

BactoReal[®] assays for detection of bacteria

Product Name	Channel Pathogen	Order Number
BactoReal[®] Actinobacillus pleuropneumoniae Detection of the apxIVA gene of <i>A. pleuropneumoniae</i>	FAM	RTGV550
BactoReal[®] Aerococcus viridans Detection of the 16S rRNA gene of <i>A. viridans</i>	FAM	RTGV912
BactoReal[®] American Foulbrood 1.1 Detection of the 16S rRNA gene of <i>Paenibacillus larvae</i>	FAM	RTGV924
BactoReal[®] Bartonella spp. Detection of the gltA gene of <i>B. clarridgeiae</i> , <i>B. elizabethae</i> , <i>B. grahamii</i> , <i>B. henselae</i> , <i>B. koehlerae</i> , <i>B. quintana</i> , <i>B. volans</i> and <i>B. washoensis</i>	FAM	RTGV1260
BactoReal[®] Bordetella bronchiseptica Detection of the bfrA gene of <i>B. bronchiseptica</i>	FAM	RTGV1250
BactoReal[®] Borrelia burgdorferi sensu lato Detection of the ospA gene of <i>Borrelia</i> species belonging to the <i>Borrelia burgdorferi sensu lato</i> complex (<i>B. spielmanii</i> is not well detected)	FAM	RTGV1270
BactoReal[®] Brachyspira hyo/pilo Combined detection of the nox gene of <i>B. hyopneumoniae</i> and <i>B. pilosicoli</i> . No differentiation between species.	FAM	RTGV600
BactoReal[®] Brachyspira hyodysenteriae Detection of the nox gene of <i>B. hyodysenteriae</i>	FAM	RTGV610
BactoReal[®] Brachyspira pilosicoli Detection of the nox gene of <i>B. pilosicoli</i>	FAM	RTGV620
BactoReal[®] Brucella spp. Detection of the IS711 region of <i>B. abortus</i> , <i>B. ovis</i> , <i>B. melitensis</i> , <i>B. suis</i> and <i>B. canis</i>	FAM	RTGV1201
BactoReal[®] Campylobacter spp. Detection of the 16S rRNA gene of <i>Campylobacter</i> species	FAM	RTGV704
BactoReal[®] Chlamydiaceae Detection of the 23S rRNA gene of <i>C. muridarum</i> , <i>C. suis</i> , <i>C. trachomatis</i> , <i>C. abortus</i> , <i>C. caviae</i> , <i>C. felis</i> , <i>C. pecorum</i> , <i>C. pneumoniae</i> and <i>C. psittaci</i>	FAM	RTGV1400
BactoReal[®] Chlamydophila psittaci/abortus Detection of the omp1 gene of <i>C. abortus</i> and <i>C. psittaci</i>	FAM	RTGV1410
BactoReal[®] Clostridium difficile Detection of the toxin A (tcdA) gene and toxin B (tcdB) gene of <i>C. difficile</i>	FAM + VIC	RTGV920
BactoReal[®] Clostridium perfringens Detection of the 16S rRNA gene of <i>Clostridium perfringens</i>	FAM	RTGV928
BactoReal[®] Corynebacterium pseudotuberculosis Detection of the pld gene of <i>Corynebacterium pseudotuberculosis</i>	FAM	RTGV919
BactoReal[®] Coxiella burnetii Detection of the IS1111 insertion sequence of <i>C. burnetii</i>	FAM	RTGV231

