

PMA & PMAxx™ Selected References

[Click on the blue link to see journal article](#)

Contents:

Viability PCR Reviews

p. 1

Viability PCR Dyes

- PMAxx™
- PMA

p. 2

There are hundreds of journal articles using PMA in viability PCR. Publications using PMA in select applications and cell types have been selected below.

Related Products

- PMA-Lite™
- PMA Enhancer

p. 2

p. 3

Sample Types

- Bacteria

The use of PMA for viability PCR in bacteria has been published in hundreds of journal articles. See select articles below for certain applications or techniques.

- Yeast and Fungi
- Biofilms
- Eukaryotes
- Viruses
- Archaea

p. 3

p. 4

p. 6

p. 6

p. 9

Applications

- Food Science
- Probiotics
- Environmental Testing
- Filtered Samples

p. 9

p. 13

p. 14

p. 17

Techniques

- Sequencing
- Loop-mediated Isothermal Amplification (LAMP)

p. 17

p. 20

Viability PCR Reviews

Elizaquivel, P., Aznar, R., and Sanchez, G. (2013). [Recent developments in the use of viability dyes and quantitative PCR in the food microbiology field](#). J Appl Microbiol 116, 1-13. [10.1111/jam.12365](#)

Emerson, J. B., Adams, R. I., Roman, C. M. B., Brooks, B., Coil, D. A., Dahlhausen, K., Ganz, H. H., Hartmann, E. M., Hsu, T., Justice, N. B., et al. (2017). [Schrodinger's microbes: Tools for distinguishing the living from the dead in microbial ecosystems](#). Microbiome 5, 86. [10.1186/s40168-017-0285-3](#)

Fittipaldi, M., Nocker, A., and Codony, F. (2012). [Progress in understanding preferential detection of live cells using viability dyes in combination with DNA amplification](#). J Microbiol Methods 91, 276-289. [10.1016/j.mimet.2012.08.007](#)

Greening, G. (2013). [Foodborne viruses: a focus on challenges associated with detection methods](#). Microbiology Australia DOI: [10.1071/MA13022](#). [10.1071/MA13022](#)

Li, Y., Yang, L., Fu, J., Yan, M., Chen, D., and Zhang, L. (2017). [The novel loop-mediated isothermal amplification based confirmation methodology on the bacteria in Viable but Non-Culturable \(VBNC\) state](#). *Microb Pathog* 111, 280-284. S0882-4010(17)30999-3

van Frankenhuyzen, J. K., Trevors, J. T., Lee, H., Flemming, C. A., and Habash, M. B. (2011). [Molecular pathogen detection in biosolids with a focus on quantitative PCR using propidium monoazide for viable cell enumeration](#). *J Microbiol Methods* 87, 263-272. 10.1016/j.mimet.2011.09.007

PMAxx™

Emerson, J. B., Adams, R. I., Roman, C. M. B., Brooks, B., Coil, D. A., Dahlhausen, K., Ganz, H. H., Hartmann, E. M., Hsu, T., Justice, N. B., et al. (2017). [Schrodinger's microbes: Tools for distinguishing the living from the dead in microbial ecosystems](#). *Microbiome* 5, 86. 10.1186/s40168-017-0285-3

Fraisse, A., Niveau, F., Hennechart-Collette, C., Coudray-Meunier, C., Martin-Latil, S., and Perelle, S. (2018). [Discrimination of infectious and heat-treated norovirus by combining platinum compounds and real-time RT-PCR](#). *Int J Food Microbiol* 269, 64-74. S0168-1605(18)30023-0

Garcia-Fontana, C., Narvaez-Reinaldo, J. J., Castillo, F., Gonzalez-Lopez, J., Luque, I., and Manzanera, M. (2016). [A New Physiological Role for the DNA Molecule as a Protector against Drying Stress in Desiccation-Tolerant Microorganisms](#). *Front Microbiol* 7, 2066. 10.3389/fmicb.2016.02066

Randazzo, W., Lopez-Galvez, F., Allende, A., Aznar, R., and Sanchez, G. (2016). [Evaluation of viability PCR performance for assessing norovirus infectivity in fresh-cut vegetables and irrigation water](#). *Int J Food Microbiol* 229, 1-6. S0168-1605(16)30169-6

Randazzo, W., Piqueras, J., Rodriguez-Diaz, J., Aznar, R., and Sanchez, G. (2018). [Improving efficiency of viability-qPCR for selective detection of infectious HAV in food and water samples](#). *J Appl Microbiol* 124, 958-964. 10.1111/jam.13519

PMA-Lite™

Burnet, J. B., Faraj, T., Cauchie, H. M., Joaquim-Justo, C., Servais, P., Prevost, M., and Dorner, S. M. (2017). [How does the cladoceran *Daphnia pulex* affect the fate of *Escherichia coli* in water?](#) *PLoS One* 12, e0171705. 10.1371/journal.pone.0171705

Eramo, A., Medina, W. M., and Fahrenfeld, N. L. (2017). [Peracetic acid disinfection kinetics for combined sewer overflows: indicator organisms, antibiotic resistance genes, and microbial community](#). *Environ Sci (Camb)* 3, 1061-1072. 10.1039/C7EW00184C

Oh, E., McMullen, L., and Jeon, B. (2015). [Impact of oxidative stress defense on bacterial survival and morphological change in *Campylobacter jejuni* under aerobic conditions](#). *Front Microbiol* 6, 295. 10.3389/fmicb.2015.00295

Overney, A., Jacques-Andre-Coquin, J., Ng, P., Carpentier, B., Guillier, L., and Firmesse, O. (2017). [Impact of environmental factors on the culturability and viability of *Listeria monocytogenes* under conditions encountered in food processing plants](#). *Int J Food Microbiol* 244, 74-81. 10.1016/j.ijfoodmicro.2016.12.012

Yang, Y., Cheng, D., Li, Y., Yu, L., Gin, K. Y., Chen, J. P., and Reinhard, M. (2017). [Effects of monochloramine and hydrogen peroxide on the bacterial community shifts in biologically treated wastewater](#). *Chemosphere* 189, 399-406. 10.1016/j.chemosphere.2017.09.087

Xiao, L., Zhang, Z., Sun, X., Pan, Y., and Zhao, Y. (2015). [Development of a quantitative real-time PCR assay for viable *Salmonella* spp. without enrichment](#). *Food Control*. 10.1016/j.foodcont.2015.03.050

Zhang, Z., Liu, H., Lou, Y., Xiao, L., Liao, C., Malakar, P. K., Pan, Y., and Zhao, Y. (2015). [Quantifying viable *Vibrio parahaemolyticus* and *Listeria monocytogenes* simultaneously in raw shrimp](#). *Appl Microbiol Biotechnol* 99, 6451-6462. 10.1007/s00253-015-6715-x

Zheng, Q., Miks-Krajnik, M., D'Souza, C., Yang, Y., Heo, D. J., Kim, S. K., Lee, S. C., and Yuk, H. G. (2015). [Growth of healthy and sanitizer-injured *Salmonella* cells on mung bean sprouts in different commercial enrichment broths](#). *Food Microbiol* 52, 159-168. 10.1016/j.fm.2015.07.013

PMA Enhancer

Youn, S. Y., Jeong, O. M., Choi, B. K., Jung, S. C., and Kang, M. S. (2016). [Application of loop-mediated isothermal amplification with propidium monoazide treatment to detect live *Salmonella* in chicken carcasses](#). *Poult Sci*. 10.3382/ps/pew341

Duarte-Guevara, P., Duarte-Guevara, C., Ornob, A., and Bashir, R. (2016). [On-chip PMA labeling of foodborne pathogenic bacteria for viable qPCR and qLAMP detection](#). *Microfluid Nanofluid*. 10.1007/s1040

Yeast and Fungi

Agusti, G., Fittipaldi, M., Morato, J., and Codony, F. (2013). [Viable quantitative PCR for assessing the response of *Candida albicans* to antifungal treatment](#). *Appl Microbiol Biotechnol* 97, 341-349. 10.1007/s00253-012-4524-z

Andorra, I., Esteve-Zarzoso, B., Guillamon, J. M., and Mas, A. (2010). [Determination of viable wine yeast using DNA binding dyes and quantitative PCR](#). *Int J Food Microbiol* 144, 257-262. 10.1016/j.ijfoodmicro.2010.10.003

Blachowicz, A., Mayer, T., Bashir, M., Pieber, T. R., De Leon, P., and Venkateswaran, K. (2017). [Human presence impacts fungal diversity of inflated lunar/Mars analog habitat](#). *Microbiome* 5, 62. 10.1186/s40168-017-0280-8

Checinska, A., Probst, A. J., Vaishampayan, P., White, J. R., Kumar, D., Stepanov, V. G., Fox, G. E., Nilsson, H. R., Pierson, D. L., Perry, J., et al. (2015). [Microbiomes of the dust particles collected from the International Space Station and Spacecraft Assembly Facilities](#). *Microbiome* 3, 50. 10.1186/s40168-015-0116-3

Crespo-Sempere, A., Estiarte, N., Marin, S., Sanchis, V., and Ramos, A. J. (2013). [Propidium monoazide combined with real-time quantitative PCR to quantify viable *Alternaria* spp. contamination in tomato products](#). *Int J Food Microbiol* 165, 214-220. 10.1016/j.ijfoodmicro.2013.05.017

Luo, Y., Bolt, H. L., Eggimann, G. A., McAuley, D. F., McMullan, R., Curran, T., Zhou, M., Jahoda, P. C., Cobb, S. L., and Lundy, F. T. (2016). [Peptoid Efficacy against Polymicrobial Biofilms Determined by Using Propidium Monoazide-Modified Quantitative PCR](#). *Chembiochem*. 10.1002/cbic.201600381

Medina, E., Perez-Diaz, I. M., Breidt, F., Hayes, J., Franco, W., Butz, N., and Azcarate-Peril, M. A. (2016). [Bacterial Ecology of Fermented Cucumber Rising pH Spoilage as Determined by Nonculture-Based Methods](#). *J Food Sci* 81, M121-129. 10.1111/1750-3841.13158

Nguyen, L. D., Deschaght, P., Merlin, S., Loywick, A., Audebert, C., Van Daele, S., Viscogliosi, E., Vaneechoutte, M., and Delhaes, L. (2016). [Effects of Propidium Monoazide \(PMA\) Treatment on Mycobiome and Bacteriome Analysis of Cystic Fibrosis Airways during Exacerbation](#). *PLoS One* 11, e0168860. 10.1371/journal.pone.0168860
PONE-D-16-20893 [pii]

Onofri, S., de Vera, J. P., Zucconi, L., Selbmann, L., Scalzi, G., Venkateswaran, K. J., Rabbow, E., de la Torre, R., and Horneck, G. (2015). [Survival of Antarctic Cryptoendolithic Fungi in Simulated Martian Conditions On Board the International Space Station](#). *Astrobiology* 15, 1052-1059. 10.1089/ast.2015.1324

