

**PMA & PMAxx™ Validated Bacterial Strains**

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**Bacterial strains used with PMA for viability PCR**

Species	References
Acinetobacter baumannii	Tseng, C. C., Hsiao, P. K., Chang, K. C., Cheng, C. C., Yiin, L. M., and Hsieh, C. J. (2014). <a href="#">Detection of Viable Antibiotic-Resistant/Sensitive Acinetobacter baumannii in Indoor Air by Propidium Monoazide Quantitative PCR</a> . Indoor Air. 10.1111/ina.12165
Acidovorax citrulli	Tian, Q., Feng, J. J., Hu, J., and Zhao, W. J. (2016). <a href="#">Selective detection of viable seed-borne Acidovorax citrulli by real-time PCR with propidium monoazide</a> . Sci Rep 6, 35457. srep35457
Aggregatibacter actinomycetemcomitans	Sanchez, M. C., Marin, M. J., Figuero, E., Llama-Palacios, A., Leon, R., Blanc, V., Herrera, D., and Sanz, M. (2014). <a href="#">Quantitative real-time PCR combined with propidium monoazide for the selective quantification of viable periodontal pathogens in an in vitro subgingival biofilm model</a> . J Periodontal Res 49, 20-28. 10.1111/jre.12073
Bacillus cereus	1) Cattani, F., Barth, V. C., Jr., Nasario, J. S., Ferreira, C. A., and Oliveira, S. D. (2016). <a href="#">Detection and quantification of viable Bacillus cereus group species in milk by propidium monoazide quantitative real-time PCR</a> . J Dairy Sci. 10.3168/jds.2015-10019 2) Yang, L., Kuang, H., Liu, Y., Xu, H., Aguilar, Z. P., Xiong, Y., and Wei, H. (2016). <a href="#">Mechanism of enhanced antibacterial activity of ultra-fine ZnO in phosphate buffer solution with various organic acids</a> . Environ Pollut 218, 863-869. S0269-7491(16)30710-2 3) Yu, S., Yan, L., Wu, X., Li, F., Wang, D., and Xu, H. (2017). <a href="#">Multiplex PCR coupled with propidium monoazide for the detection of viable Cronobacter sakazakii, Bacillus cereus, and Salmonella spp. in milk and milk products</a> . J Dairy Sci 100, 7874-7882. S0022-0302(17)30709-9 4) Zhang, Z., Feng, L., Xu, H., Liu, C., Shah, N. P., and Wei, H. (2016). <a href="#">Detection of viable enterotoxin-producing Bacillus cereus and analysis of toxigenicity from ready-to-eat foods and infant formula milk powder by multiplex PCR</a> . J Dairy Sci 99, 1047-1055. S0022-0302(15)00896-6
Bacillus sporothermodurans	Cattani, F., Ferreira, C. A., and Oliveira, S. D. (2013). <a href="#">The detection of viable vegetative cells of Bacillus sporothermodurans using propidium monoazide with semi-nested PCR</a> . Food Microbiol 34, 196-201. 10.1016/j.fm.2012.12.007
Bacillus subtilis	1) Kim, S. Y., and Ko, G. (2012). <a href="#">Using propidium monoazide to distinguish between viable and nonviable bacteria, MS2 and murine norovirus</a> . Lett Appl Microbiol 55, 182-188. 10.1111/j.1472-765X.2012.03276.x 2) Rawsthorne, H., Dock, C. N., and Jaykus, L. A. (2009). <a href="#">PCR-based method using propidium monoazide to distinguish viable from nonviable Bacillus subtilis spores</a> . Appl Environ Microbiol 75, 2936-2939. 10.1128/AEM.02524-08

Bacteroidales fragilis	<p>1) Bae, S., and Wuertz, S. (2009). <a href="#">Rapid decay of host-specific fecal Bacteroidales cells in seawater as measured by quantitative PCR with propidium monoazide</a>. <i>Water Res</i> 43, 4850-4859. 10.1016/j.watres.2009.06.053</p> <p>2) Bae, S., and Wuertz, S. (2012). <a href="#">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</a>. <i>Appl Environ Microbiol</i> 78, 922-932. 10.1128/AEM.05157-11</p> <p>3) Bae, S., and Wuertz, S. (2014). <a href="#">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</a>. <i>Water Res</i> 70C, 205-213. 10.1016/j.watres.2014.10.032</p> <p>4) Kim, M., Gutierrez-Cacciabue, D., Schriewer, A., Rajal, V. B., and Wuertz, S. (2014). <a href="#">Evaluation of detachment methods for the enumeration of Bacteroides fragilis in sediments via propidium monoazide-quantitative PCR, in comparison to Enterococcus faecalis and Escherichia coli</a>. <i>J Appl Microbiol</i>. 10.1111/jam.12630</p>
Bacteroidales spp.	<p>1) Kim, M., and Wuertz, S. (2015). <a href="#">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</a>. <i>Water Res</i> 87, 182-192. 10.1016/j.watres.2015.09.014</p> <p>2) Varma, M., Field, R., Stinson, M., Rukovets, B., Wymer, L., and Haugland, R. (2009). <a href="#">Quantitative real-time PCR analysis of total and propidium monoazide-resistant fecal indicator bacteria in wastewater</a>. <i>Water Res</i> 43, 4790-4801. 10.1016/j.watres.2009.05.031</p>
Bacteroides ovales	Dong, S., Hong, P. Y., and Nguyen, T. H. (2014). <a href="#">Persistence of Bacteroides ovatus under simulated sunlight irradiation</a> . <i>BMC Microbiol</i> 14, 178. 10.1186/1471-2180-14-178
Bifidobacterium animalis	<p>1) Desfosses-Foucault, E., Dussault-Lepage, V., Le Boucher, C., Savard, P., Lapointe, G., and Roy, D. (2012). <a href="#">Assessment of Probiotic Viability during Cheddar Cheese Manufacture and Ripening Using Propidium Monoazide-PCR Quantification</a>. <i>Front Microbiol</i> 3, 350. 10.3389/fmicb.2012.00350</p> <p>2) Kramer, M., Obermajer, N., Bogovic Matijasic, B., Rogelj, I., and Kmetec, V. (2009). <a href="#">Quantification of live and dead probiotic bacteria in lyophilised product by real-time PCR and by flow cytometry</a>. <i>Appl Microbiol Biotechnol</i> 84, 1137-1147. 10.1007/s00253-009-2068-7</p> <p>3) Villarreal, M. L., Padilha, M., Vieira, A. D., Franco, B. D., Martinez, R. C., and Saad, S. M. (2013). <a href="#">Advantageous Direct Quantification of Viable Closely Related Probiotics in Petit-Suisse Cheeses under In Vitro Gastrointestinal Conditions by Propidium Monoazide - qPCR</a>. <i>PLoS One</i> 8, e82102. 10.1371/journal.pone.0082102</p>
Bifidobacterium breve	Fujimoto, J., Tanigawa, K., Kudo, Y., Makino, H., and Watanabe, K. (2011). <a href="#">Identification and quantification of viable Bifidobacterium breve strain Yakult in human faeces by using strain-specific primers and propidium monoazide</a> . <i>J Appl Microbiol</i> 110, 209-217. 10.1111/j.1365-2672.2010.04873.x
Bifidobacterium lactis	Ganesan, B., Weimer, B. C., Pinzon, J., Dao Kong, N., Rompato, G., Brothersen, C., and McMahon, D. J. (2014). <a href="#">Probiotic bacteria survive in Cheddar cheese and modify populations of other lactic acid bacteria</a> . <i>J Appl Microbiol</i> 116, 1642-1656. 10.1111/jam.12482
Bifidobacterium spp.	Khodaei, N., Fernandez, B., Fliss, I., and Karboune, S. (2016). <a href="#">Digestibility and prebiotic properties of potato rhamnogalacturonan I polysaccharide and its galactose-rich oligosaccharides/oligomers</a> . <i>Carbohydr Polym</i> 136, 1074-1084. 10.1016/j.carbpol.2015.09.106