Product Name	Channel Pathogen	Order Number
BactoReal® Enterococcus spp. Detection of the 23S rRNA gene of <i>Enterococcus</i> species	FAM	RTGV905
BactoReal® Escherichia coli Detection of the <i>dxs</i> gene of <i>E. coli</i> and <i>Shigella</i>	FAM	RTGV914
BactoReal® Typing Kit E. coli v. 1.1 Detection of porcine <i>E. coli</i> virulence-associated genes (F4, F5, F6, F18, F41, STa1, STb2, LT, Stx2e, EAST1, fimA, AIDA-I, pAA, <i>escV</i> , <i>cbf1</i> , <i>iucD</i> , <i>papC</i> , <i>pic</i>). Typing of <i>E. coli</i> via melting curves.	SYBR® Green Filter	DVET001
BactoReal® E. coli Typing stx1 & stx2 (STEC) Detection of virulence-associated genes <i>stx1</i> and <i>stx2</i> (verotoxin) of <i>E. coli</i>	FAM + VIC	RTGV935
BactoReal® E. coli Typing eae & ehxA (EHEC, EPEC) Detection of virulence-associated genes <i>eae</i> (intimin) and <i>ehxA</i> (enterohemolysin) of <i>E. coli</i>	FAM + VIC	RTGV936
BactoReal® E. coli Typing eae (EHEC or EPEC) Detection of virulence-associated gene <i>eae</i> (intimin) of <i>E. coli</i>	FAM	RTGV937
BactoReal® E. coli Typing ehxA (EHEC) Detection of virulence-associated gene <i>ehxA</i> (enterohemolysin) of <i>E. coli</i>	VIC	RTGV938
BactoReal® European Foulbrood Detection of the 16S rRNA gene of <i>Melissococcus plutonius</i>	FAM	RTGV923
BactoReal® Footrot Detection of the <i>pnpA</i> gene of <i>Dichelobacter nodosus</i> and the <i>gyrB</i> gene of <i>Fusobacter necrophorum</i> subsp. <i>necrophorum</i>	FAM + VIC	RTGV941
BactoReal® Glaesserella parasuis Detection of the 16S rRNA gene of <i>Glaesserella parasuis</i> (formerly <i>Haemophilus parasuis</i>)	FAM	RTGV500
BactoReal® Histophilus somni Detection of the 16S rRNA gene of <i>H. somni</i>	FAM	RTGV333
BactoReal® Klebsiella Detection of the hemolysin gene of <i>K. pneumoniae</i> , <i>K. variicola</i> , <i>K. oxytoca</i> , <i>K. aerogenes</i>	FAM	RTGV340
BactoReal® Lawsonia intracellularis Detection of the 16S rRNA gene of <i>L. intracellularis</i>	FAM	RTGV300
BactoReal® Leptospira spp. (16S rDNA) Detection of the 16S rRNA gene of pathogenic and intermediately pathogenic <i>Leptospira</i> species	VIC	RTGV200
BactoReal® Leptospira spp. (LipL32) Detection of the LipL32 gene of pathogenic <i>Leptospira</i> species	FAM	RTGV201
BactoReal® Leptospira spp. Multiplex (16S rDNA + LipL32) Detection and differentiation of LipL32 gene of pathogenic and 16S rRNA gene of pathogenic and intermediately pathogenic <i>Leptospira</i> species	FAM + VIC	RTGV202
BactoReal® Listeria monocytogenes Detection of the <i>hlyA</i> gene of <i>L. monocytogenes</i>	FAM	RTGV1200
BactoReal® Mannheimia haemolytica Detection of the 16S rRNA gene of <i>M. haemolytica</i>	FAM	RTGV222
BactoReal® Mycobacterium avium ssp. paratuberculosis Detection of the IS900 region of <i>M. avium</i> subspecies <i>paratuberculosis</i>	FAM	RTGV240
BactoReal® Mycobacterium tuberculosis complex Detection of the ITS2 region of the MTBC (<i>M. tuberculosis</i> , <i>M. bovis</i> , <i>M. caprae</i> , <i>M. canetti</i> , <i>M. africanum</i> , <i>M. microti</i>)	FAM	RTGV250
BactoReal® Mycoplasma bovis Detection of the <i>rpoB</i> gene of <i>M. bovis</i>	FAM	RTGV1300
BactoReal® Mycoplasma gallisepticum Detection of the <i>mgc2</i> gene of <i>M. gallisepticum</i>	FAM	RTGV908