Pacelli, C., Selbmann, L., Zucconi, L., De Vera, J. P., Rabbow, E., Horneck, G., de la Torre, R., and Onofri, S. (2016). [BIOMEX Experiment: Ultrastructural Alterations, Molecular Damage and Survival of the Fungus *Cryomyces antarcticus* after the Experiment Verification Tests](#). *Orig Life Evol Biosph.* 10.1007/s11084-016-9485-2

Tantikachornkiat, M., Sakakibara, S., Neuner, M., and Durall, D. M. (2016). [The use of propidium monoazide in conjunction with qPCR and Illumina sequencing to identify and quantify live yeasts and bacteria](#). *Int J Food Microbiol* 234, 53-59. 10.1016/j.ijfoodmicro.2016.06.031

Toledo Del Arbol, J., Perez Pulido, R., La Stora, A., Grande Burgos, M. J., Lucas, R., Ercolini, D., and Galvez, A. (2016). [Microbial diversity in pitted sweet cherries \(*Prunus avium* L.\) as affected by High-Hydrostatic Pressure treatment](#). *Food Res Int* 89, 790-796. S0963-9969(16)30435-5

Vendrame, M., Manzano, M., Comi, G., Bertrand, J., and Iacumin, L. (2014). [Use of propidium monoazide for the enumeration of viable *Brettanomyces bruxellensis* in wine and beer by quantitative PCR](#). *Food Microbiol* 42, 196-204. 10.1016/j.fm.2014.03.010

Venkateswaran, K., Vaishampayan, P., Cisneros, J., Pierson, D. L., Rogers, S. O., and Perry, J. (2014). [International Space Station environmental microbiome - microbial inventories of ISS filter debris](#). *Appl Microbiol Biotechnol* 98, 6453-6466. 10.1007/s00253-014-5650-6

Vesper, S., McKinstry, C., Hartmann, C., Neace, M., Yoder, S., and Vesper, A. (2008). [Quantifying fungal viability in air and water samples using quantitative PCR after treatment with propidium monoazide \(PMA\)](#). *J Microbiol Methods* 72, 180-184. 10.1016/j.mimet.2007.11.017

Wagner, A. O., Praeg, N., Reitschuler, C., and Illmer, P. (2015). [Effect of DNA extraction procedure, repeated extraction and ethidium monoazide \(EMA\)/propidium monoazide \(PMA\) treatment on overall DNA yield and impact on microbial fingerprints for bacteria, fungi and archaea in a reference soil](#). *Appl Soil Ecol* 93, 56-64. 10.1016/j.apsoil.2015.04.005

Weinmaier, T., Probst, A. J., La Duc, M. T., Ciobanu, D., Cheng, J. F., Ivanova, N., Rattei, T., and Vaishampayan, P. (2015). [A viability-linked metagenomic analysis of cleanroom environments: eukarya, prokaryotes, and viruses](#). *Microbiome* 3, 62. 10.1186/s40168-015-0129-y

Biofilms

Alvarez, G., Gonzalez, M., Isabal, S., Blanc, V., and Leon, R. (2013). [Method to quantify live and dead cells in multi-species oral biofilm by real-time PCR with propidium monoazide](#). *AMB Express* 3, 1. 10.1186/2191-0855-3-1

de Almeida, J., Hoogenkamp, M., Felipe, W. T., Crielaard, W., and van der Waal, S. V. (2016). [Effectiveness of EDTA and Modified Salt Solution to Detach and Kill Cells from *Enterococcus faecalis* Biofilm](#). *J Endod* 42, 320-323. S0099-2399(15)01080-8

Fernandez Ramirez, M. D., Kostopoulos, I., Smid, E. J., Nierop Groot, M. N., and Abee, T. (2017). [Quantitative assessment of viable cells of *Lactobacillus plantarum* strains in single, dual and multi-strain biofilms](#). *Int J Food Microbiol* 244, 43-51. S0168-1605(16)30662-6

Fernandez, Y. M. M., Exterkate, R. A., Buijs, M. J., Crielaard, W., and Zaura, E. (2016). [Effect of mouthwashes on the composition and metabolic activity of oral biofilms grown in vitro](#). *Clin Oral Investig.* 10.1007/s00784-016-1876-2

Fernandez, Y. M. M., Exterkate, R. A. M., Buijs, M. J., Beertsen, W., van der Weijden, G. A., Zaura, E., and Crielaard, W. (2017). [A reproducible microcosm biofilm model of subgingival microbial communities](#). *J Periodontal Res* 52, 1021-1031. 10.1111/jre.12473

- Forbes, S., Cowley, N., Humphreys, G., Mistry, H., Amezcua, A., and McBain, A. J. (2017). [Formulation of Biocides Increases Antimicrobial Potency and Mitigates the Enrichment of Nonsusceptible Bacteria in Multispecies Biofilms](#). *Appl Environ Microbiol* 83. AEM.03054-16
- Gomez-Alvarez, V., Schrantz, K. A., Pressman, J. G., and Wahman, D. G. (2014). [Biofilm community dynamics in bench-scale annular reactors simulating arrestment of chloraminated drinking water nitrification](#). *Environ Sci Technol* 48, 5448-5457. 10.1021/es5005208
- Herrero, E. R., Slomka, V., Boon, N., Bernaerts, K., Hernandez-Sanabria, E., Quirynen, M., and Teughels, W. (2016). [Dysbiosis by neutralizing commensal mediated inhibition of pathobionts](#). *Sci Rep* 6, 38179. srep38179
- Kistler, J. O., Pesaro, M., and Wade, W. G. (2015). [Development and pyrosequencing analysis of an in-vitro oral biofilm model](#). *BMC Microbiol* 15, 24. 10.1186/s12866-015-0364-1
- Klein, M. I., Scott-Anne, K. M., Gregoire, S., Rosalen, P. L., and Koo, H. (2012). [Molecular approaches for viable bacterial population and transcriptional analyses in a rodent model of dental caries](#). *Mol Oral Microbiol* 27, 350-361. 10.1111/j.2041-1014.2012.00647.x
- Luo, Y., Bolt, H. L., Eggimann, G. A., McAuley, D. F., McMullan, R., Curran, T., Zhou, M., Jahoda, P. C., Cobb, S. L., and Lundy, F. T. (2016). [Peptoid Efficacy against Polymicrobial Biofilms Determined by Using Propidium Monoazide-Modified Quantitative PCR](#). *Chembiochem*. 10.1002/cbic.201600381
- Magajna, B., and Schraft, H. (2015). [Evaluation of Propidium Monoazide and Quantitative PCR To Quantify Viable *Campylobacter jejuni* Biofilm and Planktonic Cells in Log Phase and in a Viable but Nonculturable State](#). *J Food Prot* 78, 1303-1311. 10.4315/0362-028X.JFP-14-583
- Overney, A., Jacques-Andre-Coquin, J., Ng, P., Carpentier, B., Guillier, L., and Firmesse, O. (2017). [Impact of environmental factors on the culturability and viability of *Listeria monocytogenes* under conditions encountered in food processing plants](#). *Int J Food Microbiol* 244, 74-81. S0168-1605(16)30660-2
- Pan, Y., and Breidt, F., Jr. (2007). [Enumeration of viable *Listeria monocytogenes* cells by real-time PCR with propidium monoazide and ethidium monoazide in the presence of dead cells](#). *Appl Environ Microbiol* 73, 8028-8031. 10.1128/AEM.01198-07
- Pisz, J. M., Lawrence, J. R., Schafer, A. N., and Siciliano, S. D. (2007). [Differentiation of genes extracted from non-viable versus viable micro-organisms in environmental samples using ethidium monoazide bromide](#). *J Microbiol Methods* 71, 312-318. 10.1016/j.mimet.2007.09.015
- Sanchez, M. C., Marin, M. J., Figuero, E., Llama-Palacios, A., Leon, R., Blanc, V., Herrera, D., and Sanz, M. (2014). [Quantitative real-time PCR combined with propidium monoazide for the selective quantification of viable periodontal pathogens in an in vitro subgingival biofilm model](#). *J Periodontol Res* 49, 20-28. 10.1111/jre.12073
- Tavernier, S., and Coenye, T. (2015). [Quantification of *Pseudomonas aeruginosa* in multispecies biofilms using PMA-qPCR](#). *PeerJ* 3, e787. 10.7717/peerj.787
- Taylor, M. J., Bentham, R. H., and Ross, K. E. (2014). [Limitations of Using Propidium Monoazide with qPCR to Discriminate between Live and Dead *Legionella* in Biofilm Samples](#). *Microbiol Insights* 7, 15-24. 10.4137/MBI.S17723
- Vezzulli, L., Pezzati, E., Stauder, M., Stagnaro, L., Venier, P., and Pruzzo, C. (2014). [Aquatic ecology of the oyster pathogens *Vibrio splendidus* and *Vibrio aestuarianus*](#). *Environ Microbiol*. 10.1111/1462-2920.12484

