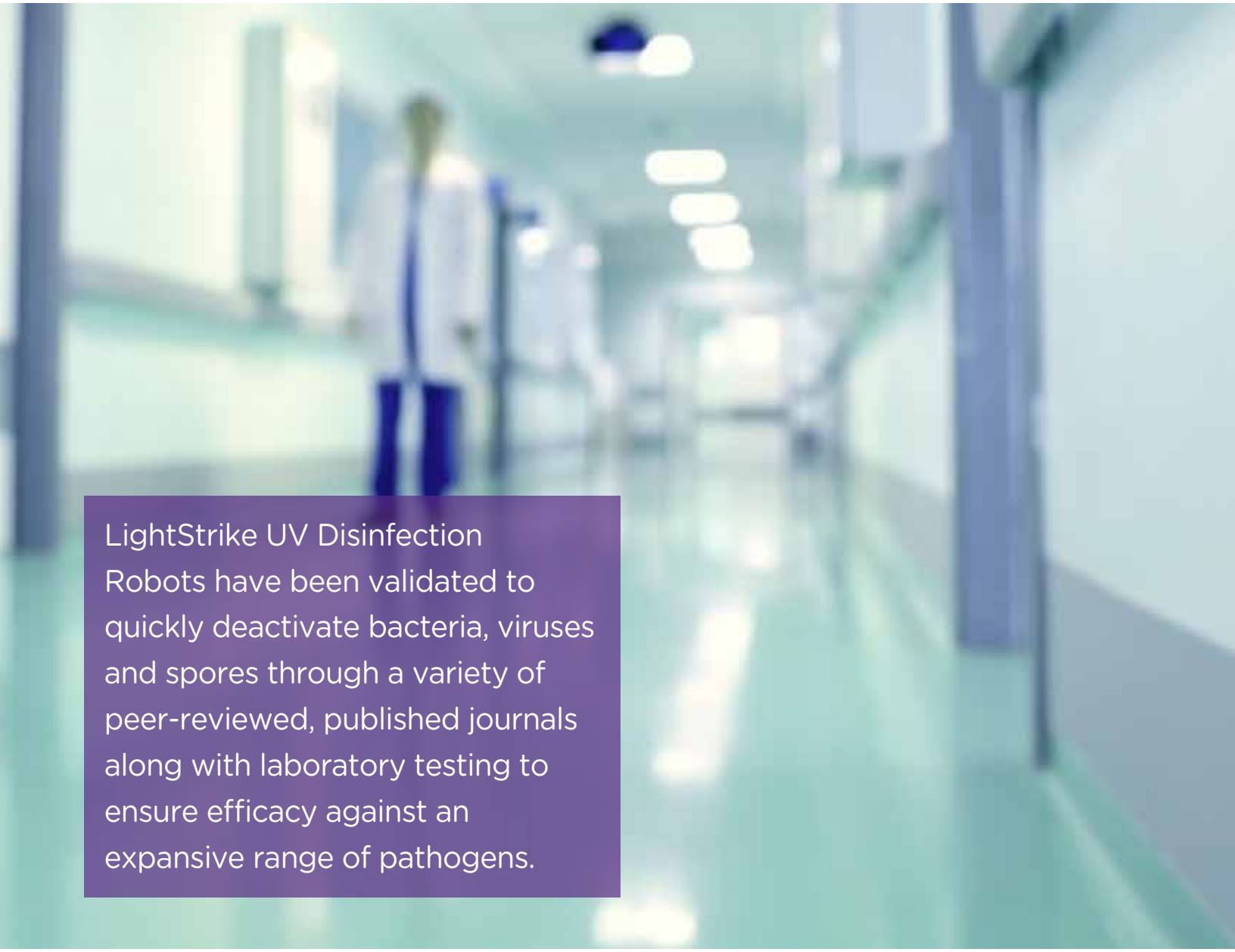
XENEX®
Germ-Zapping Solutions™

Summary of Peer Reviewed Studies and Effectiveness with the LightStrike™ Robot



LightStrike UV Disinfection Robots have been validated to quickly deactivate bacteria, viruses and spores through a variety of peer-reviewed, published journals along with laboratory testing to ensure efficacy against an expansive range of pathogens.