Product Name	Channel Pathogen	Order Number
BactoReal® Mycoplasma hyopneumoniae Detection of the rpoB gene of <i>M. hyopneumoniae</i>	FAM	RTGV210
BactoReal® Mycoplasma hyorhinis Detection of the rpoB gene of <i>M. hyorhinis</i>	FAM	RTGV220
BactoReal® Mycoplasma suis Detection of the 16S rRNA gene of <i>M. suis</i>	FAM	RTGV215
BactoReal® Mycoplasma synoviae Detection of the v1hA gene of <i>M. synoviae</i>	FAM	RTGV907
BactoReal® Nocardia spp. Detection of the 16S rRNA gene of <i>Nocardia</i> species	FAM	RTGV909
BactoReal® Ornithobacterium rhinotracheale Detection of the 16S rRNA gene of <i>Ornithobacterium rhinotracheale</i>	FAM	RTGV927
BactoReal® Pasteurella multocida Detection of the 16S rRNA gene of <i>Pasteurella multocida</i> (subspecies <i>P. multocida</i> , <i>P. gallicida</i> , <i>P. septica</i> , <i>P. tigris</i>)	FAM	RTGV444
BactoReal® Pasteurella multocida toxA Detection of the toxA gene of toxigenic <i>Pasteurella multocida</i> strains (PMT)	FAM	RTGV400
BactoReal® Pseudomonas aeruginosa Detection of the 16S rRNA gene of <i>P. aeruginosa</i>	FAM	RTGV913
BactoReal® Riemerella anatipestifer Detection of the 16S-23S ribosomal RNA intergenic spacer of <i>R. anatipestifer</i>	FAM	RTGV232
BactoReal® Salmonella enterica Detection of the invA gene of <i>Salmonella enterica</i>	FAM	RTGV926
BactoReal® Staphylococcus aureus Detection of the nuc gene of <i>S. aureus</i>	FAM	RTGV800
BactoReal® GTB - Staphylococcus aureus Typing Detection of lucE point mutation, sea, sed. Typing with probes (FAM, VIC)	FAM + VIC	ING05
BactoReal® Staphylococcus spp. Detection of the 23S rRNA gene of <i>Staphylococcus</i> species	FAM	RTGV804
BactoReal® Streptococcus agalactiae Detection of the cfb gene of <i>S. agalactiae</i>	FAM	RTGV900
BactoReal® Streptococcus dysgalactiae Detection and differentiation of 23S rRNA gene of <i>S. dysgalactiae</i> and <i>S. canis</i> and of 16S rRNA gene of <i>Streptococcus</i> species except <i>S. canis</i>	FAM + VIC	RTGV903
BactoReal® Streptococcus suis Detection of the fbpS gene of <i>S. suis</i>	FAM	RTGV233
BactoReal® Streptococcus uberis Detection of the ITS2 region of <i>S. uberis</i>	FAM	RTGV700
BactoReal® Streptococcus spp. Detection of the 23S rRNA gene of <i>Streptococcus</i> species	FAM	RTGV904
BactoReal® Taylorella equigenitalis Detection of the 16S rRNA gene of <i>T. equigenitalis</i>	FAM	RTGV510
BactoReal® Trueperella pyogenes Detection of the 16S rRNA gene of <i>T. pyogenes</i>	FAM	RTGV910

MycoReal[®] assays for detection of fungi

Product Name	Channel Pathogen	Order Number
MycoReal[®] <i>Ascosphaera apis</i> Detection of the ITS-1 region of <i>Ascosphaera apis</i>	FAM	RTGV932
MycoReal[®] <i>Batrachochytrium dendrobatidis</i> Detection of the ITS-1 region of <i>B.dendrobatidis</i>	FAM	RTGV939
MycoReal[®] <i>Nosema apis</i> & <i>ceranae</i> Detection of the 18S rRNA gene of <i>Nosema apis</i> and <i>Nosema ceranae</i>	FAM + VIC	RTGV940

ParoReal[®] assays for detection of parasites

Product Name	Channel Pathogen	Order Number
ParoReal[®] <i>Cryptosporidium parvum</i> Detection of the GP60 gene of <i>C. parvum</i>	FAM	RTGV270
ParoReal[®] <i>Echinococcus multilocularis</i> Detection of the mitochondrial ND1 gene of <i>E. multilocularis</i>	FAM	RTGV266
ParoReal[®] <i>Histomonas meleagridis</i> Detection of the 18S rRNA gene of <i>H. meleagridis</i>	FAM	RTGV267
ParoReal[®] <i>Neospora caninum</i> Detection of the mitochondrial NC5 gene of <i>N. caninum</i>	FAM	RTGV269
ParoReal[®] <i>Trichinella spiralis</i> & <i>britovi</i> Detection and differentiation of the internal transcribed spacer of <i>Trichinella spiralis</i> and <i>T. britovi</i>	FAM + VIC	RTGV268

ViroReal[®] assays for detection of viruses

Product Name	Channel Pathogen	Order Number
ViroReal[®] ASF Virus Detection of DNA of the major capsid protein gene p72 of ASFV (African Swine Fever Virus)	FAM	RTGV120
ViroReal[®] Bluetongue Virus Detection of RNA of the segment 10 (NS3) of BTV	FAM	RTGV22
ViroReal[®] Bovine Coronavirus Detection of RNA of the N gene of BCoV	FAM	RTGV20
ViroReal[®] Kit Bovine Herpesvirus 1 Detection of DNA of the UL27 gene of BoHV1 causing IBR and IPV	FAM	RTGV28
ViroReal[®] Bovine Nebovirus Detection of RNA of the ORF1 of bovine nebovirus	FAM	RTGV23