Eukaryotes

- Agullo-Barcelo, M., Moss, J. A., Green, J., Gillespie, S., Codony, F., Lucena, F., and Nocker, A. (2014). [Quantification of relative proportions of intact cells in microbiological samples using the example of *Cryptosporidium parvum* oocysts](#). *Lett Appl Microbiol* 58, 70-78. 10.1111/lam.12157
- Alonso, J. L., Amorós, I., and Guy, R. A. (2014). [Quantification of viable *Giardia* cysts and *Cryptosporidium* oocysts in wastewater using propidium monoazide quantitative real-time PCR](#). *Parasitol Res* 113, 2671-2678. 10.1007/s00436-014-3922-9
- Auld, R. R., Mykytczuk, N. C., Leduc, L. G., and Merritt, T. J. (2017). [Seasonal variation in an acid mine drainage microbial community](#). *Can J Microbiol* 63, 137-152. 10.1139/cjm-2016-0215
- Brescia, C. C., Griffin, S. M., Ware, M. W., Varughese, E. A., Egorov, A. I., and Villegas, E. N. (2009). [Cryptosporidium propidium monoazide-PCR, a molecular biology-based technique for genotyping of viable *Cryptosporidium* oocysts](#). *Appl Environ Microbiol* 75, 6856-6863. 10.1128/AEM.00540-09
- Burnet, J. B., Faraj, T., Cauchie, H. M., Joaquim-Justo, C., Servais, P., Prevost, M., and Dorner, S. M. (2017). [How does the cladoceran *Daphnia pulex* affect the fate of *Escherichia coli* in water?](#) *PLoS One* 12, e0171705.
- Fittipaldi, M., Pino Rodriguez, N. J., Adrados, B., Agusti, G., Penuela, G., Morato, J., and Codony, F. (2011). [Discrimination of viable *Acanthamoeba castellanii* trophozoites and cysts by propidium monoazide real-time polymerase chain reaction](#). *J Eukaryot Microbiol* 58, 359-364. 10.1111/j.1550-7408.2011.00557.x
- Habtewold, T., Groom, Z., Duchateau, L., and Christophides, G. K. (2015). [Detection of viable plasmodium ookinetes in the midguts of anopheles coluzzi using PMA-qrtPCR](#). *Parasit Vectors* 8, 455. 10.1186/s13071-015-1087-8
- Halfhide, C. P., Flanagan, B. F., Brearey, S. P., Hunt, J. A., Fonceca, A. M., McNamara, P. S., Howarth, D., Edwards, S., and Smyth, R. L. (2011). [Respiratory syncytial virus binds and undergoes transcription in neutrophils from the blood and airways of infants with severe bronchiolitis](#). *J Infect Dis* 204, 451-458. 10.1093/infdis/jir280
- Moreno-Mesonero, L., Moreno, Y., Alonso, J. L., and Ferrus, M. A. (2017). [Detection of viable *Helicobacter pylori* inside free-living amoebae in wastewater and drinking water samples from Eastern Spain](#). *Environ Microbiol* 19, 4103-4112. 10.1111/1462-2920.13856
- ## Viruses
- Bae, S., and Wuertz, S. (2012). [Survival of host-associated bacteroidales cells and their relationship with *Enterococcus* spp., *Campylobacter jejuni*, *Salmonella enterica* serovar Typhimurium, and adenovirus in freshwater microcosms as measured by propidium monoazide-quantitative PCR](#). *Appl Environ Microbiol* 78, 922-932. 10.1128/AEM.05157-11
- Bellehumeur, C., Boyle, B., Charette, S. J., Harel, J., L'Homme, Y., Masson, L., and Gagnon, C. A. (2015). [Propidium monoazide \(PMA\) and ethidium bromide monoazide \(EMA\) improve DNA array and high-throughput sequencing of porcine reproductive and respiratory syndrome virus identification](#). *J Virol Methods* 222, 182-191. 10.1016/j.jviromet.2015.06.014
- Bellehumeur, C., Nielsen, O., Measures, L., Harwood, L., Goldstein, T., Boyle, B., and Gagnon, C. A. (2016). [Herpesviruses Including Novel Gammaherpesviruses Are Widespread among Phocid Seal Species in Canada](#). *J Wildl Dis* 52, 70-81. 10.7589/2015-01-020
- Corbeil, S., McColl, K. A., Williams, L. M., Slater, J., and Crane, M. S. J. (2017). [Innate resistance of New Zealand paua to abalone viral ganglioneuritis](#). *J Invertebr Pathol* 146, 31-35. S0022-2011(17)30081-2

- Coudray-Meunier, C.,Fraise, A.,Martin-Latil, S.,Guillier, L., and Perelle, S. (2013). [Discrimination of infectious hepatitis A virus and rotavirus by combining dyes and surfactants with RT-qPCR](#). BMC Microbiol 13, 216. 10.1186/1471-2180-13-216
- Elizaquivel, P.,Aznar, R., and Sanchez, G. (2013). [Recent developments in the use of viability dyes and quantitative PCR in the food microbiology field](#). J Appl Microbiol 116, 1-13. 10.1111/jam.12365
- Elsasser, D.,Ho, J.,Niessner, R.,Tiehm, A., and Seidel, M. (2018). [Heterogeneous asymmetric recombinase polymerase amplification \(haRPA\) for rapid hygiene control of large-volume water samples](#). Anal Biochem 546, 58-64. S0003-2697(18)30071-X
- Escudero-Abarca, B. I.,Rawsthorne, H.,Goulter, R. M.,Suh, S. H., and Jaykus, L. A. (2014). [Molecular methods used to estimate thermal inactivation of a prototype human norovirus: more heat resistant than previously believed?](#) Food Microbiol 41, 91-95. 10.1016/j.fm.2014.01.009
- Fittipaldi, M.,Rodriguez, N. J.,Codony, F.,Adrados, B.,Penuela, G. A., and Morato, J. (2010). [Discrimination of infectious bacteriophage T4 virus by propidium monoazide real-time PCR](#). J Virol Methods 168, 228-232. 10.1016/j.jviromet.2010.06.011
- Fraise, A.,Niveau, F.,Hennechart-Collette, C.,Coudray-Meunier, C.,Martin-Latil, S., and Perelle, S. (2018). [Discrimination of infectious and heat-treated norovirus by combining platinum compounds and real-time RT-PCR](#). Int J Food Microbiol 269, 64-74. S0168-1605(18)30023-0
- Garson, J. A.,Patel, P.,McDonald, C.,Ball, J.,Rosenberg, G.,Tettmar, K. I.,Brailsford, S. R.,Pitt, T., and Tedder, R. S. (2014). [Evaluation of an ethidium monoazide-enhanced 16S rDNA real-time polymerase chain reaction assay for bacterial screening of platelet concentrates and comparison with automated culture](#). Transfusion 54, 870-878. 10.1111/trf.12256
- Graiver, D. A.,Saunders, S. E.,Topliff, C. L.,Kelling, C. L., and Bartelt-Hunt, S. L. (2010). [Ethidium monoazide does not inhibit RT-PCR amplification of nonviable avian influenza RNA](#). J Virol Methods 164, 51-54. 10.1016/j.jviromet.2009.11.024
- Greening, G. (2013). [Foodborne viruses: a focus on challenges associated with detection methods](#). Microbiology Australia DOI: 10.1071/MA13022. 10.1071/MA13022
- Halfhide, C. P.,Flanagan, B. F.,Brearey, S. P.,Hunt, J. A.,Fonceca, A. M.,McNamara, P. S.,Howarth, D.,Edwards, S., and Smyth, R. L. (2011). [Respiratory syncytial virus binds and undergoes transcription in neutrophils from the blood and airways of infants with severe bronchiolitis](#). J Infect Dis 204, 451-458. jir280
- Karim, M. R.,Fout, G. S.,Johnson, C. H.,White, K. M., and Parshionkar, S. U. (2015). [Propidium monoazide reverse transcriptase PCR and RT-qPCR for detecting infectious enterovirus and norovirus](#). J Virol Methods 219, 51-61. S0166-0934(15)00042-7
- Kim, K.,Katayama, H.,Kitajima, M.,Tohya, Y., and Ohgaki, S. (2011). [Development of a real-time RT-PCR assay combined with ethidium monoazide treatment for RNA viruses and its application to detect viral RNA after heat exposure](#). Water Sci Technol 63, 502-507. 10.2166/wst.2011.249
- Kim, S. Y., and Ko, G. (2012). [Using propidium monoazide to distinguish between viable and nonviable bacteria, MS2 and murine norovirus](#). Lett Appl Microbiol 55, 182-188. 10.1111/j.1472-765X.2012.03276.x
- Lee, M.,Seo, D. J.,Seo, J.,Oh, H.,Jeon, S. B.,Ha, S. D.,Myoung, J.,Choi, I. S., and Choi, C. (2015). [Detection of viable murine norovirus using the plaque assay and propidium-monoazide-combined real-time reverse transcription-polymerase chain reaction](#). J Virol Methods. S0166-0934(15)00162-7

- Leifels, M., Hamza, I. A., Krieger, M., Wilhelm, M., Mackowiak, M., and Jurzik, L. (2016). [From Lab to Lake - Evaluation of Current Molecular Methods for the Detection of Infectious Enteric Viruses in Complex Water Matrices in an Urban Area](#). *PLoS One* 11, e0167105. 10.1371/journal.pone.0167105
- Leifels, M., Jurzik, L., Wilhelm, M., and Hamza, I. A. (2015). [Use of ethidium monoazide and propidium monoazide to determine viral infectivity upon inactivation by heat, UV- exposure and chlorine](#). *Int J Hyg Environ Health*. S1438-4639(15)00020-6
- Luo, Y., Bolt, H. L., Eggimann, G. A., McAuley, D. F., McMullan, R., Curran, T., Zhou, M., Jahoda, P. C., Cobb, S. L., and Lundy, F. T. (2016). [Peptoid Efficacy against Polymicrobial Biofilms Determined by Using Propidium Monoazide-Modified Quantitative PCR](#). *Chembiochem*. 10.1002/cbic.201600381
- McLellan, N. L., Lee, H., and Habash, M. B. (2016). [Evaluation of propidium monoazide and long-amplicon qPCR as an infectivity assay for coliphage](#). *J Virol Methods* 238, 48-55. S0166-0934(16)30086-6
- Moreno, L., Aznar, R., and Sanchez, G. (2015). [Application of viability PCR to discriminate the infectivity of hepatitis A virus in food samples](#). *Int J Food Microbiol* 201, 1-6. S0168-1605(15)00082-3
- Park, D., Shahbaz, H. M., Kim, S. H., Lee, M., Lee, W., Oh, J. W., Lee, D. U., and Park, J. (2016). [Inactivation efficiency and mechanism of UV-TiO₂ photocatalysis against murine norovirus using a solidified agar matrix](#). *Int J Food Microbiol* 238, 256-264. S0168-1605(16)30503-7
- Parshionikar, S., Laseke, I., and Fout, G. S. (2010). [Use of propidium monoazide in reverse transcriptase PCR to distinguish between infectious and noninfectious enteric viruses in water samples](#). *Appl Environ Microbiol* 76, 4318-4326. 10.1128/AEM.02800-09
- Prevost, B., Goulet, M., Lucas, F. S., Joyeux, M., Moulin, L., and Wurtzer, S. (2016). [Viral persistence in surface and drinking water: Suitability of PCR pre-treatment with intercalating dyes](#). *Water Res* 91, 68-76. 10.1016/j.watres.2015.12.049
- Quijada, N. M., Fongaro, G., Barardi, C. R., Hernandez, M., and Rodriguez-Lazaro, D. (2016). [Propidium Monoazide Integrated with qPCR Enables the Detection and Enumeration of Infectious Enteric RNA and DNA Viruses in Clam and Fermented Sausages](#). *Front Microbiol* 7, 2008. 10.3389/fmicb.2016.02008
- Randazzo, W., Lopez-Galvez, F., Allende, A., Aznar, R., and Sanchez, G. (2016). [Evaluation of viability PCR performance for assessing norovirus infectivity in fresh-cut vegetables and irrigation water](#). *Int J Food Microbiol* 229, 1-6. S0168-1605(16)30169-6
- Randazzo, W., Piqueras, J., Rodriguez-Diaz, J., Aznar, R., and Sanchez, G. (2018). [Improving efficiency of viability-qPCR for selective detection of infectious HAV in food and water samples](#). *J Appl Microbiol* 124, 958-964. 10.1111/jam.13519
- Sanchez, G., Elizaquivel, P., and Aznar, R. (2012). [Discrimination of infectious hepatitis A viruses by propidium monoazide real-time RT-PCR](#). *Food Environ Virol* 4, 21-25. 10.1007/s12560-011-9074-5
- Takahashi, H., Nakazawa, M., Ohshima, C., Sato, M., Tsuchiya, T., Takeuchi, A., Kunou, M., Kuda, T., and Kimura, B. (2015). [Heat-Denatured Lysozyme Inactivates Murine Norovirus as a Surrogate Human Norovirus](#). *Sci Rep* 5, 11819. 10.1038/srep11819
- Varma, M., Field, R., Stinson, M., Rukovets, B., Wymer, L., and Haugland, R. (2009). [Quantitative real-time PCR analysis of total and propidium monoazide-resistant fecal indicator bacteria in wastewater](#). *Water Res* 43, 4790-4801. 10.1016/j.watres.2009.05.031