Blautia cocoides	Khodaei, N.,Fernandez, B.,Fliss, I., and Karboune, S. (2016). <a href="#">Digestibility and prebiotic properties of potato rhamnogalacturonan I polysaccharide and its galactose-rich oligosaccharides/oligomers</a> . Carbohydr Polym 136, 1074-1084. 10.1016/j.carbpol.2015.09.106
Burkholderia cepacia	Rogers, G. B.,Stressmann, F. A.,Koller, G.,Daniels, T.,Carroll, M. P., and Bruce, K. D. (2008). <a href="#">Assessing the diagnostic importance of nonviable bacterial cells in respiratory infections</a> . Diagn Microbiol Infect Dis 62, 133-141. 10.1016/j.diagmicrobio.2008.06.011
Burkholderia multivorans	Stokell, J. R.,Gharaibeh, R. Z., and Steck, T. R. (2013). <a href="#">Rapid emergence of a ceftazidime-resistant Burkholderia multivorans strain in a Cystic Fibrosis patient</a> . J Cyst Fibros DOI: 10.1016/j.jcf.2013.01.009.
Campylobacter coli	1) Duarte, A.,Botteldoorn, N.,Coucke, W.,Denayer, S.,Dierick, K., and Uyttendaele, M. (2015). <a href="#">Effect of exposure to stress conditions on propidium monoazide (PMA)-qPCR based Campylobacter enumeration in broiler carcass rinses</a> . Food Microbiol 48, 182-190. S0740-0020(14)00324-4 2) Kruger, N. J.,Buhler, C.,Iwobi, A. N.,Huber, I.,Ellerbroek, L.,Appel, B., and Stingl, K. (2014). <a href="#">"Limits of control" - crucial parameters for a reliable quantification of viable campylobacter by real-time PCR</a> . PLoS One 9, e88108. 10.1371/journal.pone.0088108
Campylobacter jejuni	1) Banihashemi, A.,Van Dyke, M. I., and Huck, P. M. (2012). <a href="#">Long-amplicon propidium monoazide-PCR enumeration assay to detect viable Campylobacter and Salmonella</a> . J Appl Microbiol DOI: 10.1111/j.1365-2672.2012.05382.x. 10.1111/j.1365-2672.2012.05382.x 2) Duarte, A.,Botteldoorn, N.,Coucke, W.,Denayer, S.,Dierick, K., and Uyttendaele, M. (2015). <a href="#">Effect of exposure to stress conditions on propidium monoazide (PMA)-qPCR based Campylobacter enumeration in broiler carcass rinses</a> . Food Microbiol 48, 182-190. S0740-0020(14)00324-4 3) Kruger, N. J.,Buhler, C.,Iwobi, A. N.,Huber, I.,Ellerbroek, L.,Appel, B., and Stingl, K. (2014). <a href="#">"Limits of control" - crucial parameters for a reliable quantification of viable campylobacter by real-time PCR</a> . PLoS One 9, e88108. 10.1371/journal.pone.0088108 4) Magajna, B., and Schraft, H. (2015). <a href="#">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</a> . J Food Prot 78, 1303-1311. 10.4315/0362-028X.JFP-14-583 5) Oh, E.,McMullen, L., and Jeon, B. (2015). <a href="#">Impact of oxidative stress defense on bacterial survival and morphological change in Campylobacter jejuni under aerobic conditions</a> . Front Microbiol 6, 295. 10.3389/fmicb.2015.00295
Campylobacter spp.	1) Josefsen, M. H.,Lofstrom, C.,Hansen, T. B.,Christensen, L. S.,Olsen, J. E., and Hoorfar, J. (2010). <a href="#">Rapid quantification of viable Campylobacter bacteria on chicken carcasses, using real-time PCR and propidium monoazide treatment, as a tool for quantitative risk assessment</a> . Appl Environ Microbiol 76, 5097-5104. 10.1128/AEM.00411-10 2) Pacholewicz, E.,Swart, A.,Lipman, L. J.,Wagenaar, J. A.,Havelaar, A. H., and Duim, B. (2013). <a href="#">Propidium monoazide does not fully inhibit the detection of dead Campylobacter on broiler chicken carcasses by qPCR</a> . J Microbiol Methods 95, 32-38. S0167-7012(13)00178-4 3) Seliwiorstow, T.,Duarte, A.,Bare, J.,Botteldoorn, N.,Dierick, K.,Uyttendaele, M., and De Zutter, L. (2015). <a href="#">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</a> . Foodborne Pathog Dis 12, 399-405. 10.1089/fpd.2014.1894
Chlamydia trachomatis	Janssen, K. J.,Hoebe, C. J.,Dukers-Muijers, N. H.,Eppings, L.,Lucchesi, M., and Wolfs, P. F. (2016). <a href="#">Viability-PCR Shows That NAAT Detects a High Proportion of DNA from Non-Viable Chlamydia trachomatis</a> . PLoS One 11, e0165920. 10.1371/journal.pone.0165920

