

Australian Nanoshield Antiviral Product Effective Against SARS-CoV-2

Nestlé Research sets real world evaluation benchmark for commercially available antiviral coatings. Results confirm only Nanoshield met all criteria

PERTH, WESTERN AUSTRALIA, AUSTRALIA, July 29, 2021 /EINPresswire.com/ -- Every day



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*Alfred Chong, Executive
Chairman and CEO of
Nannoveu.*

Australians going about their normal lives touch surfaces that are potential virus carriers. From banks to airports, from office buildings to public transport the potential to pick up bacteria and viruses, including the SARS-CoV-2 virus that causes COVID-19 could be lurking.

There are any number of commercially available antiviral sprays and films claiming to provide surface protection for communities that to date have been untested, especially not in a normal working environment. In fact, as a COVID-19 precaution, many businesses have shut down access to commonly used terminals and screens to protect people against surface transmission of the virus. That has now

changed.

For the first time peer reviewed scientific research on a selection of readily available antiviral surface protection products has been carried out to test their claims in an every-day, real world environment.

Clinical testing carried out by researchers from Nestlé Research's, Institute of Food Safety and Analytical Science, in Lausanne, Switzerland on a number of protection products has now been published in Applied and Environmental Microbiology the journal of the American Society of Microbiology. It showed that the antiviral surface protection film Nanoshield, developed by Australian nanotechnology company Nanoveu Ltd is highly effective in providing surface protection against SARS-COV-2, the virus that causes COVID-19.

The research concluded Nanoshield was the most effective at reducing SARS-CoV-2 (COVID-19) immediately, in durability testing and also effective despite the presence of other organic matter.

The research identified that while SARS-CoV-2, the virus responsible for the COVID-19 pandemic,

is transmitted mainly by person-to-person through respiratory droplets, antiviral coating solutions offer an additional measure to mitigate the risk of SARS-CoV-2 transmission from high-touch surfaces.

“The deployment of antiviral coatings is not new, but what is currently lacking is solid scientific evidence of the efficacy of commercially available self-disinfecting surfaces under real-life conditions,” the Nestle report stated.

“A novel and robust approach to evaluate the antiviral activity of coatings was developed, assessing three commercially available leave-on surface coating products for efficacy against human coronaviruses HCoV-229E and SARS-CoV-2. The assessment is based on three criteria that reflect real-life settings, namely (i) immediate antiviral effect, (ii) effect after repeated cleaning of the coated surface, and (iii) antiviral activity in the presence of organic material. The results showed that only a copper compound-based coating successfully met all three criteria.”

The Nestle research identified that this new approach now creates a benchmark upon which all currently available antiviral coatings and future coating developments should be judged to avoid unjustified claims.

“In the current COVID environment a lot of claims are being made about the efficacy of commercially available antiviral products without solid scientific evidence,” said Nannoveu executive chairman and CEO, Alfred Chong. “The Nestlé results confirm Nanoshield’s status as a globally significant product with the ability to make surfaces safer.”

“We have long believed the importance of scientific research in the efficacy of our products, and we welcome the validation of our claims as the leading antiviral coatings for high touch surfaces,” Mr Chong said. “Many businesses and government agencies have been looking to science to address the challenges of ‘living with COVID’ as the pandemic rages through countries. This is now one solution!

“Now the scientific research has been reviewed and published, Nanoshield becomes one of the most economical options to deliver protection and peace of mind.”

Report Summary

Citing the lack of solid scientific evidence surrounding commercially available self-disinfecting surface coatings under conditions that mimic real-world use, Nestlé Research analysed the effectiveness of Nanoshieldt and two other products under a number of conditions, for immediate anti-viral activity, longer-term durability after repeated cleaning of the coated surface and the anti-viral activity after frequent touching by human hands.

Base-case test conditions saw the three commercially available products assessed against SARS-CoV-2 and human coronavirus HCoV-229E. Short evaluation periods were chosen to reflect real-world use cases where anti-viral activity needs to occur within a rapid timeframe.

Initial testing was conducted using the HCoV-229E virus; another human coronavirus and a recognised surrogate for SARS-CoV-2. Of the three products, at time stamp '0' one showed no reduction of the HCoV-229E virus, 30 minutes and no antiviral activity at 120 minutes. Based on these results it was not investigated any further.

Of the other two products, at time stamp '0' Nanoshield inactivated a higher percentage of HCoV-229E of the two (approx. 99.95% vs 99%). As both products showed immediate anti-viral activity against the surrogate, evaluation using the SARS-CoV-2 virus (COVID-19) after 0, 30 and 120 minutes was conducted at room temperature. Nanoshield achieved approx. 99.99% compared to 96%.

Simulated real-world cleaning procedures of the coated surfaces was also done using microfiber cloths and both a water-based detergent and 70 percent ethanol. The coatings were wiped with both solutions 1, 7, 30 and 90 times. The antiviral activity of Nanoshield remained intact after 90 wipes with a microfiber cloth using both water-based detergent and alcohol sanitiser. The antiviral activity of the other product was completely removed after one round of cleaning with either cleaning product.

As Nanoshield successfully passed the first two research criteria it was further evaluated for the touch criteria. The film was touched between 10 to 50 times by unwashed hands prior to virus inoculation to simulate the daily use of a high touch surface.

Fifty touches correspond to a daily touching frequency of a highly used vending machine. Once clean of organic matter, Nanoshield's full efficacy was reinstated, suggesting a daily clean is sufficient. As Nanoshield fulfilled all three evaluation criteria it can be considered an efficient antiviral coating.

Based on the outcomes of the scientific review, Nestle Research deemed Nanoshield the preferred antiviral coating solution.

Further information: <https://journals.asm.org/doi/10.1128/AEM.01098-21>

Phil Burfurd
Daylight Agency
+61 414 260 292
pburfurd@daylightagency.com.au

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