Weinmaier, T., Probst, A. J., La Duc, M. T., Ciobanu, D., Cheng, J. F., Ivanova, N., Rattei, T., and Vaishampayan, P. (2015). [A viability-linked metagenomic analysis of cleanroom environments: eukarya, prokaryotes, and viruses](#). *Microbiome* 3, 62. 10.1186/s40168-015-0129-y

Archaea

Auld, R. R., Mykytczuk, N. C., Leduc, L. G., and Merritt, T. J. (2017). [Seasonal variation in an acid mine drainage microbial community](#). *Can J Microbiol* 63, 137-152. 10.1139/cjm-2016-0215

Di Maiuta, N., Rufenacht, A., and Kuenzi, P. (2017). [Assessment of bacteria and archaea in metalworking fluids using massive parallel 16S rRNA gene tag sequencing](#). *Lett Appl Microbiol* 65, 266-273. 10.1111/lam.12782

Gagen, E. J., Huber, H., Meador, T., Hinrichs, K. U., and Thomm, M. (2013). [Novel cultivation-based approach to understanding the miscellaneous crenarchaeotic group \(MCG\) archaea from sedimentary ecosystems](#). *Appl Environ Microbiol* 79, 6400-6406. 10.1128/AEM.02153-13

Heise, J., Nega, M., Alawi, M., and Wagner, D. (2016). [Propidium monoazide treatment to distinguish between live and dead methanogens in pure cultures and environmental samples](#). *J Microbiol Methods* 121, 11-23. 10.1016/j.mimet.2015.12.002

Schirmack, J., Alawi, M., and Wagner, D. (2015). [Influence of Martian regolith analogs on the activity and growth of methanogenic archaea, with special regard to long-term desiccation](#). *Front Microbiol* 6, 210. 10.3389/fmicb.2015.00210

Wagner, A. O., Praeg, N., Reitschuler, C., and Illmer, P. (2015). [Effect of DNA extraction procedure, repeated extraction and ethidium monoazide \(EMA\)/propidium monoazide \(PMA\) treatment on overall DNA yield and impact on microbial fingerprints for bacteria, fungi and archaea in a reference soil](#). *Appl Soil Ecol* 93, 56-64. 10.1016/j.apsoil.2015.04.005

Weinmaier, T., Probst, A. J., La Duc, M. T., Ciobanu, D., Cheng, J. F., Ivanova, N., Rattei, T., and Vaishampayan, P. (2015). [A viability-linked metagenomic analysis of cleanroom environments: eukarya, prokaryotes, and viruses](#). *Microbiome* 3, 62. 10.1186/s40168-015-0129-y

Yergeau, E., Hogues, H., Whyte, L. G., and Greer, C. W. (2010). [The functional potential of high Arctic permafrost revealed by metagenomic sequencing, qPCR and microarray analyses](#). *ISME J* 4, 1206-1214. 10.1038/ismej.2010.41

Food Science

Atia, A., Gomaa, A., Fernandez, B., Subirade, M., and Fliss, I. (2017). [Study and Understanding Behavior of Alginate-Inulin Synbiotics Beads for Protection and Delivery of Antimicrobial-Producing Probiotics in Colonic Simulated Conditions](#). *Probiotics Antimicrob Proteins*. 10.1007/s12602-017-9355-x

Caldwell, J. M., Juvonen, R., Brown, J., and Breidt, F. (2013). [Pectinatus sottacetoni sp. nov. isolated from commercial pickle spoilage tank](#). *Int J Syst Evol Microbiol* DOI: 10.1099/ijs.0.047886-0. 10.1099/ijs.0.047886-0

Cattani, F., Barth, V. C., Jr., Nasario, J. S., Ferreira, C. A., and Oliveira, S. D. (2016). [Detection and quantification of viable Bacillus cereus group species in milk by propidium monoazide quantitative real-time PCR](#). *J Dairy Sci*. 10.3168/jds.2015-10019

Cattani, F., Ferreira, C. A., and Oliveira, S. D. (2013). [The detection of viable vegetative cells of Bacillus sporothermodurans using propidium monoazide with semi-nested PCR](#). *Food Microbiol* 34, 196-201. 10.1016/j.fm.2012.12.007

- Crespo-Sempere, A., Estiarte, N., Marin, S., Sanchis, V., and Ramos, A. J. (2013). [Propidium monoazide combined with real-time quantitative PCR to quantify viable *Alternaria* spp. contamination in tomato products](#). *Int J Food Microbiol* 165, 214-220. 10.1016/j.ijfoodmicro.2013.05.017
- Desfosses-Foucault, E., Dussault-Lepage, V., Le Boucher, C., Savard, P., Lapointe, G., and Roy, D. (2012). [Assessment of Probiotic Viability during Cheddar Cheese Manufacture and Ripening Using Propidium Monoazide-PCR Quantification](#). *Front Microbiol* 3, 350. 10.3389/fmicb.2012.00350
- Duarte, A., Botteldoorn, N., Coucke, W., Denayer, S., Dierick, K., and Uyttendaele, M. (2015). [Effect of exposure to stress conditions on propidium monoazide \(PMA\)-qPCR based *Campylobacter* enumeration in broiler carcass rinses](#). *Food Microbiol* 48, 182-190. S0740-0020(14)00324-4
- Elizaquivel, P., Aznar, R., and Sanchez, G. (2013). [Recent developments in the use of viability dyes and quantitative PCR in the food microbiology field](#). *J Appl Microbiol* 116, 1-13. 10.1111/jam.12365
- Elizaquivel, P., Sanchez, G., Selma, M. V., and Aznar, R. (2012). [Application of propidium monoazide-qPCR to evaluate the ultrasonic inactivation of *Escherichia coli* O157:H7 in fresh-cut vegetable wash water](#). *Food Microbiol* 30, 316-320. 10.1016/j.fm.2011.10.008
- Erkus, O., de Jager, V. C., Geene, R. T., van Alen-Boerrigter, I., Hazelwood, L., van Hijum, S. A., Kleerebezem, M., and Smid, E. J. (2016). [Use of propidium monoazide for selective profiling of viable microbial cells during Gouda cheese ripening](#). *Int J Food Microbiol* 228, 1-9. S0168-1605(16)30142-8
- Feng, K., Hu, W., Jiang, A., Sarengaowa, Xu, Y., Zou, Y., Yang, L., and Wang, X. (2016). [A Dual Filtration-Based Multiplex PCR Method for Simultaneous Detection of Viable *Escherichia coli* O157:H7, *Listeria monocytogenes*, and *Staphylococcus aureus* on Fresh-Cut Cantaloupe](#). *PLoS One* 11, e0166874. 10.1371/journal.pone.0166874
- Forghani, F., Kim, J. B., and Oh, D. H. (2014). [Enterotoxigenic profiling of emetic toxin- and enterotoxin-producing *Bacillus cereus*, isolated from food, environmental, and clinical samples by multiplex PCR](#). *J Food Sci* 79, M2288-2293. 10.1111/1750-3841.12666
- Ganesan, B., Weimer, B. C., Pinzon, J., Dao Kong, N., Rompato, G., Brothersen, C., and McMahon, D. J. (2014). [Probiotic bacteria survive in Cheddar cheese and modify populations of other lactic acid bacteria](#). *J Appl Microbiol* 116, 1642-1656. 10.1111/jam.12482
- Grande Burgos, M. J., Lopez Aguayo, M. D. C., Perez Pulido, R., Galvez, A., and Lucas, R. (2017). [Analysis of the microbiota of refrigerated chopped parsley after treatments with a coating containing enterocin AS-48 or by high-hydrostatic pressure](#). *Food Res Int* 99, 91-97. S0963-9969(17)30203-X
- Greening, G. (2013). [Foodborne viruses: a focus on challenges associated with detection methods](#). *Microbiology Australia* DOI: 10.1071/MA13022. 10.1071/MA13022
- Josefsen, M. H., Lofstrom, C., Hansen, T. B., Christensen, L. S., Olsen, J. E., and Hoorfar, J. (2010). [Rapid quantification of viable *Campylobacter* bacteria on chicken carcasses, using real-time PCR and propidium monoazide treatment, as a tool for quantitative risk assessment](#). *Appl Environ Microbiol* 76, 5097-5104. 10.1128/AEM.00411-10
- Ju, W., Moyné, A. L., and Marco, M. L. (2016). [RNA-Based Detection Does not Accurately Enumerate Living *Escherichia coli* O157:H7 Cells on Plants](#). *Front Microbiol* 7, 223. 10.3389/fmicb.2016.00223
- Li, B., and Chen, J. Q. (2013). [Development of a sensitive and specific qPCR assay in conjunction with propidium monoazide for enhanced detection of live *Salmonella* spp. in food](#). *BMC Microbiol* 13, 273. 10.1186/1471-2180-13-273

