

PRESS RELEASE

To the Press

June 17, 2021

NejiLaw Inc.

**Inactivation test result of the novel coronavirus (SARS-CoV-2) by
“Dr. AiR” (Michiwaki-style UVC Irradiator) conducted at the Kitasato Institute**

NejiLaw Inc. (Headquarters: Bunkyo-ku, Tokyo / President & CEO: Hiroshi Michiwaki) has conducted an inactivation performance verification test of SARS-CoV-2 (COVID-19) at the Kitasato Institute (School Corporation) using the principle and device “Dr. AiR/Michiwaki-style UVC Irradiator” that instantly inactivates viruses (Filterable pathogens) in the air. “Dr. AiR” is invented and developed by Hiroshi Michiwaki, an inventor and the representative of NejiLaw Inc.

Date Implemented: May 20, 2021

At Kitasato University • School of allied health sciences, Biosafety Level 3 (BSL-3)

Performance Results:

“Dr. AiR” has achieved more than 99.999% (Measurement Limit Value) inactivation of SARS-CoV-2 in less than 0.5 seconds.

NejiLaw Inc. will continue collaborative research on “Dr. AiR” to further improve the usability and effectiveness of the device and better performance and practical applications of “Dr. AiR/Michiwaki-style UVC Irradiator” in the wider society.

Co-researchers:

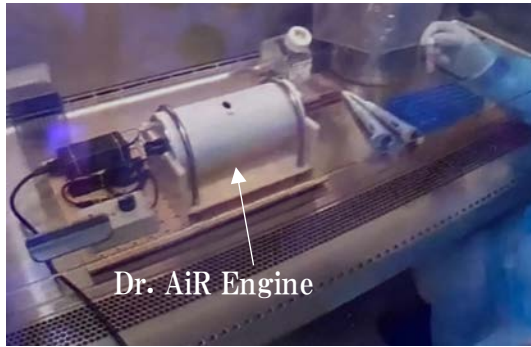
NejiLaw Co., Ltd.: Hiroshi Michiwaki, President and CEO, “Dr. AiR” Inventor

The Kitasato Institute (School Corporation):

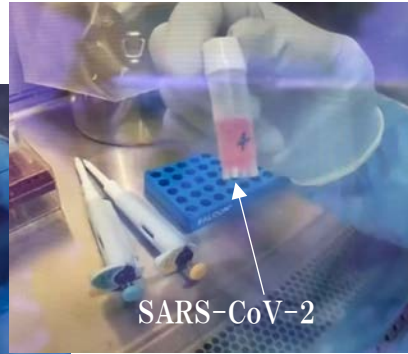
Professor Hideaki Hanaki, Kitasato University Omura Satoshi Memorial Institute,
Director of Laboratory of Infection Control & Research Center,
Professor Hiderou Kitasato, Associate Professor Makoto Kubo

The state of the above verification test will be featured in the TV Tokyo program “Nikkei Special Cambrian Palace” (featuring NejiLaw President & CEO Hiroshi Michiwaki), which will be broadcast today, June 17(Thu) 2021, from 23:06 to 23:55. Ahead of tonight’s broadcast of the full story, you can also watch the short trailer video from the official home page of this program.

“Nikkei Special Cambrian Palace” Official website URL: <https://www.tv-tokyo.co.jp/cambria/>

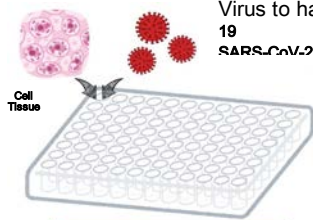


Dr. AiR Engine



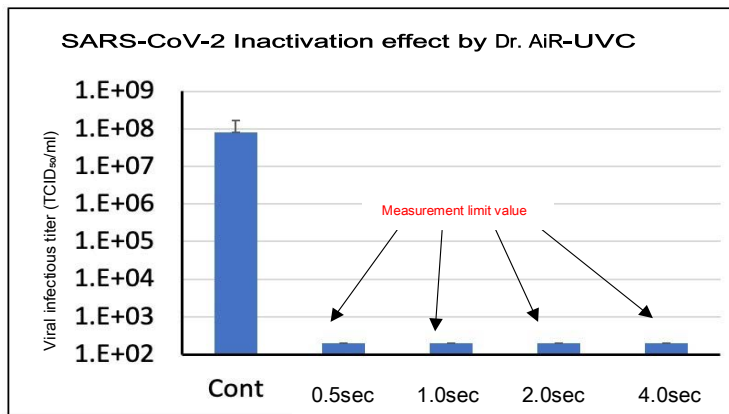
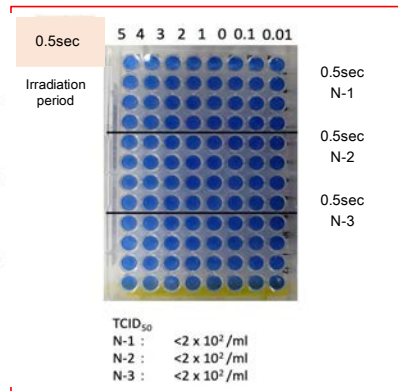
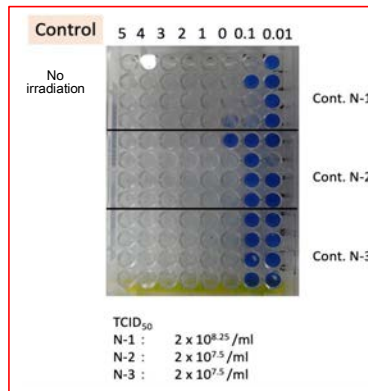
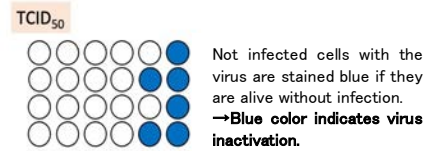
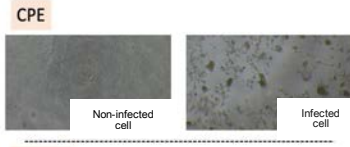
SARS-CoV-2