Clostridium leptum	Khodaei, N.,Fernandez, B.,Fliss, I., and Karboune, S. (2016). <a href="#">Digestibility and prebiotic properties of potato rhamnogalacturonan I polysaccharide and its galactose-rich oligosaccharides/oligomers</a> . Carbohydr Polym 136, 1074-1084. 10.1016/j.carbpol.2015.09.106
Coxiella burnetii	Kuley, R.,Smith, H. E.,Frangoulidis, D.,Smits, M. A.,Jan Roest, H. I., and Bossers, A. (2015). <a href="#">Cell-Free Propagation of Coxiella burnetii Does Not Affect Its Relative Virulence</a> . PLoS One 10, e0121661. 10.1371/journal.pone.0121661
Cronobacter muytjensii	Soejima, T.,Minami, J., and Iwatsuki, K. (2012). <a href="#">Rapid propidium monoazide PCR assay for the exclusive detection of viable Enterobacteriaceae cells in pasteurized milk</a> . J Dairy Sci 95, 3634-3642. 10.3168/jds.2012-5360
Cronobacter sakazakii	1) Yu, S.,Yan, L.,Wu, X.,Li, F.,Wang, D., and Xu, H. (2017). <a href="#">Multiplex PCR coupled with propidium monoazide for the detection of viable Cronobacter sakazakii, Bacillus cereus, and Salmonella spp. in milk and milk products</a> . J Dairy Sci 100, 7874-7882. S0022-0302(17)30709-9 2) Zhou, B.,Chen, B.,Wu, X.,Li, F.,Yu, P.,Aguilar, Z. P.,Wei, H., and Xu, H. (2016). <a href="#">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</a> . J Dairy Sci 99, 9550-9559. S0022-0302(16)30721-4
Dichelobacter nodosus	Muzafar, M.,Green, L. E.,Calvo-Bado, L. A.,Tichauer, E.,King, H.,James, P., and Wellington, E. M. (2015). <a href="#">Survival of the ovine footrot pathogen Dichelobacter nodosus in different soils</a> . Anaerobe 38, 81-87. S1075-9964(15)30098-6
Enterobacter sakazakii	Cawthorn, D. M., and Witthuhn, R. C. (2008). <a href="#">Selective PCR detection of viable Enterobacter sakazakii cells utilizing propidium monoazide or ethidium bromide monoazide</a> . J Appl Microbiol 105, 1178-1185. 10.1111/j.1365-2672.2008.03851.x
Enterobacter spp.	Gensberger, E. T.,Polt, M.,Konrad-Koszler, M.,Kinner, P.,Sessitsch, A., and Kostic, T. (2014). <a href="#">Evaluation of quantitative PCR combined with PMA treatment for molecular assessment of microbial water quality</a> . Water Res 67, 367-376. S0043-1354(14)00651-4
Enterococcus faecalis	1) de Almeida, J.,Hoogenkamp, M.,Felippe, W. T.,Crielaard, W., and van der Waal, S. V. (2016). <a href="#">Effectiveness of EDTA and Modified Salt Solution to Detach and Kill Cells from Enterococcus faecalis Biofilm</a> . J Endod 42, 320-323. S0099-2399(15)01080-8 2) Gin, K. Y., and Goh, S. G. (2013). <a href="#">Modeling the effect of light and salinity on viable but non-culturable (VBNC) Enterococcus</a> . Water Res 47, 3315-3328. 10.1016/j.watres.2013.03.021 3) Kim, M.,Gutierrez-Cacciabue, D.,Schriewer, A.,Rajal, V. B., and Wuertz, S. (2014). <a href="#">Evaluation of detachment methods for the enumeration of Bacteroides fragilis in sediments via propidium monoazide-quantitative PCR, in comparison to Enterococcus faecalis and Escherichia coli</a> . J Appl Microbiol. 10.1111/jam.12630
Enterococcus spp.	1) Eichmiller, J. J.,Borchert, A. J.,Sadowsky, M. J., and Hicks, R. E. (2014). <a href="#">Decay of genetic markers for fecal bacterial indicators and pathogens in sand from Lake Superior</a> . Water Res 59, 99-111. 10.1016/j.watres.2014.04.005 2) Gensberger, E. T.,Polt, M.,Konrad-Koszler, M.,Kinner, P.,Sessitsch, A., and Kostic, T. (2014). <a href="#">Evaluation of quantitative PCR combined with PMA treatment for molecular assessment of microbial water quality</a> . Water Res 67, 367-376. S0043-1354(14)00651-4 3) Khodaei, N.,Fernandez, B.,Fliss, I., and Karboune, S. (2016). <a href="#">Digestibility and prebiotic properties of potato rhamnogalacturonan I polysaccharide and its galactose-rich oligosaccharides/oligomers</a> . Carbohydr Polym 136, 1074-1084. 10.1016/j.carbpol.2015.09.106 4) Kim, M., and Wuertz, S. (2015). <a href="#">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</a> . Water Res 87, 182-192. 10.1016/j.watres.2015.09.014 5) Varma, M.,Field, R.,Stinson, M.,Rukovets, B.,Wymer, L., and Haugland, R. (2009).

	<p>Quantitative real-time PCR analysis of total and propidium monoazide-resistant fecal indicator bacteria in wastewater. <i>Water Res</i> 43, 4790-4801. 10.1016/j.watres.2009.05.031</p>
Escherichia coli	<p>1) 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. <i>Water Res</i> 59, 99-111. 10.1016/j.watres.2014.04.005</p> <p>2) 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. <i>Water Res</i> 67, 367-376. S0043-1354(14)00651-4</p> <p>3) Gensberger, E. T., Sessitsch, A., and Kostic, T. (2013). Propidium monoazide-quantitative polymerase chain reaction for viable <i>Escherichia coli</i> and <i>Pseudomonas aeruginosa</i> detection from abundant background microflora. <i>Anal Biochem</i> 441, 69-72. 10.1016/j.ab.2013.05.033</p> <p>4) Kibbee, R. J., and Ormeci, B. (2016). Development of a sensitive and false-positive free PMA-qPCR viability assay to quantify VBNC <i>Escherichia coli</i> and evaluate disinfection performance in wastewater effluent. <i>J Microbiol Methods</i> 132, 139-147. 10.1016/j.mimet.2016.12.004</p> <p>5) Kim, S. Y., and Ko, G. (2012). Using propidium monoazide to distinguish between viable and nonviable bacteria, MS2 and murine norovirus. <i>Lett Appl Microbiol</i> 55, 182-188. 10.1111/j.1472-765X.2012.03276.x</p> <p>6) Kim, M., Gutierrez-Cacciabue, D., Schriewer, A., Rajal, V. B., and Wuertz, S. (2014). Evaluation of detachment methods for the enumeration of <i>Bacteroides fragilis</i> in sediments via propidium monoazide-quantitative PCR, in comparison to <i>Enterococcus faecalis</i> and <i>Escherichia coli</i>. <i>J Appl Microbiol</i>. 10.1111/jam.12630</p> <p>7) Kim, M., and Wuertz, S. (2015). Survival and persistence of host-associated Bacteroidales cells and DNA in comparison with <i>Escherichia coli</i> and <i>Enterococcus</i> in freshwater sediments as quantified by PMA-qPCR and qPCR. <i>Water Res</i> 87, 182-192. 10.1016/j.watres.2015.09.014</p> <p>8) Liu, Y., and Mustapha, A. (2014). Detection of viable <i>Escherichia coli</i> O157:H7 in ground beef by propidium monoazide real-time PCR. <i>Int J Food Microbiol</i> 170, 48-54. 10.1016/j.ijfoodmicro.2013.10.026</p> <p>9) Nocker, A., Sossa, K. E., and Camper, A. K. (2007). Molecular monitoring of disinfection efficacy using propidium monoazide in combination with quantitative PCR. <i>J Microbiol Methods</i> 70, 252-260. 10.1016/j.mimet.2007.04.014</p> <p>10) Yan, M., Xu, L., Jiang, H., Zhou, Z., Zhou, S., and Zhang, L. (2017). PMA-LAMP for rapid detection of <i>Escherichia coli</i> and shiga toxins from viable but non-culturable state. <i>Microb Pathog</i> 105, 245-250. S0882-4010(16)30933-0</p> <p>11) Yang, L., Kuang, H., Liu, Y., Xu, H., Aguilar, Z. P., Xiong, Y., and Wei, H. (2016). Mechanism of enhanced antibacterial activity of ultra-fine ZnO in phosphate buffer solution with various organic acids. <i>Environ Pollut</i> 218, 863-869. S0269-7491(16)30710-2</p>
Escherichia coli O157:H7	<p>1) Elizaquivel, P., Sanchez, G., Selma, M. V., and Aznar, R. (2012). Application of propidium monoazide-qPCR to evaluate the ultrasonic inactivation of <i>Escherichia coli</i> O157:H7 in fresh-cut vegetable wash water. <i>Food Microbiol</i> 30, 316-320. 10.1016/j.fm.2011.10.008</p> <p>2) Li, B., and Chen, J. Q. (2012). Real-time PCR Methodology for Selective Detection of Viable <i>Escherichia coli</i> O157:H7 by Targeting Z3276 as A Genetic Marker. <i>Appl Environ Microbiol</i> DOI: 10.1128/AEM.00794-12. 10.1128/AEM.00794-12</p> <p>3) Truchado, P., Hernandez, N., Gil, M. I., Ivanek, R., and Allende, A. (2018). Correlation between <i>E. coli</i> levels and the presence of foodborne pathogens in surface irrigation water: Establishment of a sampling program. <i>Water Res</i> 128, 226-233. 10.1016/j.watres.2017.10.041</p> <p>4) 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 <i>Escherichia coli</i> O157:H7 in milk. <i>International Dairy</i></p>