- Liang, N., Dong, J., Luo, L., and Li, Y. (2011). [Detection of Viable Salmonella in Lettuce by Propidium Monoazide Real-Time PCR](#). *J Food Sci* 76, M234-237. 10.1111/j.1750-3841.2011.02123.x
- Liu, Y., and Mustapha, A. (2014). [Detection of viable Escherichia coli O157:H7 in ground beef by propidium monoazide real-time PCR](#). *Int J Food Microbiol* 170, 48-54. 10.1016/j.ijfoodmicro.2013.10.026
- Lo, R., Turner, M. S., Weeks, M., and Bansal, N. (2016). [Culture-independent bacterial community profiling of carbon dioxide treated raw milk](#). *Int J Food Microbiol* 233, 81-89. S0168-1605(16)30308-7
- Lo, R., Xue, T., Weeks, M., Turner, M. S., and Bansal, N. (2016). [Inhibition of bacterial growth in sweet cheese whey by carbon dioxide as determined by culture-independent community profiling](#). *Int J Food Microbiol* 217, 20-28. 10.1016/j.ijfoodmicro.2015.10.003
- Mace, S., Mamlouk, K., Chipchakova, S., Prevost, H., Joffraud, J. J., Dalgaard, P., Pilet, M. F., and Dousset, X. (2013). [Development of a Rapid Real-Time PCR Method as a Tool To Quantify Viable Photobacterium phosphoreum Bacteria in Salmon \(Salmo salar\) Steaks](#). *Appl Environ Microbiol* 79, 2612-2619. 10.1128/AEM.03677-12
- Medina, E., Perez-Diaz, I. M., Breidt, F., Hayes, J., Franco, W., Butz, N., and Azcarate-Peril, M. A. (2016). [Bacterial Ecology of Fermented Cucumber Rising pH Spoilage as Determined by Nonculture-Based Methods](#). *J Food Sci* 81, M121-129. 10.1111/1750-3841.13158
- Moyne, A. L., Harris, L. J., and Marco, M. L. (2013). [Assessments of total and viable Escherichia coli O157:H7 on field and laboratory grown lettuce](#). *PLoS One* 8, e70643. 10.1371/journal.pone.0070643
- Overney, A., Chassaing, D., Carpentier, B., Guillier, L., and Firmesse, O. (2016). [Development of synthetic media mimicking food soils to study the behaviour of Listeria monocytogenes on stainless steel surfaces](#). *Int J Food Microbiol* 238, 7-14. S0168-1605(16)30436-6
- Overney, A., Jacques-Andre-Coquin, J., Ng, P., Carpentier, B., Guillier, L., and Firmesse, O. (2017). [Impact of environmental factors on the culturability and viability of Listeria monocytogenes under conditions encountered in food processing plants](#). *Int J Food Microbiol* 244, 74-81. S0168-1605(16)30660-2 [pii] 10.1016/j.ijfoodmicro.2016.12.012
- Pacholewicz, E., Swart, A., Lipman, L. J., Wagenaar, J. A., Havelaar, A. H., and Duim, B. (2013). [Propidium monoazide does not fully inhibit the detection of dead Campylobacter on broiler chicken carcasses by qPCR](#). *J Microbiol Methods* 95, 32-38. S0167-7012(13)00178-4
- Quijada, N. M., Fongaro, G., Barardi, C. R., Hernandez, M., and Rodriguez-Lazaro, D. (2016). [Propidium Monoazide Integrated with qPCR Enables the Detection and Enumeration of Infectious Enteric RNA and DNA Viruses in Clam and Fermented Sausages](#). *Front Microbiol* 7, 2008. 10.3389/fmicb.2016.02008
- Randazzo, W., Lopez-Galvez, F., Allende, A., Aznar, R., and Sanchez, G. (2016). [Evaluation of viability PCR performance for assessing norovirus infectivity in fresh-cut vegetables and irrigation water](#). *Int J Food Microbiol* 229, 1-6. S0168-1605(16)30169-6
- Randazzo, W., Piqueras, J., Rodriguez-Diaz, J., Aznar, R., and Sanchez, G. (2018). [Improving efficiency of viability-qPCR for selective detection of infectious HAV in food and water samples](#). *J Appl Microbiol* 124, 958-964. 10.1111/jam.13519
- Rueckert, A., Ronimus, R. S., and Morgan, H. W. (2005). [Rapid differentiation and enumeration of the total, viable vegetative cell and spore content of thermophilic bacilli in milk powders with reference to Anoxybacillus flavithermus](#). *J Appl Microbiol* 99, 1246-1255. JAM2728

- Scariot, M. C., Venturelli, G. L., Prudencio, E. S., and Arisi, A. C. M. (2018). [Quantification of *Lactobacillus paracasei* viable cells in probiotic yoghurt by propidium monoazide combined with quantitative PCR](#). *Int J Food Microbiol* 264, 1-7. S0168-1605(17)30452-X
- Seliwiorstow, T., Duarte, A., Bare, J., Botteldoorn, N., Dierick, K., Uyttendaele, M., and De Zutter, L. (2015). [Comparison of sample types and analytical methods for the detection of highly campylobacter-colonized broiler flocks at different stages in the poultry meat production chain](#). *Foodborne Pathog Dis* 12, 399-405. 10.1089/fpd.2014.1894
- Soejima, T., Minami, J., and Iwatsuki, K. (2012). [Rapid propidium monoazide PCR assay for the exclusive detection of viable Enterobacteriaceae cells in pasteurized milk](#). *J Dairy Sci* 95, 3634-3642. 10.3168/jds.2012-5360
- Tian, Q., Feng, J. J., Hu, J., and Zhao, W. J. (2016). [Selective detection of viable seed-borne *Acidovorax citrulli* by real-time PCR with propidium monoazide](#). *Sci Rep* 6, 35457. srep35457
- Toledo Del Arbol, J., Perez Pulido, R., La Storia, A., Grande Burgos, M. J., Lucas, R., Ercolini, D., and Galvez, A. (2016). [Changes in microbial diversity of brined green asparagus upon treatment with high hydrostatic pressure](#). *Int J Food Microbiol* 216, 1-8. 10.1016/j.ijfoodmicro.2015.09.001
- Toledo Del Arbol, J., Perez Pulido, R., La Storia, A., Grande Burgos, M. J., Lucas, R., Ercolini, D., and Galvez, A. (2016). [Microbial diversity in pitted sweet cherries \(*Prunus avium* L.\) as affected by High-Hydrostatic Pressure treatment](#). *Food Res Int* 89, 790-796. S0963-9969(16)30435-5
- Udomsil, N., Chen, S., Rodtong, S., and Yongsawatdigul, J. (2016). [Quantification of viable bacterial starter cultures of *Virgibacillus* sp. and *Tetragenococcus halophilus* in fish sauce fermentation by real-time quantitative PCR](#). *Food Microbiol* 57, 54-62. S0740-0020(16)00005-8
- Vendrame, M., Iacumin, L., Manzano, M., and Comi, G. (2013). [Use of propidium monoazide for the enumeration of viable *Oenococcus oeni* in must and wine by quantitative PCR](#). *Food Microbiology* 35, 49-57. <http://dx.doi.org/10.1016/j.fm.2013.02.007>
- Villarreal, M. L., Padilha, M., Vieira, A. D., Franco, B. D., Martinez, R. C., and Saad, S. M. (2013). [Advantageous Direct Quantification of Viable Closely Related Probiotics in Petit-Suisse Cheeses under In Vitro Gastrointestinal Conditions by Propidium Monoazide - qPCR](#). *PLoS One* 8, e82102. 10.1371/journal.pone.0082102
- Wang, L., Li, P., Yang, Y., Xu, H., Aguilar, ZP, Xu, H., Yang, L, Xu, F, Lai, W, Xiong, Y, Wei, H (2013). [Development of an IMS-PMA-PCR assay with internal amplification control for rapid and sensitive detection of viable *Escherichia coli* O157:H7 in milk](#). *International Dairy Journal* DOI: 10.1016/j.idairyj.2013.07.006.
- Yang, Y., Xu, F., Xu, H., Aguilar, Z. P., Niu, R., Yuan, Y., Sun, J., You, X., Lai, W., Xiong, Y., et al. (2013). [Magnetic nano-beads based separation combined with propidium monoazide treatment and multiplex PCR assay for simultaneous detection of viable *Salmonella* Typhimurium, *Escherichia coli* O157:H7 and *Listeria monocytogenes* in food products](#). *Food Microbiol* 34, 418-424. 10.1016/j.fm.2013.01.004
- Youn, S. Y., Jeong, O. M., Choi, B. K., Jung, S. C., and Kang, M. S. (2016). [Application of loop-mediated isothermal amplification with propidium monoazide treatment to detect live *Salmonella* in chicken carcasses](#). *Poult Sci*. pew341
- Yu, S., Yan, L., Wu, X., Li, F., Wang, D., and Xu, H. (2017). [Multiplex PCR coupled with propidium monoazide for the detection of viable *Cronobacter sakazakii*, *Bacillus cereus*, and *Salmonella* spp. in milk and milk products](#). *J Dairy Sci* 100, 7874-7882. S0022-0302(17)30709-9

Zhang, Z.,Feng, L.,Xu, H.,Liu, C.,Shah, N. P., and Wei, H. (2016). [Detection of viable enterotoxin-producing *Bacillus cereus* and analysis of toxigenicity from ready-to-eat foods and infant formula milk powder by multiplex PCR.](#) J Dairy Sci 99, 1047-1055. S0022-0302(15)00896-6

Zhang, Z.,Liu, H.,Lou, Y.,Xiao, L.,Liao, C.,Malakar, P. K.,Pan, Y., and Zhao, Y. (2015). [Quantifying viable *Vibrio parahaemolyticus* and *Listeria monocytogenes* simultaneously in raw shrimp.](#) Appl Microbiol Biotechnol 99, 6451-6462. 10.1007/s00253-015-6715-x

Zhang, Z.,Liu, W.,Xu, H.,Aguilar, Z. P.,Shah, N. P., and Wei, H. (2015). [Propidium monoazide combined with real-time PCR for selective detection of viable *Staphylococcus aureus* in milk powder and meat products.](#) J Dairy Sci. S0022-0302(15)00010-7

Zhou, B.,Chen, B.,Wu, X.,Li, F.,Yu, P.,Aguilar, Z. P.,Wei, H., and Xu, H. (2016). [A new application of a sodium deoxycholate-propidium monoazide-quantitative PCR assay for rapid and sensitive detection of viable *Cronobacter sakazakii* in powdered infant formula.](#) J Dairy Sci 99, 9550-9559. S0022-0302(16)30721-4

Zhu, R.-G.,Li, T.-P.,Jia, Y.-F., and Song, L.-F. (2012). [Quantitative study of viable *Vibrio parahaemolyticus* cells in raw seafood using propidium monoazide in combination with quantitative PCR.](#) Journal of Microbiological Methods DOI: 10.1016/j.mimet.2012.05.019. 10.1016/j.mimet.2012.05.019

Probiotics

Atia, A.,Gomaa, A.,Fernandez, B.,Subirade, M., and Fliss, I. (2017). [Study and Understanding Behavior of Alginate-Inulin Synbiotics Beads for Protection and Delivery of Antimicrobial-Producing Probiotics in Colonic Simulated Conditions.](#) Probiotics Antimicrob Proteins. 10.1007/s12602-017-9355-x

Desfosses-Foucault, E.,Dussault-Lepage, V.,Le Boucher, C.,Savard, P.,Lapointe, G., and Roy, D. (2012). [Assessment of Probiotic Viability during Cheddar Cheese Manufacture and Ripening Using Propidium Monoazide-PCR Quantification.](#) Front Microbiol 3, 350. 10.3389/fmicb.2012.00350

Ganesan, B.,Weimer, B. C.,Pinzon, J.,Dao Kong, N.,Rompato, G.,Brothersen, C., and McMahon, D. J. (2014). [Probiotic bacteria survive in Cheddar cheese and modify populations of other lactic acid bacteria.](#) J Appl Microbiol 116, 1642-1656. 10.1111/jam.12482

Khodaei, N.,Fernandez, B.,Fliss, I., and Karboune, S. (2016). [Digestibility and prebiotic properties of potato rhamnogalacturonan I polysaccharide and its galactose-rich oligosaccharides/oligomers.](#) Carbohydr Polym 136, 1074-1084. 10.1016/j.carbpol.2015.09.106