Product Name	Channel Pathogen	Order Number
ViroReal® Bovine Norovirus Detection of RNA of the ORF1 of bovine norovirus genotypes GIII.1 and GIII.2	FAM	RTGV21
ViroReal® Bovine Parainfluenza Virus 3 Detection of RNA of the phosphoprotein P gene of PI3 genotypes A, B and C	FAM	RTGV24
ViroReal® Bovine Torovirus Detection of RNA of the M gene of BToV	FAM	RTGV90
ViroReal® BRSV Detection of RNA of the N protein gene of bovine respiratory syncytial virus	FAM	RTGV25
ViroReal® CAEV Detection of RNA of the gag polyprotein gene of caprine arthritis encephalitis virus (CAEV)	FAM	RTGV35
ViroReal® CSF Virus Detection of RNA of the 3'UTR of classical swine fever virus (KSPV)	FAM	RTGV26
ViroReal® EMCV Detection of RNA of the 3'UTR of EMCV	FAM	RTGV30
ViroReal® Lumpy Skin Disease Virus Detection of DNA of the GPCR gene of Lumpy Skin Disease Virus (LSDV)	FAM	RTGV34
ViroReal® Maedi-Visna Virus Detection of RNA of the gag polyprotein of Maedi-Visna Virus (MVV)	FAM	RTGV36
ViroReal® MERS-CoV Detection of RNA of the N gene of Middle East Respiratory Syndrome Coronavirus	VIC	RTGV31
ViroReal® PCV2 Detection of the ORF1 of the porcine circovirus type 2 including the three genotypes A, B and C A quantitative real-time PCR standard can be ordered separately (order no. PC100)	FAM	RTGV100
ViroReal® PCV3 Detection of the capsid protein gene of the porcine circovirus type 3 (PCV3)	FAM	RTGV103
ViroReal® PCMV Detection of the DPOL gene of the porcine cytomegalovirus	FAM	RTGV40
ViroReal® PEDV Detection of RNA of the N gene of the porcine epidemic diarrhea virus	FAM	RTGV80
ViroReal® PEDV & TGEV Detection and differentiation of RNA of the N gene of the porcine epidemic diarrhea virus and of the S region of the transmissible gastroenteritis virus	FAM + VIC	RTGV68
ViroReal® PEDV & SDCV Detection and differentiation of RNA of the N gene of the porcine epidemic diarrhea virus and of the 3'UTR of the swine delta coronavirus (PDCoV)	FAM + VIC	RTGV69
ViroReal® PHEV Detection of RNA of the N gene of the porcine hemagglutinating encephalomyelitis virus	FAM	RTGV88
ViroReal® Porcine Parvovirus 1 Detection of the NS1 gene of PPV subtype 1	FAM	RTGV010
ViroReal® PRRS Virus EU & NA 1.1 Detection and differentiation of RNA of the ORF 7 / 3' UTR of porcine reproductive and respiratory syndrome virus lineages EU & NA	FAM + VIC	RTGV1R01
ViroReal® Pseudorabiesvirus (SHV-1) Detection of the glycoprotein B gene of pseudorabiesvirus (suid herpesvirus 1, aujeszki's disease virus)	FAM	RTGV27
ViroReal® Rabies Virus Detection of RNA of the N gene of RABV	FAM	RTGV255

Product Name	Channel Pathogen	Order Number
ViroReal® RHDV Detection of RNA of the vp60 gene of rabbit haemorrhagic disease virus 1&2	FAM	RTGV32
ViroReal® Rotavirus Detection of RNA of the NSP4 gene of rotavirus strains genotype A, most strains of genotype B, C and some strains of the other genotypes D-G	FAM	RTGV70
ViroReal® Schmallenberg Virus Detection of RNA of the nucleocapsid protein gene of schmallenberg virus (SBV)	FAM	RTGV33
ViroReal® Swine Delta Coronavirus Detection of RNA of the 3'UTR of SDCV (PDCoV)	VIC	RTGV110
ViroReal® Swine Influenza A (SIV) Detection of RNA of the matrix protein gene of the influenza A virus	FAM	RTGV15
ViroReal® TGEV Detection of RNA of the S region of the transmissible gastroenteritis virus	VIC	RTGV60