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SUMMARY OF PEER REVIEWED STUDIES

Lab Studies:

Facility	Criteria	Publication Details
TX BioMed	SARS-CoV-2	Simmons, S, et al., *Infection Control & Hospital Epidemiology*, 1-4. doi:10.1017/ice.2020.399
NetCare Hospital South Africa	*Candida auris*	Maslo, C, et al., *BMC infectious diseases* 19.1 (2019): 1-3.
CNB/SCIC-Spain and TX BioMed	*K. pneumoniae, P. aeruginosa, E. coli, A. baumannii, S. aureus, G. stearothermophilius, B. atrophaeus, A. niger,* MERS-CoV, Vaccina virus, IBDV, VSV, Ebola virus, Anthrax	Stibich, M, et al., *Southern African Journal of Infectious Diseases*. 2016 Jan 1;31(1):12-5.

Environmental Studies:

Facility	Criteria	Publication Details
Mayo Clinic, Rochester	Aerobic bacteria	Xiong, A, et al., *The Spine Journal*. 20.9 (2020) S97.
Hiroshima University	Aerobic bacteria, MRSA	Kitagawa, H, et al., *American Journal of Infection Control*. Feb 02, 2020.
Hiroshima University	*C. difficile*	Kitagawa, H, et al., *American Journal of Infection Control* (2020).
Trinity Health	Aerobic bacteria	Reid, D, et al., *American Journal of Infection Control*. 2020 JAN 48(1):103-105
Enrique Garces Hospital	Aerobic bacteria, *K. pneumoniae, P. aeruginosa, S. aureus, E. faecium*	Villacís, J, et al., *BMC infectious diseases* 19.1 (2019): 575.
University of Pisa	*C. difficile,* ESBL *K. pneumoniae,* KPC *K. pneumoniae,* aerobic bacteria	Casini, B, et al., *International journal of environmental research and public health* 16.19 (2019): 3572.
136 operating rooms at 23 hospitals across the United States	Aerobic bacteria	Simmons, S, et al., *American Journal of Infection Control*. 2018 Sep 1;46(9):1003-8.
4 VA hospitals	MRSA, aerobic bacteria	Zeber, JE, et al., *American Journal of Infection Control*. 2018 Jun 1;46(6):668-73.
Netcare Hospital South Africa	Aerobic bacteria	Dippenaar, R, et al., *BMC infectious diseases*. 2018 Dec;18(1):91.
MD Anderson Cancer Center	Aerobic bacteria	El Haddad, L, et al., *BMC infectious diseases*. 2017 Dec;17(1):672.
San Antonio Military Medical Center	Aerobic bacteria	Green, C, et al., *Burns*. 2017 Mar 1;43(2):388-96.
Nottingham NHS Hospital United Kingdom	Aerobic bacteria, VRE	Beal, A, et al., *Journal of Hospital Infection*. 2016 Jun 1;93(2):164-8.
Queens Hospital United Kingdom	MRSA, VRE, *A. baumannii,* CPE, aerobic bacteria	Hosein, I, et al., *American Journal of Infection Control*. 2016 Sep 1;44(9):e157-61.
Central Texas VA Health Care System	MRSA	Jinadatha, C, et al., *American Journal of Infection Control*. 2015 Aug 1;43(8):878-81.
Central Texas VA Health Care System	Aerobic bacteria	Jinadatha, C, et al., *American Journal of Infection Control*. 2015 Apr 1;43(4):415-7.
Louis Stokes Cleveland VA Medical Center	*C. difficile,* MRSA, VRE	Nerandzic, MM, et al., *Infection control & hospital epidemiology*. 2015 Feb;36(2):192-7.
MD Anderson Cancer Center	*C. difficile*	Ghantoji, SS, et al., *Journal of medical microbiology*. 2015 Feb 1;64(Pt 2):191.
Central Texas VA Health Care System	MRSA	Jinadatha, C, et al., *BMC infectious diseases*. 2014 Dec;14(1):187.
MD Anderson Cancer Center	Aerobic bacteria, VRE	Stibich, M, et al., *Infection Control & Hospital Epidemiology*. 2011 Mar;32(3):286-8.

