro* research studies on the effectiveness of its nasal photodisinfection technology, Steriwave™, against the major SARS-CoV-2 variants including the dominant Delta variant, as well as *in vivo* case studies which demonstrated safety results as well as efficacy against COVID-19.

These outcomes presented to ICPIC support the use of Ondine's existing Steriwave nasal photodisinfection therapy for surgical site infection prevention, as a potential SARS-CoV-2 suppression technique. The nose and upper airway have been identified as ideal breeding grounds and reservoirs for many threatening pathogens including MRSA, *Candida auris*, and SARS-Cov-2. Ondine's Steriwave™ photodisinfection therapy, also known as photodynamic disinfection therapy (aPDT), can rapidly and painlessly eradicate pathogens in the nose, helping to eliminate a leading source of infection and transmissions.

Dr. Nicolas Loebel, Ondine Biomedical's President and Chief Technology Officer, who presented the results at the ICPIC Innovation Academy commented "Steriwave has been in use in Canadian hospitals for over ten years demonstrating excellent patient outcomes. We are very pleased to be able to show these exciting results, which demonstrate that the SARS-CoV-2 virus is just as susceptible as any of the common pathogens we treat on a daily basis in Canadian hospital patients."

He continued, "Given this compelling evidence, we believe that early deployment of a broad-spectrum, safe, upper-airway disinfection modality may reduce transmission of the virus to others, and potentially extend the time window for susceptible patients to develop adaptive immune responses critical to slowing development of COVID-19. Upper airway antiviral disinfection may, in time, become a standard of care comparable for example to handwashing but directed to the nose and throat."

The first *in vitro* studies, including at University of Washington (USA), University of Navarra (Spain) and University of Coimbra (Portugal), showed that Steriwave was capable of eliminating the RNA signature of SARS-CoV-2, both with laboratory strains and the wild-type virus. Building on these strong findings, Ondine conducted a follow-up study to assess the destruction of receptor binding domains, spike protein, and nucleocapsid protein of major SARS-CoV-2 variants, including the dominant Delta variant, using the Steriwave photodisinfection technology.

The results of this second study demonstrated that a 2-minute photodisinfection treatment could destroy RBDs, spike protein and nucleocapsid protein of all the major SARS-CoV-2 viral variants. These new results suggest that photodisinfection could be a promising method for reducing the spread of SARS-CoV-2, as well as potentially reducing the rate of secondary infections. Currently up to half of all clinical cases of COVID-19 develop secondary bacterial infections, especially bacterial pneumonia which can prove lethal.

The Steriwave photodisinfection process works by using a specific wavelength of laser light to excite a photosensitizer placed inside the nose. This combination causes oxidative disruption, which rapidly destroys all pathogenic microorganisms, including drug resistant strains, in two, two-minute photodisinfection treatments.

Steriwave™ has been shown to be safe and effective against drug-resistant bacteria, viruses, and fungi, and has been used in Canadian hospitals for ten years in the prevention of hospital-acquired infections. It is CE marked, and approved for use in Canada, Europe, and a number of other countries. Clinical trials are currently underway to secure regulatory approval in the United States.

**\*\*ENDS\*\***

### **About Photodisinfection**

Photodisinfection technology provides a powerful new alternative in the fight against drug-resistant infections. This patented, light-activated antimicrobial kills a broad spectrum of drug-resistant bacteria, viruses, and fungi, including those in biofilms, in minutes and reduces inflammation. Photodisinfection, or antimicrobial Photodynamic Disinfection Therapy (aPDT), was invented by UCL Professor Michael Wilson in the late 1980's for oral infections.

Photodisinfection kills pathogens through oxidative disruption with minimal impact on human tissue-epithelial, or mucosa. Pathogens are unable to resist or adapt to this treatment because it rapidly destroys their rRNA genome. This pain-free, minimally invasive, and easy-to-use therapy results in high patient compliance.

Explanatory video (courtesy of the International Photodynamic Association):

<https://www.internationalphotodynamic.com/new-blog/2021/2/21/antimicrobial-photodynamic-therapy-aka-photodisinfection>

### **About Ondine Biomedical Inc.**

Ondine Biomedical Inc. is a Canadian medical device company led by Founder and CEO, Carolyn Cross, and the recognized leader in developing photodisinfection based antimicrobial therapies. Ondine has developed a patented, painless, photodisinfection technology platform which can be used in the development of treatment and prevention therapies for a broad-spectrum of pathogens - bacterial, viral, and fungal infections - including multidrug-resistant strains.

In addition to Steriwave™ for nasal disinfection, other applications of the photodisinfection platform are under development, including treatment of chronic rhinosinusitis, burns and wounds, and the disinfection of endotracheal tubes to reduce the incidence of ventilator-associated pneumonia. In response to the pandemic, Ondine has focused on the development of topical antiviral therapy for the upper respiratory tract to reduce transmission of SARS-CoV-2.