Kiran, F.,Mokrani, M., and Osmanagaoglu, O. (2015). [Effect of Encapsulation on Viability of *Pediococcus pentosaceus* OZF During Its Passage Through the Gastrointestinal Tract Model.](#) Curr Microbiol 71, 95-105. 10.1007/s00284-015-0832-8

Kramer, M.,Obermajer, N.,Bogovic Matijasic, B.,Rogelj, I., and Kmetec, V. (2009). [Quantification of live and dead probiotic bacteria in lyophilised product by real-time PCR and by flow cytometry.](#) Appl Microbiol Biotechnol 84, 1137-1147. 10.1007/s00253-009-2068-7

Lai, C. H.,Wu, S. R.,Pang, J. C.,Ramireddy, L.,Chiang, Y. C.,Lin, C. K., and Tsen, H. Y. (2017). [Designing primers and evaluation of the efficiency of propidium monoazide - Quantitative polymerase chain reaction for counting the viable cells of *Lactobacillus gasseri* and *Lactobacillus salivarius*.](#) J Food Drug Anal 25, 533-542. S1021-9498(16)30153-3

Oketic, K.,Bogovic Matijasic, B.,Obermajer, T.,Radulovic, Z.,Levic, S.,Mirkovic, N., and Nedovic, V. (2015). [Evaluation of propidium monoazide real-time PCR for enumeration of probiotic lactobacilli microencapsulated in calcium alginate beads.](#) Benef Microbes, 1-9. C5406PK478061047

Scariot, M. C., Venturelli, G. L., Prudencio, E. S., and Arisi, A. C. M. (2018). [Quantification of *Lactobacillus paracasei* viable cells in probiotic yoghurt by propidium monoazide combined with quantitative PCR](#). *Int J Food Microbiol* 264, 1-7. S0168-1605(17)30452-X

Villarreal, M. L., Padilha, M., Vieira, A. D., Franco, B. D., Martinez, R. C., and Saad, S. M. (2013). [Advantageous Direct Quantification of Viable Closely Related Probiotics in Petit-Suisse Cheeses under In Vitro Gastrointestinal Conditions by Propidium Monoazide - qPCR](#). *PLoS One* 8, e82102. 10.1371/journal.pone.0082102

Environmental Testing

Alonso, J. L., Amoros, I., and Guy, R. A. (2014). [Quantification of viable *Giardia* cysts and *Cryptosporidium* oocysts in wastewater using propidium monoazide quantitative real-time PCR](#). *Parasitol Res* 113, 2671-2678. 10.1007/s00436-014-3922-9

Bae, S., and Wuertz, S. (2009). [Rapid decay of host-specific fecal Bacteroidales cells in seawater as measured by quantitative PCR with propidium monoazide](#). *Water Res* 43, 4850-4859. 10.1016/j.watres.2009.06.053

Bae, S., and Wuertz, S. (2012). [Survival of host-associated bacteroidales cells and their relationship with *Enterococcus* spp., *Campylobacter jejuni*, *Salmonella enterica* serovar Typhimurium, and adenovirus in freshwater microcosms as measured by propidium monoazide-quantitative PCR](#). *Appl Environ Microbiol* 78, 922-932. 10.1128/AEM.05157-11

Bae, S., and Wuertz, S. (2014). [Decay of host-associated Bacteroidales cells and DNA in continuous-flow freshwater and seawater microcosms of identical experimental design and temperature as measured by PMA-qPCR and qPCR](#). *Water Res* 70C, 205-213. 10.1016/j.watres.2014.10.032

Chiao, T. H., Clancy, T. M., Pinto, A., Xi, C., and Raskin, L. (2014). [Differential resistance of drinking water bacterial populations to monochloramine disinfection](#). *Environ Sci Technol* 48, 4038-4047. 10.1021/es4055725

Desneux, J., Biscuit, A., Picard, S., and Pourcher, A. M. (2016). [Fate of Viable but Non-culturable *Listeria monocytogenes* in Pig Manure Microcosms](#). *Front Microbiol* 7, 245. 10.3389/fmicb.2016.00245

Desneux, J., Chemaly, M., and Pourcher, A. M. (2015). [Experimental design for the optimization of propidium monoazide treatment to quantify viable and non-viable bacteria in piggery effluents](#). *BMC Microbiol* 15, 164. 10.1186/s12866-015-0505-6

Ditommaso, S., Ricciardi, E., Giacomuzzi, M., Arauco Rivera, S. R., Ceccarelli, A., and Zotti, C. M. (2014). [Overestimation of the *Legionella* spp. load in environmental samples by quantitative real-time PCR: pretreatment with propidium monoazide as a tool for the assessment of an association between *Legionella* concentration and sanitary risk](#). *Diagn Microbiol Infect Dis* 80, 260-266. 10.1016/j.diagmicrobio.2014.09.010

Ditommaso, S., Ricciardi, E., Giacomuzzi, M., Arauco Rivera, S. R., and Zotti, C. M. (2014). [*Legionella* in water samples: How can you interpret the results obtained by quantitative PCR?](#) *Mol Cell Probes*. 10.1016/j.mcp.2014.09.002

Dong, S., Hong, P. Y., and Nguyen, T. H. (2014). [Persistence of *Bacteroides ovatus* under simulated sunlight irradiation](#). *BMC Microbiol* 14, 178. 10.1186/1471-2180-14-178

Eichmiller, J. J., Borchert, A. J., Sadowsky, M. J., and Hicks, R. E. (2014). [Decay of genetic markers for fecal bacterial indicators and pathogens in sand from Lake Superior](#). *Water Res* 59, 99-111. 10.1016/j.watres.2014.04.005

Elsasser, D., Ho, J., Niessner, R., Tiehm, A., and Seidel, M. (2018). [Heterogeneous asymmetric recombinase polymerase amplification \(haRPA\) for rapid hygiene control of large-volume water samples](#). *Anal Biochem* 546, 58-64. 10.1016/j.ab.2018.01.032

- Fittipaldi, M., Codony, F., Adrados, B., Camper, A. K., and Morato, J. (2010). [Viable real-time PCR in environmental samples: can all data be interpreted directly?](#) *Microb Ecol* 61, 7-12. 10.1007/s00248-010-9719-1
- Forghani, F., Kim, J. B., and Oh, D. H. (2014). [Enterotoxigenic profiling of emetic toxin- and enterotoxin-producing *Bacillus cereus*, Isolated from food, environmental, and clinical samples by multiplex PCR.](#) *J Food Sci* 79, M2288-2293. 10.1111/1750-3841.12666
- Fujimoto, M., Moyerbrailean, G. A., Noman, S., Gizicki, J. P., Ram, M. L., Green, P. A., and Ram, J. L. (2014). [Application of ion torrent sequencing to the assessment of the effect of alkali ballast water treatment on microbial community diversity.](#) *PLoS One* 9, e107534. 10.1371/journal.pone.0107534
- Gensberger, E. T., Polt, M., Konrad-Koszler, M., Kinner, P., Sessitsch, A., and Kostic, T. (2014). [Evaluation of quantitative PCR combined with PMA treatment for molecular assessment of microbial water quality.](#) *Water Res* 67, 367-376. 10.1016/j.watres.2014.09.022
- Heise, J., Nega, M., Alawi, M., and Wagner, D. (2016). [Propidium monoazide treatment to distinguish between live and dead methanogens in pure cultures and environmental samples.](#) *J Microbiol Methods* 121, 11-23. 10.1016/j.mimet.2015.12.002
- Kibbee, R. J., and Ormeci, B. (2016). [Development of a sensitive and false-positive free PMA-qPCR viability assay to quantify VBNC *Escherichia coli* and evaluate disinfection performance in wastewater effluent.](#) *J Microbiol Methods* 132, 139-147. 10.1016/j.mimet.2016.12.004
- Kim, M., and Wuertz, S. (2015). [Survival and persistence of host-associated Bacteroidales cells and DNA in comparison with *Escherichia coli* and *Enterococcus* in freshwater sediments as quantified by PMA-qPCR and qPCR.](#) *Water Res* 87, 182-192. 10.1016/j.watres.2015.09.014
- Leifels, M., Hamza, I. A., Krieger, M., Wilhelm, M., Mackowiak, M., and Jurzik, L. (2016). [From Lab to Lake - Evaluation of Current Molecular Methods for the Detection of Infectious Enteric Viruses in Complex Water Matrices in an Urban Area.](#) *PLoS One* 11, e0167105. 10.1371/journal.pone.0167105
- Li, R., Tun, H. M., Jahan, M., Zhang, Z., Kumar, A., Fernando, D., Farenhorst, A., and Khafipour, E. (2017). [Comparison of DNA-, PMA-, and RNA-based 16S rRNA Illumina sequencing for detection of live bacteria in water.](#) *Sci Rep* 7, 5752. 10.1038/s41598-017-02516-3
- Lu, C., Li, S., Gong, S., Yuan, S., and Yu, X. (2015). [Mixing regime as a key factor to determine DON formation in drinking water biological treatment.](#) *Chemosphere*. 10.1016/j.chemosphere.2014.12.059
- Magiopoulos, I., McQuillan, J. S., Burd, C. L., Mowlem, M., and Tsaloglou, M. N. (2016). [A multi-parametric assessment of decontamination protocols for the subglacial Lake Ellsworth probe.](#) *J Microbiol Methods*. 10.1016/j.mimet.2016.02.012
- Mayer, T., Blachowicz, A., Probst, A. J., Vaishampayan, P., Checinska, A., Swarmer, T., de Leon, P., and Venkateswaran, K. (2016). [Microbial succession in an inflated lunar/Mars analog habitat during a 30-day human occupation.](#) *Microbiome* 4, 22. 10.1186/s40168-016-0167-0
- Moreno-Mesonero, L., Moreno, Y., Alonso, J. L., and Ferrus, M. A. (2017). [Detection of viable *Helicobacter pylori* inside free-living amoebae in wastewater and drinking water samples from Eastern Spain.](#) *Environ Microbiol* 19, 4103-4112. 10.1111/1462-2920.13856
- Pang, Y. C., Xi, J. Y., Xu, Y., Huo, Z. Y., and Hu, H. Y. (2016). [Shifts of live bacterial community in secondary effluent by chlorine disinfection revealed by Miseq high-throughput sequencing combined with propidium monoazide treatment.](#) *Appl Microbiol Biotechnol* 100, 6435-6446. 10.1007/s00253-016-7452-5