	<p>Journal DOI: 10.1016/j.idairyj.2013.07.006.</p> <p>5) Xiao, X. L., Tian, C., Yu, Y. G., and Wu, H. (2013). <a href="#">Detection of viable but nonculturable Escherichia coli O157:H7 using propidium monoazide treatments and qPCR</a>. <i>Can J Microbiol</i> 59, 157-163. 10.1139/cjm-2012-0577</p> <p>6) Zhao, X., Wang, J., Forghani, F., Park, J. H., Park, M. S., Seo, K. H., and Oh, D. H. (2013). <a href="#">Rapid Detection of Viable Escherichia coli O157 by Coupling Propidium Monoazide with Loop-Mediated Isothermal Amplification</a>. <i>J Microbiol Biotechnol</i> 23, 1708-1716. 10.4014/jmb.1306.06003</p>
Fusobacterium nucleatum	<p>1) Alvarez, G., Gonzalez, M., Isabal, S., Blanc, V., and Leon, R. (2013). <a href="#">Method to quantify live and dead cells in multi-species oral biofilm by real-time PCR with propidium monoazide</a>. <i>AMB Express</i> 3, 1. 10.1186/2191-0855-3-1</p> <p>2) Sanchez, M. C., Marin, M. J., Figuero, E., Llama-Palacios, A., Leon, R., Blanc, V., Herrera, D., and Sanz, M. (2014). <a href="#">Quantitative real-time PCR combined with propidium monoazide for the selective quantification of viable periodontal pathogens in an in vitro subgingival biofilm model</a>. <i>J Periodontal Res</i> 49, 20-28. 10.1111/jre.12073</p>
Helicobacter pylori	<p>1) Agusti, G., Codony, F., Fittipaldi, M., Adrados, B., and Morato, J. (2010). <a href="#">Viability determination of Helicobacter pylori using propidium monoazide quantitative PCR</a>. <i>Helicobacter</i> 15, 473-476. 10.1111/j.1523-5378.2010.00794.x</p> <p>2) Moreno-Mesonero, L., Moreno, Y., Alonso, J. L., and Ferrus, M. A. (2017). <a href="#">Detection of viable Helicobacter pylori inside free-living amoebae in wastewater and drinking water samples from Eastern Spain</a>. <i>Environ Microbiol</i> 19, 4103-4112. 10.1111/1462-2920.13856</p> <p>3) Orta de Velasquez, M. T., Yanez Noguez, I., Casasola Rodriguez, B., and Roman Roman, P. I. (2016). <a href="#">Effects of ozone and chlorine disinfection on VBNC Helicobacter pylori by molecular techniques and FESEM images</a>. <i>Environ Technol</i>, 1-10. 10.1080/09593330.2016.1210680</p> <p>4) Santiago, P., Moreno, Y., and Ferrus, M. A. (2015). <a href="#">Identification of Viable Helicobacter pylori in Drinking Water Supplies by Cultural and Molecular Techniques</a>. <i>Helicobacter</i>. 10.1111/hel.12205</p>
Lactobacillus acidophilus	<p>1) Ganesan, B., Weimer, B. C., Pinzon, J., Dao Kong, N., Rompato, G., Brothersen, C., and McMahon, D. J. (2014). <a href="#">Probiotic bacteria survive in Cheddar cheese and modify populations of other lactic acid bacteria</a>. <i>J Appl Microbiol</i> 116, 1642-1656. 10.1111/jam.12482</p> <p>2) Kramer, M., Obermajer, N., Bogovic Matijasic, B., Rogelj, I., and Kmetec, V. (2009). <a href="#">Quantification of live and dead probiotic bacteria in lyophilised product by real-time PCR and by flow cytometry</a>. <i>Appl Microbiol Biotechnol</i> 84, 1137-1147. 10.1007/s00253-009-2068-7</p> <p>3) Villarreal, M. L., Padilha, M., Vieira, A. D., Franco, B. D., Martinez, R. C., and Saad, S. M. (2013). <a href="#">Advantageous Direct Quantification of Viable Closely Related Probiotics in Petit-Suisse Cheeses under In Vitro Gastrointestinal Conditions by Propidium Monoazide - qPCR</a>. <i>PLoS One</i> 8, e82102. 10.1371/journal.pone.0082102</p>
Lactobacillus casei	<p>Ganesan, B., Weimer, B. C., Pinzon, J., Dao Kong, N., Rompato, G., Brothersen, C., and McMahon, D. J. (2014). <a href="#">Probiotic bacteria survive in Cheddar cheese and modify populations of other lactic acid bacteria</a>. <i>J Appl Microbiol</i> 116, 1642-1656. 10.1111/jam.12482</p>
Lactobacillus delbrueckii	<p>1) Oketic, K., Bogovic Matijasic, B., Obermajer, T., Radulovic, Z., Levic, S., Mirkovic, N., and Nedovic, V. (2015). <a href="#">Evaluation of propidium monoazide real-time PCR for enumeration of probiotic lactobacilli microencapsulated in calcium alginate beads</a>. <i>Benef Microbes</i>, 1-9. C5406PK478061047</p> <p>2) Shao, Y., Wang, Z., Bao, Q., and Zhang, H. (2016). <a href="#">Application of propidium monoazide quantitative real-time PCR to quantify the viability of Lactobacillus delbrueckii ssp. bulgaricus</a>. <i>J Dairy Sci</i> 99, 9570-9580. S0022-0302(16)30723-8</p>