Cell tissue: VeroE6/TMPRSS2
Virus: SARS-CoV-2 (Virus: 2×10^7 pfu/ml)



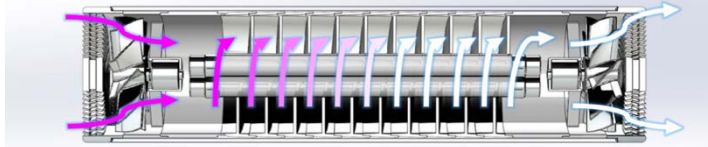
TCID₅₀ Method (96 Holes Plate)

1. CPE(Cytopathic effect) Verification
->Microscopic observation of cell death
2. TCID₅₀ Measurement (50% Tissue Culture Infectious Dose)
->Cell death determination by the presence or absence of staining
->Calculation of viral infectious titer(TCID₅₀/ml)



“Dr. AiR-UVC” has achieved inactivation of the novel coronavirus COVID-19(SARS-CoV-2) by over **99.999%** (Measurement limit value) **in less than 0.5**

Dr. AiR Engine (Diagrammatic illustration)



UV-Cut Louver System

- ①The exhaust port prevents the UVC emitted inside the instrument from leaking outside the instrument.
- ②UVC leakage prevention is provided by UVC non-reflective phase difference louvers placed at the exhaust port.
- ③ The non-reflective phase difference louver is configured to block all outward UVCs from leaking through the intake / exhaust ports.
- ④The surface of the non-reflective phase difference louver has a non-reflective structure to prevent UVC reflection, thus preventing leakage of reflected UVC to the outside.
- ⑤Each louver is separated from each other so that air can pass between them.
- ⑥The non-reflective phase difference louvers allow air to pass through but block the passage of ultraviolet rays.

UV Reflection

- ①In the center of the sterilization flow passage, UVC sterilization lamp is installed.
- ②The UVC emitted from the UVC sterilization lamp penetrates the air and is reflected on the surface of the sterilization flow passage while irradiating and sterilizing bacteria and viruses contained in the air in a floating state.
- ③ The reflection of UVC at the inner surface of the sterilization flow passage is due to a special reflective layer on the inner surface of the sterilization flow passage, which reflects UVC at a high level.
- ④The UVC that hits the reflective layer is reflected without much attenuation and bounces back into the sterilization flow passage.
- ⑤ The bounced UVC still retains its sterilizing power, exterminating and inactivating any remaining bacteria and viruses.
- ⑥ Since the reflection of UVC on the surface of the sterilization flow passage occurs over and over again in higher order. By overlapping with the newly emitted UVCs from the UVC sterilization lamp, the multiple UVCs will supercharge the UV density of the space inside the sterilization flow passage.

Flow Control System

- ①The air is taken into the device through the air intake port.
- ②If bacteria or viruses are present in the air, the device will exterminate or inactivate them.
- ③Ultraviolet rays (UVC) is used to exterminate and inactivate bacteria and viruses.
- ④The intensity and duration of UVC irradiation are controlled to achieve the appropriate level required for virus inactivation.
- ⑤In order to obtain the appropriate intensity and duration of UVC irradiation, the air is drawn into the device and passed through a special sterilization flow passage.
- ⑥ The sterilization flow passage creates a unidirectional air flow from intake to exhaust, and controls the residence time of the flowing air in the system appropriately.

Applicable Targets × Image pictures

Public transportation(Train•Bus•Taxi•Airplane etc.)
Buildings(Office•Public facility•Facility for attracting visitors etc.)



NejiLaw Inc., headed by inventor Hiroshi Michiwaki, has invented, has developed, and manufactured the L/R Neji, ZaLoc, JicLoc, ShuLoc, and other "Multifunctional, high performance joint fastenings", as well as the "smartNeji" remote monitoring system, the "CB-zeRO" bubble-less concrete production technology, and the "JicLoc & ShuLoc" high performance segment joints for shield tunnels. Under originally integrated and comprehensive in-house system with speedy inventive problem-solving for research /development /construction of mass production technology, and quality control, NejiLaw Inc. will continue to contribute to the society in a broader way with our "Emergent Properties".

NejiLaw Inc.

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Headquarters	Shoei Building 4F, 3-23-14 Hongo, Bunkyo-ku, Tokyo
Established	July 2009
Business Activities	Development, manufacturing, sales and licensing of high-functionality/high-performance industrial fastenings
Capital	JPY 499,000,000
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