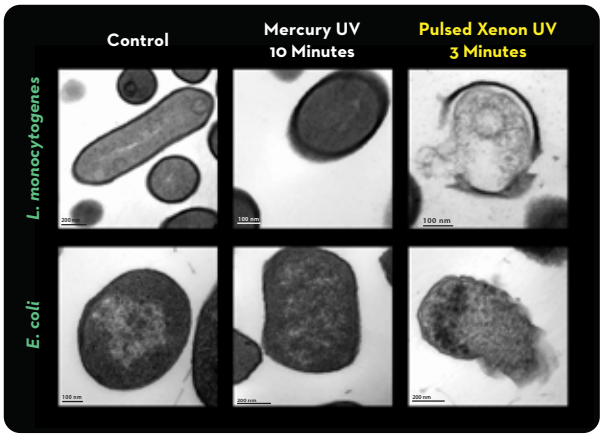
Hospital Experience/Use Studies:

Facility	Criteria	Publication Details
Cincinnati Childrens Hospital Medical Center	*C. difficile*	Schaffzin, J.K., et al., *American Journal of Infection Control*. 48 (2020) 903-909.
Hershey Medical Center	*C. difficile*	Attia, F, et al., *American Journal of Infection Control*. 2020 Sep.
Multi-Site	Various	Dong Z., et al., *Epidemiol Infect*. 2020 148: e 165.
Yagamata University	MRSA, *A. baumannii*	Morikane, K, et al., *BMC Infectious Diseases*. 2020 January; 20(82), 1-6.
Vall dHebron University Hospital	*P. aeruginosa*	Aguilera-Sáez, J, et al., A*nnals of burns and fire disasters* 32.1 (2019): 47.
Mayo Clinic	*C. difficile,* VRE	Sampathkumar, P, et al., *American Journal of Infection Control*. 2018 Nov 28.
Sloan Kettering Cancer Center	*C. difficile,* VRE	Brite, J, et al., *Infection Control & Hospital Epidemiology*. 2018 Nov;39(11):1301-6.
Long-term care facility	MDRO	Kovach, CR, et al., *BMC infectious diseases*. 2017 Dec;17(1):186.
South Seminole Hospital Orlando Health	*C. difficile,* VRE, MRSA	Vianna, PG, et al., *American Journal of Infection Control*. 2016 Mar 1;44(3):299-303.
Lowell General Hospital	Operating rooms	Catalanotti, A, et al., *American Journal of Infection Control*. 2016 Jun 1;44(6):e99-101.
Trinity Medical Center	Operating rooms	Fornwalt, L, et al., *American Journal of Infection Control*. 2016 Feb 1;44(2):239-41.
Long-term care facility	*C. difficile*	Miller, R, et al., *American Journal of Infection Control*. 2015 Dec 1;43(12):1350-3.
Westchester Medical Center	*C. difficile*	Nagaraja, A, et al., *American Journal of Infection Control*. 2015 Sep 1;43(9):940-5.
Westchester Medical Center	MDRO, *C. difficile*	Haas, JP, et al., *American Journal of Infection Control*. 2014 Jun 1;42(6):586-90.
Cooley Dickinson Hospital	*C. difficile*	Levin, J, et al., *American Journal of Infection Control*. 2013 Aug 1;41(8):746-8.
Moses Cone Health	MRSA	Simmons, S, et al., *Journal of Infection Prevention*. 2013 Sep;14(5):172-4.

Comparative Cell Damage

In a published, third-party comparison test, exposure to a Pulsed Xenon lamp showed cellular damage and lysis while no cellular damage was detected by exposure to the Mercury lamp.*

In a separate lab comparison study, the LightStrike Pulsed Xenon lamp produced 4300X more intensity than the Mercury lamp tested.**