- Parshionikar, S., Laseke, I., and Fout, G. S. (2010). [Use of propidium monoazide in reverse transcriptase PCR to distinguish between infectious and noninfectious enteric viruses in water samples](#). *Appl Environ Microbiol* 76, 4318-4326. 10.1128/AEM.02800-09
- Prevost, B., Goulet, M., Lucas, F. S., Joyeux, M., Moulin, L., and Wurtzer, S. (2016). [Viral persistence in surface and drinking water: Suitability of PCR pre-treatment with intercalating dyes](#). *Water Res* 91, 68-76. 10.1016/j.watres.2015.12.049
- Salam, K. W., El-Fadel, M., Barbour, E. K., and Saikaly, P. E. (2014). [A propidium monoazide-quantitative PCR method for the detection and quantification of viable *Enterococcus faecalis* in large-volume samples of marine waters](#). *Appl Microbiol Biotechnol*. 10.1007/s00253-014-6023-x
- Santiago, P., Moreno, Y., and Ferrus, M. A. (2015). [Identification of Viable *Helicobacter pylori* in Drinking Water Supplies by Cultural and Molecular Techniques](#). *Helicobacter*. 10.1111/hel.12205
- Scaturro, M., Fontana, S., Dell'eva, I., Helfer, F., Marchio, M., Stefanetti, M. V., Cavallaro, M., Miglietta, M., Montagna, M. T., De Giglio, O., et al. (2016). [A multicenter study of viable PCR using propidium monoazide to detect *Legionella* in water samples](#). *Diagn Microbiol Infect Dis* 85, 283-288. 10.1016/j.diagmicrobio.2016.04.009
- Singh, G., Vajpayee, P., Bhatti, S., Ronnie, N., Shah, N., McClure, P., and Shanker, R. (2013). [Determination of viable *Salmonellae* from potable and source water through PMA assisted qPCR](#). *Ecotoxicol Environ Saf*. 10.1016/j.ecoenv.2013.02.017
- Soto-Munoz, L., Teixido, N., Usall, J., Vinas, I., Crespo-Sempere, A., and Torres, R. (2014). [Development of PMA real-time PCR method to quantify viable cells of *Pantoea agglomerans* CPA-2, an antagonist to control the major postharvest diseases on oranges](#). *Int J Food Microbiol* 180, 49-55. 10.1016/j.ijfoodmicro.2014.04.011
- Tian, Q., Feng, J. J., Hu, J., and Zhao, W. J. (2016). [Selective detection of viable seed-borne *Acidovorax citrulli* by real-time PCR with propidium monoazide](#). *Sci Rep* 6, 35457. 10.1038/srep35457
- Truchado, P., Hernandez, N., Gil, M. I., Ivanek, R., and Allende, A. (2018). [Correlation between *E. coli* levels and the presence of foodborne pathogens in surface irrigation water: Establishment of a sampling program](#). *Water Res* 128, 226-233. 10.1016/j.watres.2017.10.041
- van Frankenhuyzen, J. K., Trevors, J. T., Flemming, C. A., Lee, H., and Habash, M. B. (2013). [Optimization, validation, and application of a real-time PCR protocol for quantification of viable bacterial cells in municipal sewage sludge and biosolids using reporter genes and *Escherichia coli*](#). *J Ind Microbiol Biotechnol* 40, 1251-1261. 10.1007/s10295-013-1319-x
- Varma, M., Field, R., Stinson, M., Rukovets, B., Wymer, L., and Haugland, R. (2009). [Quantitative real-time PCR analysis of total and propidium monoazide-resistant fecal indicator bacteria in wastewater](#). *Water Res* 43, 4790-4801. 10.1016/j.watres.2009.05.031
- Wicaksono, W. A., Jones, E. E., Monk, J., and Ridgway, H. J. (2016). [The Bacterial Signature of *Leptospermum scoparium* \(Manuka\) Reveals Core and Accessory Communities with Bioactive Properties](#). *PLoS One* 11, e0163717. 10.1371/journal.pone.0163717
- Yang, Y., Cheng, D., Li, Y., Yu, L., Gin, K. Y., Chen, J. P., and Reinhard, M. (2017). [Effects of monochloramine and hydrogen peroxide on the bacterial community shifts in biologically treated wastewater](#). *Chemosphere* 189, 399-406. 10.1016/j.chemosphere.2017.09.087

Filtered Samples

Chiao, T. H., Clancy, T. M., Pinto, A., Xi, C., and Raskin, L. (2014). [Differential resistance of drinking water bacterial populations to monochloramine disinfection](#). *Environ Sci Technol* 48, 4038-4047. 10.1021/es4055725

Hellein, K. N., Kennedy, E. M., Harwood, V. J., Gordon, K. V., Wang, S. Y., and Lepo, J. E. (2012). [A filter-based propidium monoazide technique to distinguish live from membrane-compromised microorganisms using quantitative PCR](#). *J Microbiol Methods*. 10.1016/j.mimet.2012.01.015

Salam, K. W., El-Fadel, M., Barbour, E. K., and Saikaly, P. E. (2014). [A propidium monoazide-quantitative PCR method for the detection and quantification of viable *Enterococcus faecalis* in large-volume samples of marine waters](#). *Appl Microbiol Biotechnol*. 10.1007/s00253-014-6023-x

Slimani, S., Robyns, A., Jarraud, S., Molmeret, M., Dusserre, E., Mazure, C., Facon, J. P., Lina, G., Etienne, J., and Ginevra, C. (2012). [Evaluation of propidium monoazide \(PMA\) treatment directly on membrane filter for the enumeration of viable but non cultivable *Legionella* by qPCR](#). *J Microbiol Methods* 88, 319-321. 10.1016/j.mimet.2011.12.010

Tseng, C. C., Hsiao, P. K., Chang, K. C., Cheng, C. C., Yiin, L. M., and Hsieh, C. J. (2014). [Detection of Viable Antibiotic-Resistant/Sensitive *Acinetobacter baumannii* in Indoor Air by Propidium Monoazide Quantitative PCR](#). *Indoor Air*. 10.1111/ina.12165

Venkateswaran, K., Vaishampayan, P., Cisneros, J., Pierson, D. L., Rogers, S. O., and Perry, J. (2014). [International Space Station environmental microbiome - microbial inventories of ISS filter debris](#). *Appl Microbiol Biotechnol* 98, 6453-6466. 10.1007/s00253-014-5650-6

Vesper, S., McKinstry, C., Hartmann, C., Neace, M., Yoder, S., and Vesper, A. (2008). [Quantifying fungal viability in air and water samples using quantitative PCR after treatment with propidium monoazide \(PMA\)](#). *J Microbiol Methods* 72, 180-184. 10.1016/j.mimet.2007.11.017

Sequencing

Auld, R. R., Mykytczuk, N. C., Leduc, L. G., and Merritt, T. J. (2017). [Seasonal variation in an acid mine drainage microbial community](#). *Can J Microbiol* 63, 137-152. 10.1139/cjm-2016-0215

Be, N. A., Avila-Herrera, A., Allen, J. E., Singh, N., Checinska Sielaff, A., Jaing, C., and Venkateswaran, K. (2017). [Whole metagenome profiles of particulates collected from the International Space Station](#). *Microbiome* 5, 81. 10.1186/s40168-017-0292-4

Bellehumeur, C., Boyle, B., Charette, S. J., Harel, J., L'Homme, Y., Masson, L., and Gagnon, C. A. (2015). [Propidium monoazide \(PMA\) and ethidium bromide monoazide \(EMA\) improve DNA array and high-throughput sequencing of porcine reproductive and respiratory syndrome virus identification](#). *J Virol Methods* 222, 182-191. 10.1016/j.jviromet.2015.06.014

Blachowicz, A., Mayer, T., Bashir, M., Pieber, T. R., De Leon, P., and Venkateswaran, K. (2017). [Human presence impacts fungal diversity of inflated lunar/Mars analog habitat](#). *Microbiome* 5, 62. 10.1186/s40168-017-0280-8

Boutin, S., Depner, M., Stahl, M., Graeber, S. Y., Dittrich, S. A., Legatzki, A., von Mutius, E., Mall, M., and Dalpke, A. H. (2017). [Comparison of Oropharyngeal Microbiota from Children with Asthma and Cystic Fibrosis](#). *Mediators Inflamm* 2017, 5047403. 10.1155/2017/5047403

Boutin, S., Graeber, S. Y., Weitnauer, M., Panitz, J., Stahl, M., Clauszntzer, D., Kaderali, L., Einarsson, G., Tunney, M. M., Elborn, J. S., et al. (2015). [Comparison of microbiomes from different niches of upper and lower airways in children and adolescents with cystic fibrosis](#). *PLoS One* 10, e0116029. 10.1371/journal.pone.0116029

- Checinska, A., Probst, A. J., Vaishampayan, P., White, J. R., Kumar, D., Stepanov, V. G., Fox, G. E., Nilsson, H. R., Pierson, D. L., Perry, J., et al. (2015). [Microbiomes of the dust particles collected from the International Space Station and Spacecraft Assembly Facilities](#). *Microbiome* 3, 50. 10.1186/s40168-015-0116-3
- Chiao, T. H., Clancy, T. M., Pinto, A., Xi, C., and Raskin, L. (2014). [Differential resistance of drinking water bacterial populations to monochloramine disinfection](#). *Environ Sci Technol* 48, 4038-4047. 10.1021/es4055725
- Cuthbertson, L., Rogers, G. B., Walker, A. W., Oliver, A., Green, L. E., Daniels, T. W., Carroll, M. P., Parkhill, J., Bruce, K. D., and van der Gast, C. J. (2015). [Respiratory microbiota resistance and resilience to pulmonary exacerbation and subsequent antimicrobial intervention](#). *ISME J.* 10.1038/ismej.2015.198
- Cuthbertson, L., Rogers, G. B., Walker, A. W., Oliver, A., Hafiz, T., Hoffman, L. R., Carroll, M. P., Parkhill, J., Bruce, K. D., and van der Gast, C. J. (2014). [Time between collection and storage significantly influences bacterial sequence composition in sputum samples from cystic fibrosis respiratory infections](#). *J Clin Microbiol* 52, 3011-3016. 10.1128/JCM.00764-14
- Cuthbertson, L., Rogers, G. B., Walker, A. W., Oliver, A., Hoffman, L. R., Carroll, M. P., Parkhill, J., Bruce, K. D., and van der Gast, C. J. (2014). [Implications of multiple freeze-thawing on respiratory samples for culture-independent analyses](#). *J Cyst Fibros.* S1569-1993(14)00231-8
- Di Maiuta, N., Rufenacht, A., and Kuenzi, P. (2017). [Assessment of bacteria and archaea in metalworking fluids using massive parallel 16S rRNA gene tag sequencing](#). *Lett Appl Microbiol* 65, 266-273. 10.1111/lam.12782
- Eramo, A., Medina, W. M., and Fahrenfeld, N. L. (2017). [Peracetic acid disinfection kinetics for combined sewer overflows: indicator organisms, antibiotic resistance genes, and microbial community](#). *Environ Sci (Camb)* 3, 1061-1072. 10.1039/C7EW00184C
- Erkus, O., de Jager, V. C., Geene, R. T., van Alen-Boerrigter, I., Hazelwood, L., van Hijum, S. A., Kleerebezem, M., and Smid, E. J. (2016). [Use of propidium monoazide for selective profiling of viable microbial cells during Gouda cheese ripening](#). *Int J Food Microbiol* 228, 1-9. S0168-1605(16)30142-8
- Exterkate, R. A., Zaura, E., Brandt, B. W., Buijs, M. J., Koopman, J. E., Crielaard, W., and Ten Cate, J. M. (2014). [The effect of propidium monoazide treatment on the measured bacterial composition of clinical samples after the use of a mouthwash](#). *Clin Oral Investig.* 10.1007/s00784-014-1297-z
- Fernandez, Y. M. M., Exterkate, R. A., Buijs, M. J., Crielaard, W., and Zaura, E. (2016). [Effect of mouthwashes on the composition and metabolic activity of oral biofilms grown in vitro](#). *Clin Oral Investig.* 10.1007/s00784-016-1876-2
- Fujimoto, M., Moyerbrailean, G. A., Noman, S., Gizicki, J. P., Ram, M. L., Green, P. A., and Ram, J. L. (2014). [Application of ion torrent sequencing to the assessment of the effect of alkali ballast water treatment on microbial community diversity](#). *PLoS One* 9, e107534. 10.1371/journal.pone.0107534
- Gomez-Alvarez, V., Schrantz, K. A., Pressman, J. G., and Wahman, D. G. (2014). [Biofilm community dynamics in bench-scale annular reactors simulating arrestment of chloraminated drinking water nitrification](#). *Environ Sci Technol* 48, 5448-5457. 10.1021/es5005208
- Guo, F., and Zhang, T. (2014). [Detecting the Nonviable and Heat-Tolerant Bacteria in Activated Sludge by Minimizing DNA from Dead Cells](#). *Microb Ecol.* 10.1007/s00248-014-0389-2
- Kistler, J. O., Pesaro, M., and Wade, W. G. (2015). [Development and pyrosequencing analysis of an in-vitro oral biofilm model](#). *BMC Microbiol* 15, 24. 10.1186/s12866-015-0364-1

