**Ondine Receives Innovation Award of Excellence at World-leading Infection Conference, ICPIC 2021 for Photodisinfection Efficacy Results against COVID-19 Virus Variants including Delta**

**Ondine Biomedical Inc.**

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* 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.
* The research also shows that a two-minute Steriwave treatment can destroy the RBDs, spike protein and nucleocapsid protein of 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.

Canadian medical device innovator, Ondine Biomedical, won an Innovation Award of Excellence 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 major SARS-CoV-2 variants, including the dominant Delta variant, as well as *in vivo* deployments in industrial settings reported by third-parties which demonstrated safety as well as efficacy.

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. [1] 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 SARS-Cov-2 infections and transmissions. [2]

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 over ten years demonstrating excellent patient outcomes. We are very pleased to be able to show these exciting results, which indicate that the SARS-CoV-2 virus is just as susceptible to Steriwave treatment as any of the common pathogens we treat on a daily basis in Canadian hospital patients.”

He continued, “Given this 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 Nevarra (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 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 indicated that a 2-minute photodisinfection treatment could destroy RBDs, spike protein and nucleocapsid protein of 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 a significant number of all clinical cases of COVID-19 develop secondary bacterial infections, especially bacterial pneumonia which can prove lethal. [3]

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 destroys 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.

**About Photodisinfection**

Steriwave photodisinfection therapy retains effectiveness despite re-use; is simple and painless to administer, takes only minutes to eliminate bacteria, virus and fungi; requires no compliance or complicated multi-step treatment regimens; and can be applied by any medical professional. This is of particular importance during the current pandemic, as research has demonstrated that pathogen cofactors worsen COVID-19 outcomes by altering natural skin immunity and host defenses. [4]

Ondine’s Steriwave photodisinfection technology provides an alternative in the fight against drug-resistant infections. Also known as antimicrobial photodynamic disinfection therapy (aPDT), this light-activated antimicrobial kills a broad spectrum of drug-resistant bacteria, viruses, and fungi, including those in biofilms, while substantially reducing local inflammation. The CE-marked Steriwave technology involves applying a photosensitive agent to each nostril, followed by illumination of the area via non-thermal laser light for less than five minutes. This causes an oxidative burst which destroys the pathogens. When the light is turned off, the reaction ceases.

**About Ondine Biomedical Inc.**

Ondine Biomedical Inc. is a Canadian headquartered, medical device company led by Founder and CEO, Carolyn Cross. Ondine has developed a patented, painless, photodisinfection technology platform used in treatment and prevention therapies for a broad-spectrum of pathogens - bacterial, viral and fungal - 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, decolonization of burns and wounds, disinfection of endotracheal tubes to reduce the incidence of ventilator-associated pneumonia and most recently, the development of topical antiviral therapy for the upper respiratory tract to reduce SARS-CoV-2 titre and transmission.

Sources:
[1] [Nasal and Pharyngeal Colonization by Bacterial Pathogens: A Comparative Study between Preclinical and Clinical Sciences Medical Students](https://www.globenewswire.com/Tracker?data=oGmA3wlvesmxvxzd59HZ6TumMcRZ5mAT3ExQaeJr2lcKhVuLaEc5-dHMEMmdJqJSB0ugmOvzW77eVKfIMuwEWqczjqZxkbEKLiicfGf12vsFAXUkapR7EhetQOzTw5RdK-wqCo0yP-l6RFy6Cx0yKUpOnbALxSA4LkGlhOXkgMqyJXg-9sdC6629hPd8jLn0PTnJ7sTddo4rkNmna4WkgG17qC4-Y9kVKWnIMGjEukM_xdIvim3Mua1MSzsluZAmXQ9M6xWDKTvkeDiMeNjXNuSKm4wGqUPAYm6WkeHbP8A=).
[Nasal ciliated cells are primary targets for SARS-CoV-2 replication in the early stage of COVID-19](https://www.globenewswire.com/Tracker?data=oGmA3wlvesmxvxzd59HZ6aSSOFnq4Nrq2xm-jbkIueOQ3eDgC0hbxLg-dTiEPkqOEuagj8B8fG3lZlWZU29WXpnvT8PB6rsXNe5L2ySdcj2E41mIVFou96OL8V4QBcUL_OGLmQKh3oe_hFKm_OVIfs_RFrAzBfPV6EOj8NyvF-mSwsLB8oxbNda5eSxVgqNywPKHzqr3GIlBVZgjFR4v3QteokPZSdDAo1aATllbNxc=)..

[2] [Nasal Decolonization Keeps COVID-19 at Bay](https://www.globenewswire.com/Tracker?data=oGmA3wlvesmxvxzd59HZ6QR9_A-wNQKGym47DKROSvXhKsA-yrKikFULfUlbF7SOqBMc540dWhGH3hdwWaP6EikR15vpRI_JRKGdNglQ_971Ou978GlWoTKlekmOAPyC9wCTpwgMSUty8u_C7TV4ohqqq5aDzdQawflECI_ZrRp5eJfO1thJ1na7BiMlOdTk)

[3] [Bacterial co-infections with SARS-CoV-2](https://www.globenewswire.com/Tracker?data=AobrhSHhUlMBkYu9e_sHyzbBKFGYnmMUB0LcJPHRQLGclgcjN0nl1fRzJG8E3KvHKOGRb8SQKPvWqqkQDK77dj9I4kZL9ELK40gaiA_cATQL5Iyewmg2dbhFZKcp9g3IfsoynrF0v3FINfOvzUo5mA==).

[4] [Evaluation of bacterial co-infections of the respiratory tract in COVID-19 patients admitted to ICU](https://www.globenewswire.com/Tracker?data=clzfiwO0wEw9da4_ZNcjV0P103oRgjh1-afOhIucaZvn_OttIuPix1WN4KWBsSQYdfJYLbL9Oi1aYaKQz4HfdSoJCxSlgAQK8jCI9D3qMYw3Kx_bQwJGgnGEpkqpnFbOBujMBkTail5YOHh70ZIrBRZs-Ma2FuwhoLmyuoR2qeK_5V5lkQsqc1RUVazUl9ajBi2KHDdCHc1IS-_t9ntPXKAEo5OAyBiuEZJIAVYJ8nw=)