*Cheigh, Food Control, 2012

**Based on Xenex testing of Xenex's Pulsed Xenon lamp and the Phillips RUV325HOMercury lamp.

SUMMARY OF PEER REVIEWED STUDIES

Powered by XENEX®

Efficacy of the LightStrike Disinfection Robot

MICROORGANISM	DISINFECTION CYCLE TIME (min:sec)	EXPOSURE DISTANCE	CITATION
Acinetobacter baumanii	5	1 m	Stibich, M. *SAJID.* 2016;31(1):12-15.
Acinetobacter ursingii	5	N/A	Dippenaar, R. *BMC Infect Dis.* 2018;18(1):91.
Adenovirus 5	5	2 m	Data on file
Aeromonas hydrophilia	5	N/A	Dippenaar, R. *BMC Infect Dis.* 2018;18(1):91.
Aspergillus niger (black mold)	15	1 m	Stibich, M. *SAJID.* 2016;31(1):12-15.
Aspergillus brasiliensis	15	2 m	Data on file
Bacillus anthracis	15	1 m	Stibich, M. *SAJID.* 2016;31(1):12-15.
Bacillus atrophaeus	5	1 m	Stibich, M. *SAJID.* 2016;31(1):12-15.
Bacillus subtilis spores	5	2 m	Data on file
Candida auris	10	2 m	Maslo, C. *BMC Infect Dis.* 2019;19(1):540
Candida parapsilosis	10	2 m	Maslo, C. *BMC Infect Dis.* 2019;19(1):540
Canine parvovirus (ebola virus surrogate)	5	2 m	Jinadatha, C. *Am J Infect Control.* 2015;43(4):412-414
Carbapenem-resistant *Enterobacteriaceae* (CRE)	5	2 m	Data on file
**Clostridioides difficile* "C. diff" spores (NAP1)	5	2 m	Data on file
Coronavirus	2	1 m	Simmons, S. *ICHE.* 2021;42(2):127-130
Ebola virus	1	1 m	Stibich, M. *SAJID.* 2016;31(1):12-15.
Enterobacter cloacae	5	N/A	Dippenaar, R. *BMC Infect Dis.* 2018;18(1):91.
Enterococcus casseliflavus	5	N/A	Dippenaar, R. *BMC Infect Dis.* 2018;18(1):91.
Enterococcus faecium	5, 10	N/A	Villacís, J. *BMC Infect Dis.* 2019;19(1):575
Escherichia coli and *E. coli* (KREC)	5	1 m	Stibich, M. *SAJID.* 2016;31(1):12-15.
Falvimonas oryzihabitans	5	N/A	Dippenaar, R. *BMC Infect Dis.* 2018;18(1):91.
Geobacillus stearothermophilus	5	1 m	Stibich, M. *SAJID.* 2016;31(1):12-15.
Infectious bursal disease virus (IBDV)	5	1 m	Stibich, M. *SAJID.* 2016;31(1):12-15.
Influenza A virus (Flu)	5	2 m	Data on file
Klebsiella ozaenia	5	N/A	Dippenaar, R. *BMC Infect Dis.* 2018;18(1):91.
Klebsiella pneumoniae and ESBL-producing *K. pneumoniae*	5	1 m	Stibich, M. *SAJID.* 2016;31(1):12-15.
Klebsiella teringa	5	N/A	Dippenaar, R. *BMC Infect Dis.* 2018;18(1):91.
KREC	2	2 m	Data on file
Middle East Respiratory Syndrome - Coronavirus (MERS-CoV)	5	1 m	Stibich, M. *SAJID.* 2016;31(1):12-15.
*Methicillin-resistant *Staphylococcus aureus* (MRSA)	5	1 m	Stibich, M. *SAJID.* 2016;31(1):12-15.
MS2 bacteriophage	2:30	2 m	Data on file
Mycobacterium fortuitum	5	4 ft	Huber, T. *SAGE Open Medicine,* 8, p.2050312120962372
Feline calicivirus (norovirus surrogate)	5	1 m	Data on file
Pseudomonas aeruginosa and Carbapenem-resistant *P. aeruginosa*	5	1 m	Stibich, M. *SAJID.* 2016;31(1):12-15.
Serratia liquifaciens	5	N/A	Dippenaar, R. *BMC Infect Dis.* 2018;18(1):91.
Serratia marcescens	5	N/A	Dippenaar, R. *BMC Infect Dis.* 2018;18(1):91.
**Staphylococcus aureus*	5	2 m	Data on file
Stenotrophomonas maltophilia	5	N/A	Dippenaar, R. *BMC Infect Dis.* 2018;18(1):91.
*Vancomycin-resistant *enterococci* (VRE)	5	2 m	Data on file
Vaccinia virus	5	1 m	Stibich, M. *SAJID.* 2016;31(1):12-15.
Vesicular stomatitis virus (VSV)	5	1 m	Stibich, M. *SAJID.* 2016;31(1):12-15.

If you would like to have a scientific or technical discussion regarding our products, please contact our Science Team at science.resources@xenex.com or call 1-210-538-9300 to schedule a review with our team of epidemiologoists.