Lactobacillus gasseri	1) Lai, C. H.,Wu, S. R.,Pang, J. C.,Ramireddy, L.,Chiang, Y. C.,Lin, C. K., and Tsen, H. Y. (2017). <a href="#">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.</a> J Food Drug Anal 25, 533-542. S1021-9498(16)30153-3 2) Oketic, K.,Bogovic Matijasic, B.,Obermajer, T.,Radulovic, Z.,Levic, S.,Mirkovic, N., and Nedovic, V. (2015). <a href="#">Evaluation of propidium monoazide real-time PCR for enumeration of probiotic lactobacilli microencapsulated in calcium alginate beads.</a> Benef Microbes, 1-9. C5406PK478061047
Lactobacillus helveticus	Desfosses-Foucault, E.,Dussault-Lepage, V.,Le Boucher, C.,Savard, P.,Lapointe, G., and Roy, D. (2012). <a href="#">Assessment of Probiotic Viability during Cheddar Cheese Manufacture and Ripening Using Propidium Monoazide-PCR Quantification.</a> Front Microbiol 3, 350. 10.3389/fmicb.2012.00350
Lactobacillus rhamnosis	Desfosses-Foucault, E.,Dussault-Lepage, V.,Le Boucher, C.,Savard, P.,Lapointe, G., and Roy, D. (2012). <a href="#">Assessment of Probiotic Viability during Cheddar Cheese Manufacture and Ripening Using Propidium Monoazide-PCR Quantification.</a> Front Microbiol 3, 350. 10.3389/fmicb.2012.00350
Lactobacillus paracasei	Scariot, M. C.,Venturelli, G. L.,Prudencio, E. S., and Arisi, A. C. M. (2018). <a href="#">Quantification of Lactobacillus paracasei viable cells in probiotic yoghurt by propidium monoazide combined with quantitative PCR.</a> Int J Food Microbiol 264, 1-7. S0168-1605(17)30452-X
Lactobacillus plantarum	Fernandez Ramirez, M. D.,Kostopoulos, I.,Smid, E. J.,Nierop Groot, M. N., and Abee, T. (2017). <a href="#">Quantitative assessment of viable cells of Lactobacillus plantarum strains in single, dual and multi-strain biofilms.</a> Int J Food Microbiol 244, 43-51. S0168-1605(16)30662-6
Lactobacillus reuteri	Atia, A.,Gomaa, A.,Fernandez, B.,Subirade, M., and Fliss, I. (2017). <a href="#">Study and Understanding Behavior of Alginate-Inulin Synbiotics Beads for Protection and Delivery of Antimicrobial-Producing Probiotics in Colonic Simulated Conditions.</a> Probiotics Antimicrob Proteins. 10.1007/s12602-017-9355-x
Lactobacillus salivarius	1) Atia, A.,Gomaa, A.,Fernandez, B.,Subirade, M., and Fliss, I. (2017). <a href="#">Study and Understanding Behavior of Alginate-Inulin Synbiotics Beads for Protection and Delivery of Antimicrobial-Producing Probiotics in Colonic Simulated Conditions.</a> Probiotics Antimicrob Proteins. 10.1007/s12602-017-9355-x 2) Lai, C. H.,Wu, S. R.,Pang, J. C.,Ramireddy, L.,Chiang, Y. C.,Lin, C. K., and Tsen, H. Y. (2017). <a href="#">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.</a> J Food Drug Anal 25, 533-542. S1021-9498(16)30153-3
Lactobacillus sakei	Villarreal, M. L.,Padilha, M.,Vieira, A. D.,Franco, B. D.,Martinez, R. C., and Saad, S. M. (2013). <a href="#">Advantageous Direct Quantification of Viable Closely Related Probiotics inPetit-Suisse Cheeses under In Vitro Gastrointestinal Conditions by Propidium Monoazide - qPCR.</a> PLoS One 8, e82102. 10.1371/journal.pone.0082102
Lactobacillus spp.	Khodaei, N.,Fernandez, B.,Fliss, I., and Karboune, S. (2016). <a href="#">Digestibility and prebiotic properties of potato rhamnogalacturonan I polysaccharide and its galactose-rich oligosaccharides/oligomers.</a> Carbohydr Polym 136, 1074-1084. 10.1016/j.carbpol.2015.09.106
Lactococcus lactus	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). <a href="#">Use of propidium monoazide for selective profiling of viable microbial cells during Gouda cheese ripening.</a> Int J Food Microbiol 228, 1-9. S0168-1605(16)30142-8

Legionella pneumophila	<p>1) Chang, B., Taguri, T., Sugiyama, K., Amemura-Maekawa, J., Kura, F., and Watanabe, H. (2010). <a href="#">Comparison of ethidium monoazide and propidium monoazide for the selective detection of viable Legionella cells</a>. Jpn J Infect Dis 63, 119-123</p> <p>2) Ditommaso, S., Ricciardi, E., Giacomuzzi, M., Arauco Rivera, S. R., Ceccarelli, A., and Zotti, C. M. (2014). <a href="#">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</a>. Diagn Microbiol Infect Dis 80, 260-266. 10.1016/j.diagmicrobio.2014.09.010</p> <p>3) Ditommaso, S., Ricciardi, E., Giacomuzzi, M., Arauco Rivera, S. R., and Zotti, C. M. (2014). <a href="#">Legionella in water samples: How can you interpret the results obtained by quantitative PCR?</a> Mol Cell Probes. 10.1016/j.mcp.2014.09.002</p> <p>4) Ditommaso, S., Giacomuzzi, M., Ricciardi, E., and Zotti, C. M. (2015). <a href="#">Viability-qPCR for detecting Legionella: Comparison of two assays based on different amplicon lengths</a>. Mol Cell Probes. S0890-8508(15)30007-4</p> <p>5) 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 href="#">A multicenter study of viable PCR using propidium monoazide to detect Legionella in water samples</a>. Diagn Microbiol Infect Dis 85, 283-288. 10.1016/j.diagmicrobio.2016.04.009</p> <p>6) Slimani, S., Robyns, A., Jarraud, S., Molmeret, M., Dusserre, E., Mazure, C., Facon, J. P., Lina, G., Etienne, J., and Ginevra, C. (2012). <a href="#">Evaluation of propidium monoazide (PMA) treatment directly on membrane filter for the enumeration of viable but non cultivable Legionella by qPCR</a>. J Microbiol Methods 88, 319-321. 10.1016/j.mimet.2011.12.010</p> <p>7) Yanez, M. A., Nocker, A., Soria-Soria, E., Murtula, R., Martinez, L., and Catalan, V. (2011). <a href="#">Quantification of viable Legionella pneumophila cells using propidium monoazide combined with quantitative PCR</a>. J Microbiol Methods 85, 124-130. 10.1016/j.mimet.2011.02.004</p>
Listeria monocytogenes	<p>1) Desneux, J., Chemaly, M., and Pourcher, A. M. (2015). <a href="#">Experimental design for the optimization of propidium monoazide treatment to quantify viable and non-viable bacteria in piggery effluents</a>. BMC Microbiol 15, 164. 10.1186/s12866-015-0505-6</p> <p>2) Desneux, J., Biscuit, A., Picard, S., and Pourcher, A. M. (2016). <a href="#">Fate of Viable but Non-culturable Listeria monocytogenes in Pig Manure Microcosms</a>. Front Microbiol 7, 245. 10.3389/fmicb.2016.00245</p> <p>3) Elizaquivel, P., Aznar, R., and Sanchez, G. (2013). <a href="#">Recent developments in the use of viability dyes and quantitative PCR in the food microbiology field</a>. J Appl Microbiol 116, 1-13. 10.1111/jam.12365</p> <p>4) Gurrech, A., Gerner, W., Pin, C., Wagner, M., and Hein, I. (2016). <a href="#">Evidence of metabolically active but non-culturable Listeria monocytogenes in long-term growth at 10 degrees C</a>. Res Microbiol 167, 334-343. S0923-2508(16)00008-5</p> <p>5) Lovdal, T., Hovda, M. B., Bjorkblom, B., and Moller, S. G. (2011). <a href="#">Propidium monoazide combined with real-time quantitative PCR underestimates heat-killed Listeria innocua</a>. J Microbiol Methods 85, 164-169. 10.1016/j.mimet.2011.01.027</p> <p>6) Nocker, A., Sossa, K. E., and Camper, A. K. (2007). <a href="#">Molecular monitoring of disinfection efficacy using propidium monoazide in combination with quantitative PCR</a>. J Microbiol Methods 70, 252-260. 10.1016/j.mimet.2007.04.014</p> <p>7) Overney, A., Chassaing, D., Carpentier, B., Guillier, L., and Firmesse, O. (2016). <a href="#">Development of synthetic media mimicking food soils to study the behaviour of Listeria monocytogenes on stainless steel surfaces</a>. Int J Food Microbiol 238, 7-14. S0168-1605(16)30436-6</p> <p>8) Overney, A., Jacques-Andre-Coquin, J., Ng, P., Carpentier, B., Guillier, L., and Firmesse, O. (2017). <a href="#">Impact of environmental factors on the culturability and viability of Listeria</a></p>



