

Indigo-Clean Publication List (September 2016)

Scientific Journal Publications on the antimicrobial effects of 405 nm-light:

Maclean M., S.J. MacGregor, J.G. Anderson & G.A. Woolsey (2008). [High-Intensity Narrow-Spectrum Light Inactivation and Wavelength Sensitivity of *Staphylococcus aureus*](#). *FEMS Microbiology Letters*, 285(2); 227-232. DOI: 10.1111/j.1574-6968.2008.01233.x

Maclean M., S.J. MacGregor, J.G. Anderson & G.A. Woolsey (2008). [The Role of Oxygen in the Visible-Light Inactivation of *Staphylococcus aureus*](#). *Journal of Photochemistry and Photobiology B: Biology*, 92(3); 180-184. DOI: 10.1016/j.jphotobiol.2008.06.006 (Please note: download requires purchase.)

Maclean M., S.J. MacGregor, J.G. Anderson & G.A. Woolsey (2009). [Inactivation of Bacterial Pathogens Following Exposure to Light from a 405-nm LED Array](#). *Applied and Environmental Microbiology*, 75(7); 1932-1937. DOI: 10.1128/AEM.01892-08

- [“405-nm Light Proves Potent at Decontaminating Bacterial Pathogens”](#), featured Current Topics article, Microbe: The News Magazine of the American Society for Microbiology, Volume 4(5), p216, May 2009.

Murdoch L.E., M. Maclean, S.J. MacGregor & J.G. Anderson (2010). [Inactivation of *Campylobacter jejuni* by exposure to high-intensity 405-nm visible light](#). *Foodborne Pathogens and Disease*, 7(10); 1211-1216, 2010. DOI: 10.1089/fpd.2010.0561

Endarko E., M. Maclean, I.V. Timoshkin, S.J. MacGregor & J.G. Anderson (2012). [High intensity 405nm light inactivation of *Listeria monocytogenes*](#). *Photochemistry and Photobiology*, 88: 1280-1286. DOI: 10.1111/j.1751-1097.2012.01173.x

Murdoch L.E., M. Maclean, Endarko, S.J. MacGregor & J.G. Anderson (2012). [Bactericidal effects of 405-nm light exposure demonstrated by inactivation of *Escherichia*, *Salmonella*, *Shigella*, *Listeria* and *Mycobacterium* species in liquid suspensions and on exposed surfaces](#). *The Scientific World Journal (TSWJ)*, Volume 2012, Article ID 137805, 8 pages. DOI: 10.1100/2012/137805

Maclean M., L.E. Murdoch, S.J. MacGregor & J.G. Anderson (2013). [Sporicidal effects of high-intensity 405nm visible light on endospore-forming bacteria](#). *Photochemistry and Photobiology*, 89(1); 120-126. DOI: 10.1111/j.1751-1097.2012.01202.x (published online 30 Aug 2012).

Murdoch L.E., K. McKenzie, M. Maclean, S.J. MacGregor & J.G. Anderson (2013). [Lethal effects of high intensity violet 405-nm light on *Saccharomyces cerevisiae*, *Candida albicans* and on dormant and germinating spores of *Aspergillus niger*. *Fungal Biology*, 117; 519-527. DOI: 10.1016/j.funbio.2013.05.004 \(Please note: download requires purchase.\)](#)

McKenzie K., M. Maclean, I.V. Timoshkin, E. Endarko, Scott J. MacGregor & John G. Anderson (2013). [Photoinactivation of Bacteria Attached to Glass and Acrylic Surfaces by 405nm Light: Potential Application for Biofilm Decontamination. *Photochemistry and Photobiology*, 89: 927-935. DOI: 10.1111/php.12077](#)

McKenzie K., M. Maclean, I.V. Timoshkin, S.J. MacGregor, J.G. Anderson (2014). [Enhanced inactivation of *Escherichia coli* and *Listeria monocytogenes* by exposure to 405 nm light under sub-lethal temperature, salt and acid stress conditions. *International Journal of Food Microbiology*, 170; 91–98. DOI: 10.1016/j.ijfoodmicro.2013.10.016 \(Please note: download requires registration.\)](#)

Tomb R.M., Maclean M., Herron, P.R., Hoskisson, P.A., MacGregor S.J., Anderson, J.G. (2014). [Inactivation of *Streptomyces* phage \$\phi\$ C31 by 405 nm light Requirement for exogenous photosensitizers, *Bacteriophage 4*, e32129; January–December 2014.](#)

Ramakrishnan P., Maclean M., MacGregor S.J., Anderson J.G., & Grant M. H., (2014). [Differential sensitivity of osteoblasts and bacterial pathogens to 405-nm light highlighting potential for decontamination applications in orthopedic surgery, *Journal of Biomedical Optics*, 19 \(10\); 10500-1-10500-7.](#)

Gupta S., Maclean M., Anderson J.G., MacGregor S.J., Meek R.M.D., & Grant M.H. (2015) [Inactivation of micro-organisms isolated from infected lower limb arthroplasties using high-intensity narrow-spectrum \(HINS\) light, *Bone Joint J*, 97 \(2015\); 283-288.](#)