- Li, R., Tun, H. M., Jahan, M., Zhang, Z., Kumar, A., Fernando, D., Farenhorst, A., and Khafipour, E. (2017). [Comparison of DNA-, PMA-, and RNA-based 16S rRNA Illumina sequencing for detection of live bacteria in water](#). *Sci Rep* 7, 5752. 10.1038/s41598-017-02516-3
- Li, Y. F., Chen, P. H., and Yu, Z. (2014). [Spatial and temporal variations of microbial community in a mixed plug-flow loop reactor fed with dairy manure](#). *Microb Biotechnol* 7, 332-346. 10.1111/1751-7915.12125
- Lo, R., Turner, M. S., Weeks, M., and Bansal, N. (2016). [Culture-independent bacterial community profiling of carbon dioxide treated raw milk](#). *Int J Food Microbiol* 233, 81-89. S0168-1605(16)30308-7
- Mahnert, A., Vaishampayan, P., Probst, A. J., Auerbach, A., Moissl-Eichinger, C., Venkateswaran, K., and Berg, G. (2015). [Cleanroom Maintenance Significantly Reduces Abundance but Not Diversity of Indoor Microbiomes](#). *PLoS One* 10, e0134848. 10.1371/journal.pone.0134848
- Mayer, T., Blachowicz, A., Probst, A. J., Vaishampayan, P., Checinska, A., Swarmer, T., de Leon, P., and Venkateswaran, K. (2016). [Microbial succession in an inflated lunar/Mars analog habitat during a 30-day human occupation](#). *Microbiome* 4, 22. 10.1186/s40168-016-0167-0
- Moissl-Eichinger, C., Auerbach, A. K., Probst, A. J., Mahnert, A., Tom, L., Piceno, Y., Andersen, G. L., Venkateswaran, K., Rettberg, P., Barczyk, S., et al. (2015). [Quo vadis? Microbial profiling revealed strong effects of cleanroom maintenance and routes of contamination in indoor environments](#). *Sci Rep* 5, 9156. srep09156
- Moreno-Mesonero, L., Moreno, Y., Alonso, J. L., and Ferrus, M. A. (2017). [Detection of viable *Helicobacter pylori* inside free-living amoebae in wastewater and drinking water samples from Eastern Spain](#). *Environ Microbiol* 19, 4103-4112. 10.1111/1462-2920.13856
- Nguyen, L. D., Deschaght, P., Merlin, S., Loywick, A., Audebert, C., Van Daele, S., Viscogliosi, E., Vaneechoutte, M., and Delhaes, L. (2016). [Effects of Propidium Monoazide \(PMA\) Treatment on Mycobiome and Bacteriome Analysis of Cystic Fibrosis Airways during Exacerbation](#). *PLoS One* 11, e0168860. 10.1371/journal.pone.0168860
- Nocker, A., Richter-Heitmann, T., Montijn, R., Schuren, F., and Kort, R. (2010). [Discrimination between live and dead cells in bacterial communities from environmental water samples analyzed by 454 pyrosequencing](#). *Int Microbiol* 13, 59-65
- Pang, Y. C., Xi, J. Y., Xu, Y., Huo, Z. Y., and Hu, H. Y. (2016). [Shifts of live bacterial community in secondary effluent by chlorine disinfection revealed by Miseq high-throughput sequencing combined with propidium monoazide treatment](#). *Appl Microbiol Biotechnol* 100, 6435-6446. 10.1007/s00253-016-7452-5
- Rogers, G. B., Cuthbertson, L., Hoffman, L. R., Wing, P. A., Pope, C., Hooftman, D. A., Lilley, A. K., Oliver, A., Carroll, M. P., Bruce, K. D., et al. (2012). [Reducing bias in bacterial community analysis of lower respiratory infections](#). *ISME J* DOI: 10.1038/ismej.2012.145. 10.1038/ismej.2012.145
- Rogers, G. B., van der Gast, C. J., Bruce, K. D., Marsh, P., Collins, J. E., Sutton, J., and Wright, M. (2013). [Ascitic microbiota composition is correlated with clinical severity in cirrhosis with portal hypertension](#). *PLoS One* 8, e74884. 10.1371/journal.pone.0074884
- Tantikachornkiat, M., Sakakibara, S., Neuner, M., and Durall, D. M. (2016). [The use of propidium monoazide in conjunction with qPCR and Illumina sequencing to identify and quantify live yeasts and bacteria](#). *Int J Food Microbiol* 234, 53-59. 10.1016/j.ijfoodmicro.2016.06.031
- Thompson, H., Rybalka, A., Moazzez, R., Dewhirst, F. E., and Wade, W. G. (2015). [In vitro culture of previously uncultured oral bacterial phylotypes](#). *Appl Environ Microbiol* 81, 8307-8314. 10.1128/AEM.02156-15

Toledo Del Arbol, J., Perez Pulido, R., La Stora, A., Grande Burgos, M. J., Lucas, R., Ercolini, D., and Galvez, A. (2016). [Changes in microbial diversity of brined green asparagus upon treatment with high hydrostatic pressure](#). *Int J Food Microbiol* 216, 1-8. 10.1016/j.ijfoodmicro.2015.09.001

Venkateswaran, K., Vaishampayan, P., Cisneros, J., Pierson, D. L., Rogers, S. O., and Perry, J. (2014). [International Space Station environmental microbiome - microbial inventories of ISS filter debris](#). *Appl Microbiol Biotechnol* 98, 6453-6466. 10.1007/s00253-014-5650-6

Weinmaier, T., Probst, A. J., La Duc, M. T., Ciobanu, D., Cheng, J. F., Ivanova, N., Rattei, T., and Vaishampayan, P. (2015). [A viability-linked metagenomic analysis of cleanroom environments: eukarya, prokaryotes, and viruses](#). *Microbiome* 3, 62. 10.1186/s40168-015-0129-y

Yang, Y., Cheng, D., Li, Y., Yu, L., Gin, K. Y., Chen, J. P., and Reinhard, M. (2017). [Effects of monochloramine and hydrogen peroxide on the bacterial community shifts in biologically treated wastewater](#). *Chemosphere* 189, 399-406. S0045-6535(17)31500-X

Yergeau, E., Hogues, H., Whyte, L. G., and Greer, C. W. (2010). [The functional potential of high Arctic permafrost revealed by metagenomic sequencing, qPCR and microarray analyses](#). *ISME J* 4, 1206-1214. 10.1038/ismej.2010.41

Loop-Mediated Isothermal Amplification (LAMP)

Chen, S., Wang, F., Beaulieu, J. C., Stein, R. E., and Ge, B. (2011). [Rapid detection of viable salmonellae in produce by coupling propidium monoazide with loop-mediated isothermal amplification](#). *Appl Environ Microbiol* 77, 4008-4016. 10.1128/AEM.00354-11

Li, Y., Yang, L., Fu, J., Yan, M., Chen, D., and Zhang, L. (2017). [The novel loop-mediated isothermal amplification based confirmation methodology on the bacteria in Viable but Non-Culturable \(VBNC\) state](#). *Microb Pathog* 111, 280-284. S0882-4010(17)30999-3

Wan, C., Yang, Y., Xu, H., Aguilar, Z. P., Liu, C., Lai, W., Xiong, Y., Xu, F., and Wei, H. (2012). [Development of a propidium monoazide treatment combined with loop-mediated isothermal amplification \(PMA-LAMP\) assay for rapid detection of viable *Listeria monocytogenes*](#). *International Journal of Food Science & Technology* 47, 2460-2467. 10.1111/j.1365-2621.2012.03123.x

Yan, M., Xu, L., Jiang, H., Zhou, Z., Zhou, S., and Zhang, L. (2017). [PMA-LAMP for rapid detection of *Escherichia coli* and shiga toxins from viable but non-culturable state](#). *Microb Pathog* 105, 245-250. S0882-4010(16)30933-0 [pii] 10.1016/j.micpath.2017.02.001

Youn, S. Y., Jeong, O. M., Choi, B. K., Jung, S. C., and Kang, M. S. (2016). [Application of loop-mediated isothermal amplification with propidium monoazide treatment to detect live *Salmonella* in chicken carcasses](#). *Poult Sci*. pew341

Zhao, X., Wang, J., Forghani, F., Park, J. H., Park, M. S., Seo, K. H., and Oh, D. H. (2013). [Rapid Detection of Viable *Escherichia coli* O157 by Coupling Propidium Monoazide with Loop-Mediated Isothermal Amplification](#). *J Microbiol Biotechnol* 23, 1708-1716. 10.4014/jmb.1306.06003

Zhong, H., Zhong, Y., Deng, Q., Zhou, Z., Guan, X., Yan, M., Hu, T., and Luo, M. (2017). [Virulence of thermolabile haemolysin, gastroenteritis related pathogenicity toxin and toxin of the pathogens *Vibrio Parahaemolyticus* in Viable but Non-Culturable \(VBNC\) state](#). *Microb Pathog* 111, 352-356. S0882-4010(17)31068-9