	<p><a href="#">monocytogenes under conditions encountered in food processing plants</a>. Int J Food Microbiol 244, 74-81. 10.1016/j.ijfoodmicro.2016.12.012</p> <p>9) Zhang, Z., Liu, H., Lou, Y., Xiao, L., Liao, C., Malakar, P. K., Pan, Y., and Zhao, Y. (2015). <a href="#">Quantifying viable Vibrio parahaemolyticus and Listeria monocytogenes simultaneously in raw shrimp</a>. Appl Microbiol Biotechnol 99, 6451-6462. 10.1007/s00253-015-6715-x</p>
Mycobacterium avium	<p>1) Kralik, P., Nocker, A., and Pavlik, I. (2010). <a href="#">Mycobacterium avium subsp. paratuberculosis viability determination using F57 quantitative PCR in combination with propidium monoazide treatment</a>. Int J Food Microbiol 141 Suppl 1, S80-86. 10.1016/j.ijfoodmicro.2010.03.018</p> <p>2) Kralik, P., Babak, V., and Dziedzinska, R. (2014). <a href="#">Repeated cycles of chemical and physical disinfection and their influence on Mycobacterium avium subsp. paratuberculosis viability measured by propidium monoazide F57 quantitative real time PCR</a>. Vet J. 10.1016/j.tvjl.2014.05.032</p>
Mycobacterium fortuitum	<p>Lee, E. S., Lee, M. H., and Kim, B. S. (2015). <a href="#">Evaluation of propidium monoazide-quantitative PCR to detect viable Mycobacterium fortuitum after chlorine, ozone, and ultraviolet disinfection</a>. Int J Food Microbiol 210, 143-148. S0168-1605(15)30042-8</p>
Mycobacterium tuberculosis	<p>1) de Assuncao, T. M., Batista, E. L., Jr., Deves, C., Villela, A. D., Pagnussatti, V. E., de Oliveira Dias, A. C., Kritski, A., Rodrigues-Junior, V., Basso, L. A., and Santos, D. S. (2014). <a href="#">Real time PCR quantification of viable Mycobacterium tuberculosis from sputum samples treated with propidium monoazide</a>. Tuberculosis (Edinb) 94, 421-427. 10.1016/j.tube.2014.04.008</p> <p>2) Kayigire, X. A., Friedrich, S. O., Karinja, M. N., van der Merwe, L., Martinson, N. A., and Diacon, A. H. (2016). <a href="#">Propidium monoazide and Xpert MTB/RIF to quantify Mycobacterium tuberculosis cells</a>. Tuberculosis (Edinb) 101, 79-84. S1472-9792(16)30210-4</p> <p>3) Kim, Y. J., Lee, S. M., Park, B. K., Kim, S. S., Yi, J., Kim, H. H., Lee, E. Y., and Chang, C. L. (2014). <a href="#">Evaluation of propidium monoazide real-time PCR for early detection of viable Mycobacterium tuberculosis in clinical respiratory specimens</a>. Ann Lab Med 34, 203-209. 10.3343/alm.2014.34.3.203</p> <p>4) Miotto, P., Bigoni, S., Migliori, G. B., Matteelli, A., and Cirillo, D. M. (2012). <a href="#">Early tuberculosis treatment monitoring by Xpert(R) MTB/RIF</a>. Eur Respir J 39, 1269-1271. 10.1183/09031936.00124711</p> <p>5) Pholwat, S., Heysell, S., Stroup, S., Foongladda, S., and Houpt, E. (2011). <a href="#">Rapid first- and second-line drug susceptibility assay for Mycobacterium tuberculosis isolates by use of quantitative PCR</a>. J Clin Microbiol 49, 69-75. 10.1128/JCM.01500-10</p>
Mycobacterium vaccae	<p>Hand, S., Wang, B., and Chu, K. H. (2015). <a href="#">Biodegradation of 1,4-dioxane: Effects of enzyme inducers and trichloroethylene</a>. Sci Total Environ 520, 154-159. S0048-9697(15)00297-1</p>
Nitrosomonas europae	<p>1) Wahman, D. G., Wulfbeck-Kleier, K. A., and Pressman, J. G. (2009). <a href="#">Monochloramine disinfection kinetics of Nitrosomonas europaea by propidium monoazide quantitative PCR and Live/dead BacLight methods</a>. Appl Environ Microbiol 75, 5555-5562. 10.1128/AEM.00407-09</p> <p>2) Wahman, D. G., Schrantz, K. A., and Pressman, J. G. (2010). <a href="#">Determination of the effects of medium composition on the monochloramine disinfection kinetics of Nitrosomonas europaea by the propidium monoazide quantitative PCR and Live/Dead BacLight methods</a>. Appl Environ Microbiol 76, 8277-8280. 10.1128/AEM.01631-10</p>
Oenococcus oeni	<p>Vendrame, M., Iacumin, L., Manzano, M., and Comi, G. (2013). <a href="#">Use of propidium monoazide for the enumeration of viable Oenococcus oeni in must and wine by quantitative PCR</a>. Food Microbiology 35, 49-57. <a href="http://dx.doi.org/10.1016/j.fm.2013.02.007">http://dx.doi.org/10.1016/j.fm.2013.02.007</a></p>
Pantoea agglomerans	<p>Soto-Munoz, L., Teixido, N., Usall, J., Vinas, I., Crespo-Sempere, A., and Torres, R. (2014). <a href="#">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</a>. Int J Food Microbiol 180, 49-55. 10.1016/j.ijfoodmicro.2014.04.011</p>