Ramakrishnan P., Maclean M., MacGregor S.J., Anderson J.G., & Grant M. H., (2016). [Cytotoxic responses to 405 nm light exposure in mammalian and bacterial cells: Involvement of reactive oxygen species, *Toxicology in Vitro*, 33 \(2016\); 54-62.](#)

Moorhead S., Maclean M., Coia J.E., MacGregor S.J., & Anderson J.G. (2016). [Synergistic efficacy of 405nm light and chlorinated disinfectants for the enhanced decontamination of *Clostridium difficile* spores, *Anaerobe*, 37 \(2016\); 72-77.](#)

Scientific/Medical Journal Publications validating Indigo-Clean:

Maclean M., S.J. MacGregor, J.G. Anderson, G.A. Woolsey, J.E. Coia, K. Hamilton, I. Taggart, S.B. Watson, B. Thakker & G. Gettinby (2010). [Environmental Decontamination of a Hospital Isolation Room using High-Intensity Narrow-Spectrum Light. *Journal of Hospital Infection*, 76\(3\); 247-251. DOI: 10.1016/j.jhin.2010.07.010 \(Please note: download requires purchase.\)](#)

Bache S.E., M. Maclean, S.J. MacGregor, J.G. Anderson, G. Gettinby, J.E. Coia & I. Taggart (2012). [Clinical studies of the High-Intensity Narrow-Spectrum light Environmental Decontamination System \(HINS-light EDS\), for continuous disinfection in the burn unit inpatient and outpatient settings](#). *Burns*, 38: 69-76. DOI:10.1016/j.burns.2011.03.008 (Please note: download requires purchase.)

Maclean M., M. Booth, S.J. MacGregor, J.G. Anderson, G.A. Woolsey, J.E. Coia, K. Hamilton & G. Gettinby (2013). [Continuous decontamination of an intensive care isolation room during patient occupancy using 405nm light technology](#). *Journal of Infection Prevention*, 14(5); 176-181. DOI: 10.1177/1757177413483646 (Please note: download requires registration.)

Maclean M., McKenzie K., Moorhead S., Tomb R.M., Coia J.E., MacGregor S.J., & Anderson J.G. (2015). [Decontamination of the Hospital Environment: New Technologies for Infection Control, Current Treatment Options in Infectious Diseases, New Technologies and Advances in Infection Prevention](#). DOI 10.1007/s40506-015-0037-5

Maclean M., McKenzie K., Anderson J.G., Gettinby G., & MacGregor S.J. (2014). [405nm light technology for the inactivation of pathogens and its potential role for environmental disinfection and infection control](#), *J. Hosp. Inf.*, 88 (2014); 1-11.

Medical Conference Presentations validating the HINS-light EDS:

Gupta S, M Maclean, JG Anderson, SJ MacGregor, RMD Meek, MH Grant. [Inactivation of microorganisms isolated from infected arthroplasty using High Intensity Narrow Spectrum light](#). Glasgow Meeting of Orthopaedic Research (GLAMOR) 2013, Beardmore Hotel, Clydebank, 23rd March, 2013.

Bache S.E., M. Maclean, J.G. Anderson, G. Gettinby, J.E. Coia, S.J. MacGregor & I Taggart. [Laboratory inactivation of healthcare-associated isolates by a visible HINS-light source and its clinical application in the burns unit](#). Oral presentation at the *European Burn Association Congress* in The Hague, Sept 2011. (Please note: download requires purchase.)

Coyle A., M. Maclean, J.G. Anderson, G. Gettinby, S.J. MacGregor & I Taggart. [High-Intensity Narrow-Spectrum light decontamination of a staff changing room in a burns ward](#). Oral presentation at the *European Burn Association Congress* in The Hague, Sept 2011. (Please note: download requires purchase.)

Booth M., M. Maclean, S.J. MacGregor, J.G. Anderson, G.A. Woolsey, J.E. Coia, K. Hamilton & G. Gettinby. [Use of a novel light technology for environmental disinfection within an Intensive Care Unit](#). *Euroanaesthesia 2010*, conference of the European Society of Anaesthesiology, Helsinki, Finland, 12-15 June 2010.

Sandhu S., Murillo M., Wyatt D., Bhanot N., Min Z., and Thomas J., [Environmental Decontamination of Medical ICU Suites Using High-Intensity Narrow-Spectrum Light, ID Week 2016.](#)

Rutala W., Kanamori H., Gergen M., Sickbert-Bennett E., Sexton D., Anderson D., Weber D.J., [Antimicrobial Activity of a Continuous Visible Light Disinfection System, ID Week 2016.](#)

Awards:

The HINS-light project was awarded the [Times Higher Education Award for 'Research Project of the Year' 2011.](#) Thursday 24th November, Grosvenor House Hotel, Park Lane, London. (Reference pg 13 of linked document.)

[LEDs Sapphire Award 2016 Winner, Specialty SSL Design: Indigo-Clean](#)

[Healthcare Design Product Innovation Awards, Silver Winner: Indigo-Clean](#)

[Buildings 2016 Money Saving Products Winner: Indigo-Clean](#)