



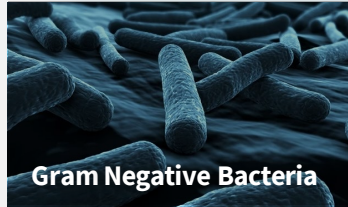
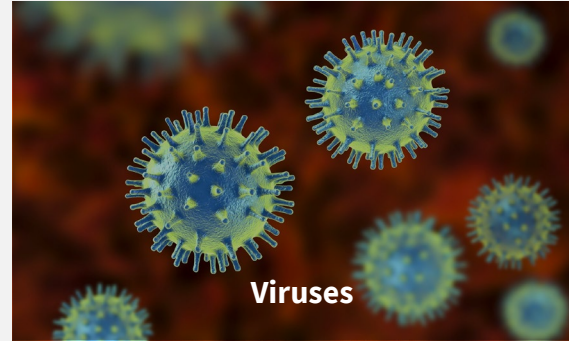
**Virus Inactivation
Using 405nm Light**



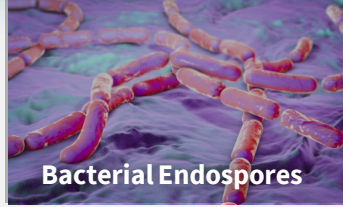
Vyv Antimicrobial Claim Expands to Include Viruses



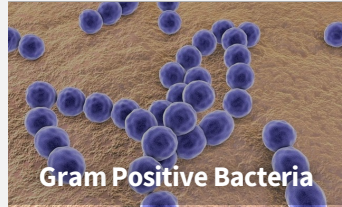
The Power of
Visible (405nm)
Antimicrobial
Light



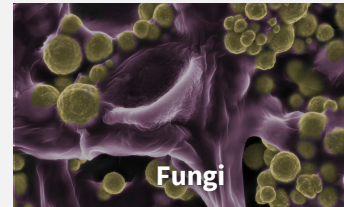
Gram Negative Bacteria



Bacterial Endospores



Gram Positive Bacteria



Fungi



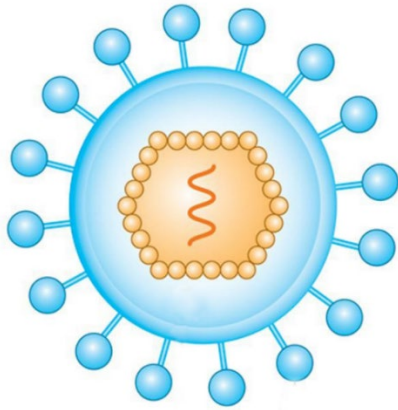
Yeast

Vyv's New Claim

Vyv kills* viruses, bacteria, fungi, yeasts, mold.

**Testing on a non-enveloped virus (MS2 bacteriophage) showed a 97.12% reduction in controlled laboratory testing in 8 hours on hard surfaces. Testing on SARS-CoV-2 (enveloped virus) showed a 98.45% reduction in controlled laboratory testing in 4 hours on hard surfaces. Testing on MRSA and E. coli showed 90%+ reduction in controlled laboratory testing in 24 hours on hard surfaces. Results may vary depending on the amount of light that is reaching the surfaces in the space where the product is installed and the length of time of exposure. Use of Vyv antimicrobial light is not intended to replace manual cleaning and disinfection practices.*

Types of Viruses

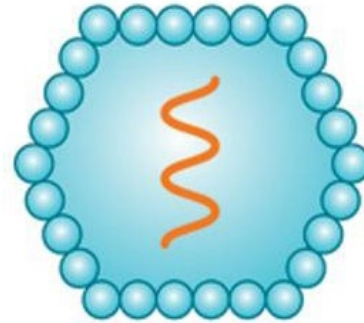


Enveloped Virus

Can cause persistent infections and must be transferred from host-to-host.

Examples:

SAR-CoV-2 (COVID-19), Influenza, Hepatitis B and C, and Hemorrhagic Fever (Ebola)



Non-Enveloped Virus

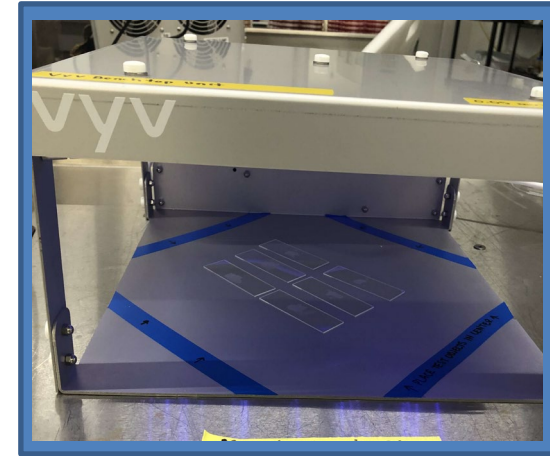
More resistant to both disinfectants and stresses like drying out or heat exposure.

Examples:

Norovirus (dysentery), Rhinovirus (common colds), and Poliovirus (Polio)

How We Tested:

- To our knowledge, Vyv is the first and only company to perform EPA-submissible viral inactivation experiments with visible light.
- Vyv worked with Microchem and Element (3rd party labs) to design tests as close as possible to tests accepted by EPA, and to compile reports designed for EPA submission.
- “ASTM E1153 - Efficacy of Sanitizers for Inanimate, Hard, Nonporous Non-Food Contact Surfaces,” modified to allow longer times (>>10 min.) and for viruses with longer half lives, or increased irradiance.
- Target dried onto 2.5 cm square or 2.5 cm X 7.5 cm glass carriers. Measures log kill of growth inhibited (desiccated) organism or virus compared to control at same time point.



3rd Party Controlled Laboratory Testing Using Vyv Technology (405nm Light)

- Testing was conducted using non-enveloped virus - MS2
- MS2 Result: achieved 97% reduction within 8 hours
- Testing was conducted using an enveloped virus – SARS-CoV-2
- SARS-CoV-2 Result: achieved 98% reduction within 4 hours

As with any organism and with varying environments results may vary.

Icahn School of Medicine at Mount Sinai, New York


Using 405nm Light

- Two enveloped viruses tested: SARS-CoV-2 & Influenza A
- Demonstrated inactivation of SARS-CoV-2 & Influenza A
- Between 55% (lower intensity) to 91% (higher intensity) in 4 hours
- Inactivated SARS-CoV-2 at 99.7% in 8 hours (higher intensity)
- Similar results were found with Influenza A

As with any organism and with varying environments results may vary.

Viral Testing Results

Organism	Data Source	Irradiance (mW/cm ²)	Time (hours)	Inactivation Result
MS2	Vyv	2.00	6	>99.98%
MS2	Vyv	0.05	8	97.1%
SARS-CoV-2	Vyv	1.00	4	98.45%
SARS-CoV-2	Mt. Sinai	0.60	8	99.7%
SARS-CoV-2	Mt. Sinai	0.076	24	98.2%
Influenza A	Mt. Sinai	0.60	8	82%



**Virus Inactivation
Using 405 nm Light**



www.vyv.tech