Porphyromonas gingivalis	Sanchez, M. C.,Marin, M. J.,Figuro, E.,Llama-Palacios, A.,Leon, R.,Blanc, V.,Herrera, D., and Sanz, M. (2014). <a href="#">Quantitative real-time PCR combined with propidium monoazide for the selective quantification of viable periodontal pathogens in an in vitro subgingival biofilm model.</a> J Periodontal Res 49, 20-28. 10.1111/jre.12073
Pectinatus sottacetoniis	Caldwell, J. M.,Juvonen, R.,Brown, J., and Breidt, F. (2013). <a href="#">Pectinatus sottacetoniis sp. nov. isolated from commercial pickle spoilage tank.</a> Int J Syst Evol Microbiol DOI: 10.1099/ijs.0.047886-0. 10.1099/ijs.0.047886-0
Pediococcus acidilactici	Atia, A.,Gomaa, A.,Fernandez, B.,Subirade, M., and Fliss, I. (2017). <a href="#">Study and Understanding Behavior of Alginate-Inulin Synbiotics Beads for Protection and Delivery of Antimicrobial-Producing Probiotics in Colonic Simulated Conditions.</a> Probiotics Antimicrob Proteins. 10.1007/s12602-017-9355-x
Pediococcus pentosaceus	Kiran, F.,Mokrani, M., and Osmanagaoglu, O. (2015). <a href="#">Effect of Encapsulation on Viability of Pediococcus pentosaceus OZF During Its Passage Through the Gastrointestinal Tract Model.</a> Curr Microbiol 71, 95-105. 10.1007/s00284-015-0832-8
Photobacterium phosphorium	Mace, S.,Mamlouk, K.,Chipchakova, S.,Prevost, H.,Joffraud, J. J.,Dalgaard, P.,Pilet, M. F., and Dousset, X. (2013). <a href="#">Development of a Rapid Real-Time PCR Method as a Tool To Quantify Viable Photobacterium phosphoreum Bacteria in Salmon (Salmo salar) Steaks.</a> Appl Environ Microbiol 79, 2612-2619. 10.1128/AEM.03677-12
Prevotella intermedia	Alvarez, G.,Gonzalez, M.,Isabal, S.,Blanc, V., and Leon, R. (2013). <a href="#">Method to quantify live and dead cells in multi-species oral biofilm by real-time PCR with propidium monoazide.</a> AMB Express 3, 1. 10.1186/2191-0855-3-1
Pseudomonas aeruginosa	1) Daniels, T. W.,Rogers, G. B.,Stressmann, F. A.,van der Gast, C. J.,Bruce, K. D.,Jones, G. R.,Connett, G. J.,Legg, J. P., and Carroll, M. P. (2012). <a href="#">Impact of antibiotic treatment for pulmonary exacerbations on bacterial diversity in cystic fibrosis.</a> J Cyst Fibros DOI: 10.1016/j.jcf.2012.05.008. 2) Deschaght, P.,Schelstraete, P.,Van Simaey, L.,Vanderkercken, M.,Raman, A.,Mahieu, L.,Van Daele, S.,De Baets, F., and Vanechoutte, M. (2013). <a href="#">Is the Improvement of CF Patients, Hospitalized for Pulmonary Exacerbation, Correlated to a Decrease in Bacterial Load?</a> PLoS One 8, e79010. 10.1371/journal.pone.0079010 3) Gensberger, E. T.,Polt, M.,Konrad-Koszler, M.,Kinner, P.,Sessitsch, A., and Kostic, T. (2014). <a href="#">Evaluation of quantitative PCR combined with PMA treatment for molecular assessment of microbial water quality.</a> Water Res 67, 367-376. S0043-1354(14)00651-4 4) Hellein, K. N.,Kennedy, E. M.,Harwood, V. J.,Gordon, K. V.,Wang, S. Y., and Lepo, J. E. (2012). <a href="#">A filter-based propidium monoazide technique to distinguish live from membrane-compromised microorganisms using quantitative PCR.</a> J Microbiol Methods. 10.1016/j.mimet.2012.01.015 5) Rogers, G. B.,Stressmann, F. A.,Koller, G.,Daniels, T.,Carroll, M. P., and Bruce, K. D. (2008). <a href="#">Assessing the diagnostic importance of nonviable bacterial cells in respiratory infections.</a> Diagn Microbiol Infect Dis 62, 133-141. 10.1016/j.diagmicrobio.2008.06.011 6) Tavernier, S., and Coenye, T. (2015). <a href="#">Quantification of Pseudomonas aeruginosa in multispecies biofilms using PMA-qPCR.</a> PeerJ 3, e787. 10.7717/peerj.787
Rhodococcus jostii	Hand, S.,Wang, B., and Chu, K. H. (2015). <a href="#">Biodegradation of 1,4-dioxane: Effects of enzyme inducers and trichloroethylene.</a> Sci Total Environ 520, 154-159. S0048-9697(15)00297-1

Salmonella enterica	<p>1) Banihashemi, A., Van Dyke, M. I., and Huck, P. M. (2012). <a href="#">Long-amplicon propidium monoazide-PCR enumeration assay to detect viable Campylobacter and Salmonella</a>. J Appl Microbiol DOI: 10.1111/j.1365-2672.2012.05382.x. 10.1111/j.1365-2672.2012.05382.</p> <p>2) Barbau-Piednoir, E., Mahillon, J., Pillyser, J., Coucke, W., Roosens, N. H., and Botteldoorn, N. (2014). <a href="#">Evaluation of viability-qPCR detection system on viable and dead Salmonella serovar Enteritidis</a>. J Microbiol Methods 103, 131-137. 10.1016/j.mimet.2014.06.003</p> <p>3) Chen, S., Wang, F., Beaulieu, J. C., Stein, R. E., and Ge, B. (2011). <a href="#">Rapid detection of viable salmonellae in produce by coupling propidium monoazide with loop-mediated isothermal amplification</a>. Appl Environ Microbiol 77, 4008-4016. 10.1128/AEM.00354-11</p> <p>4) Elizaquivel, P., Aznar, R., and Sanchez, G. (2013). <a href="#">Recent developments in the use of viability dyes and quantitative PCR in the food microbiology field</a>. J Appl Microbiol 116, 1-13. 10.1111/jam.12365</p> <p>4) Fang, J., Wu, Y., Qu, D., Ma, B., Yu, X., Zhang, M., and Han, J. (2018). <a href="#">Propidium monoazide real-time loop-mediated isothermal amplification for specific visualization of viable Salmonella in food</a>. Lett Appl Microbiol 67, 79-88. 10.1111/lam.12992</p> <p>5) Li, B., and Chen, J. Q. (2013). <a href="#">Development of a sensitive and specific qPCR assay in conjunction with propidium monoazide for enhanced detection of live Salmonella spp. in food</a>. BMC Microbiol 13, 273. 10.1186/1471-2180-13-273</p> <p>6) Nocker, A., Sossa, K. E., and Camper, A. K. (2007). <a href="#">Molecular monitoring of disinfection efficacy using propidium monoazide in combination with quantitative PCR</a>. J Microbiol Methods 70, 252-260. 10.1016/j.mimet.2007.04.014</p> <p>7) Singh, G., Vajpayee, P., Bhatti, S., Ronnie, N., Shah, N., McClure, P., and Shanker, R. (2013). <a href="#">Determination of viable Salmonellae from potable and source water through PMA assisted qPCR</a>. Ecotoxicol Environ Saf. 10.1016/j.ecoenv.2013.02.017</p> <p>8) Truchado, P., Hernandez, N., Gil, M. I., Ivanek, R., and Allende, A. (2018). <a href="#">Correlation between E. coli levels and the presence of foodborne pathogens in surface irrigation water: Establishment of a sampling program</a>. Water Res 128, 226-233. 10.1016/j.watres.2017.10.041</p> <p>9) Youn, S. Y., Jeong, O. M., Choi, B. K., Jung, S. C., and Kang, M. S. (2016). <a href="#">Application of loop-mediated isothermal amplification with propidium monoazide treatment to detect live Salmonella in chicken carcasses</a>. Poult Sci. pew341</p> <p>10) Yu, S., Yan, L., Wu, X., Li, F., Wang, D., and Xu, H. (2017). <a href="#">Multiplex PCR coupled with propidium monoazide for the detection of viable Cronobacter sakazakii, Bacillus cereus, and Salmonella spp. in milk and milk products</a>. J Dairy Sci 100, 7874-7882. S0022-0302(17)30709-9</p> <p>11) Zheng, Q., Miki-Krajnik, M., D'Souza, C., Yang, Y., Heo, D. J., Kim, S. K., Lee, S. C., and Yuk, H. G. (2015). <a href="#">Growth of healthy and sanitizer-injured Salmonella cells on mung bean sprouts in different commercial enrichment broths</a>. Food Microbiol 52, 159-168. 10.1016/j.fm.2015.07.013</p>
Staphylococcus aureus	<p>1) 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). <a href="#">Peptoid Efficacy against Polymicrobial Biofilms Determined by Using Propidium Monoazide-Modified Quantitative PCR</a>. ChemBiochem. 10.1002/cbic.201600381</p> <p>2) Rogers, G. B., Stressmann, F. A., Koller, G., Daniels, T., Carroll, M. P., and Bruce, K. D. (2008). <a href="#">Assessing the diagnostic importance of nonviable bacterial cells in respiratory infections</a>. Diagn Microbiol Infect Dis 62, 133-141. 10.1016/j.diagmicrobio.2008.06.011</p> <p>3) Zhang, Z., Liu, W., Xu, H., Aguilar, Z. P., Shah, N. P., and Wei, H. (2015). <a href="#">Propidium monoazide combined with real-time PCR for selective detection of viable Staphylococcus aureus in milk powder and meat products</a>. J Dairy Sci. S0022-0302(15)00010-7</p>

Streptococcus oralis	Alvarez, G.,Gonzalez, M.,Isabal, S.,Blanc, V., and Leon, R. (2013). <a href="#">Method to quantify live and dead cells in multi-species oral biofilm by real-time PCR with propidium monoazide</a> . AMB Express 3, 1. 10.1186/2191-0855-3-1
Streptococcus gordonii	Alvarez, G.,Gonzalez, M.,Isabal, S.,Blanc, V., and Leon, R. (2013). <a href="#">Method to quantify live and dead cells in multi-species oral biofilm by real-time PCR with propidium monoazide</a> . AMB Express 3, 1. 10.1186/2191-0855-3-1
Streptococcus mutans	Klein, M. I.,Scott-Anne, K. M.,Gregoire, S.,Rosalen, P. L., and Koo, H. (2012). <a href="#">Molecular approaches for viable bacterial population and transcriptional analyses in a rodent model of dental caries</a> . Mol Oral Microbiol 27, 350-361. 10.1111/j.2041-1014.2012.00647.x
Tetragenococcus halophilus	Udomsil, N.,Chen, S.,Rodtong, S., and Yongsawatdigul, J. (2016). <a href="#">Quantification of viable bacterial starter cultures of Virgibacillus sp. and Tetragenococcus halophilus in fish sauce fermentation by real-time quantitative PCR</a> . Food Microbiol 57, 54-62. S0740-0020(16)00005-8
Veillonella parvula	Alvarez, G.,Gonzalez, M.,Isabal, S.,Blanc, V., and Leon, R. (2013). <a href="#">Method to quantify live and dead cells in multi-species oral biofilm by real-time PCR with propidium monoazide</a> . AMB Express 3, 1. 10.1186/2191-0855-3-1
Vibrio aestuarianus	Vezzulli, L.,Pezzati, E.,Stauder, M.,Stagnaro, L.,Venier, P., and Pruzzo, C. (2014). <a href="#">Aquatic ecology of the oyster pathogens Vibrio splendidus and Vibrio aestuarianus</a> . Environ Microbiol. 10.1111/1462-2920.12484
Vibrio cholerae	1) Wu, B.,Liang, W., and Kan, B. (2015). <a href="#">Enumeration of viable non-culturable Vibrio cholerae using propidium monoazide combined with quantitative PCR</a> . J Microbiol Methods 115, 147-152. S0167-7012(15)00155-4 2) Xia, X.,Larios-Valencia, J.,Liu, Z.,Xiang, F.,Kan, B.,Wang, H., and Zhu, J. (2017). <a href="#">OxyR-activated expression of Dps is important for Vibrio cholerae oxidative stress resistance and pathogenesis</a> . PLoS One 12, e0171201. 10.1371/journal.pone.0171201
Vibrio parahaemolyticus	1) Zhang, Z.,Liu, H.,Lou, Y.,Xiao, L.,Liao, C.,Malakar, P. K.,Pan, Y., and Zhao, Y. (2015). <a href="#">Quantifying viable Vibrio parahaemolyticus and Listeria monocytogenes simultaneously in raw shrimp</a> . Appl Microbiol Biotechnol 99, 6451-6462. 10.1007/s00253-015-6715-x 2) Zhong, H.,Zhong, Y.,Deng, Q.,Zhou, Z.,Guan, X.,Yan, M.,Hu, T., and Luo, M. (2017). <a href="#">Virulence of thermolabile haemolysin thh, gastroenteritis related pathogenicity tdh and trh of the pathogens Vibrio Parahaemolyticus in Viable but Non-Culturable (VBNC) state</a> . Microb Pathog 111, 352-356. S0882-4010(17)31068-9 3) Zhu, R.-G.,Li, T.-P.,Jia, Y.-F., and Song, L.-F. (2012). <a href="#">Quantitative study of viable Vibrio parahaemolyticus cells in raw seafood using propidium monoazide in combination with quantitative PCR</a> . Journal of Microbiological Methods DOI: 10.1016/j.mimet.2012.05.019. 10.1016/j.mimet.2012.05.019
Vibrio splendidus	Vezzulli, L.,Pezzati, E.,Stauder, M.,Stagnaro, L.,Venier, P., and Pruzzo, C. (2014). <a href="#">Aquatic ecology of the oyster pathogens Vibrio splendidus and Vibrio aestuarianus</a> . Environ Microbiol. 10.1111/1462-2920.12484
Virgibacillus spp.	Udomsil, N.,Chen, S.,Rodtong, S., and Yongsawatdigul, J. (2016). <a href="#">Quantification of viable bacterial starter cultures of Virgibacillus sp. and Tetragenococcus halophilus in fish sauce fermentation by real-time quantitative PCR</a> . Food Microbiol 57, 54-62. S0740-0020(16)00005-8

**Bacterial strains used with PMAxx™ for viability PCR**

Species	References
Clavibacter michiganensis	Han, S.,Jiang, N.,Lv, Q.,Kan, Y.,Hao, J.,Li, J., and Luo, L. (2018). <a href="#">Detection of Clavibacter michiganensis subsp. michiganensis in viable but nonculturable state from tomato seed using improved qPCR</a> . PLoS One 13, e0196525. 10.1371/journal.pone.0196525
Microbacterium 3J1	Garcia-Fontana, C.,Narvaez-Reinaldo, J. J.,Castillo, F.,Gonzalez-Lopez, J.,Luque, I., and Manzanera, M. (2016). <a href="#">A New Physiological Role for the DNA Molecule as a Protector against Drying Stress in Desiccation-Tolerant Microorganisms</a> . Front Microbiol 7, 2066. 10.3389/fmicb.2016.02066