Positive control standards

Product Name	Order Number
BactoReal® <i>Lawsonia intracellularis</i> Standard Contains a fragment of <i>L. intracellularis</i> DNA at a concentration of 10 ⁷ copies/μl. Only for use with BactoReal® Kit <i>Lawsonia intracellularis</i>	PC200
BactoReal® <i>Mycoplasma hyopneumoniae</i> Standard Contains a fragment of <i>M. hyopneumoniae</i> DNA at a concentration of 10 ⁷ copies/μl. Only for use with BactoReal® Kit <i>Mycoplasma hyopneumoniae</i>	PC300
BactoReal® <i>Brachyspira hyodysenteriae</i> Standard Contains a fragment of <i>B. hyodysenteriae</i> DNA at a concentration of 10 ⁷ copies/μl. Only for use with BactoReal® Kit <i>Brachyspira hyodysenteriae</i>	PC400
BactoReal® <i>Brachyspira pilosicoli</i> Standard Contains a fragment of <i>B. pilosicoli</i> DNA at a concentration of 10 ⁷ copies/μl. Only for use with BactoReal® Kit <i>Brachyspira pilosicoli</i>	PC500
BactoReal® <i>Pseudomonas aeruginosa</i> Standard Contains a fragment of <i>P. aeruginosa</i> DNA at a concentration of 10 ⁷ copies/μl. Only for use with BactoReal® Kit <i>Pseudomonas aeruginosa</i>	PC900
BactoReal® <i>Salmonella enterica</i> Standard Contains a fragment of <i>S. enterica</i> DNA at a concentration of 10 ⁷ copies/μl. Only for use with BactoReal® Kit <i>Salmonella enterica</i>	PC600
BactoReal® <i>Staphylococcus</i> spp. Standard Contains a fragment of <i>Staphylococcus</i> DNA at a concentration of 10 ⁷ copies/μl. Only for use with BactoReal® Kit <i>Staphylococcus</i> spp.	PC800
ParoReal® <i>Histomonas meleagridis</i> Standard Contains a fragment of <i>H. meleagridis</i> DNA at a concentration of 10 ⁷ copies/μl. Only for use with ParoReal® Kit <i>Histomonas meleagridis</i>	PC700
ViroReal® Porcine circovirus type 2 (PCV2) Standard Contains a fragment of PCV2 DNA at a concentration of 10 ⁷ copies/μl. Only for use with ViroReal® Kit PCV2	PC100
Mycoreal® <i>Nosema apis</i> Standard Contains a fragment of <i>Nosema apis</i> DNA at a concentration of 10 ⁷ copies/μl. Only for use with MycoReal® Kit <i>Nosema apis</i> & <i>ceranae</i>	PC1000
Mycoreal® <i>Nosema ceranae</i> Standard Contains a fragment of <i>Nosema ceranae</i> DNA at a concentration of 10 ⁷ copies/μl. Only for use with MycoReal® Kit <i>Nosema apis</i> & <i>ceranae</i>	PC1001

Assays for detection of internal positive control

For use with ingenetix assays or customer assays

Product Name	Channel	Order Number
ControlReal 1 Detection of internal control DNA target (in assay mix). Recommended for ABI® 7500, Quantstudio™, Mx3005P®	VIC	RTGMCR-1
ControlReal 2 Detection of internal control DNA target (in assay mix). Recommended for LightCycler® 1.2/1.5/2.0	NED (F2, 610 nm)	RTGMCR-2
ControlReal 3 Detection of internal control DNA target (in assay mix). Recommended for ABI® 7500, Quantstudio™, LightCycler® 480, Mx3005P®	CY5	RTGMCR-3
Internal Positive Control Assay 1 Detection of internal control DNA target (in extra tube). Recommended for ABI® 7500, Quantstudio™, Mx3005P®	VIC	RTGMIPC-1
Internal Positive Control Assay 2 Detection of internal control DNA target (in extra tube). Recommended for LightCycler® 1.2/1.5/2.0	NED (F2, 610 nm)	RTGMIPC-2
Internal Positive Control Assay 3 Detection of internal control DNA target (in extra tube). Recommended for ABI® 7500, Quantstudio™, LightCycler® 480, Mx3005P®	CY5	RTGMIPC-3
Internal Positive RNA Control Assay 1 Detection of internal control RNA target (in extra tube). Recommended for ABI® 7500, Quantstudio™, Mx3005P®	VIC	RTGMIPCR1
Internal Positive RNA Control Assay 2 Detection of internal control RNA target (in extra tube). Recommended for LightCycler® 1.2/1.5/2.0	NED (F2, 610 nm)	RTGMIPCR2
Internal Positive RNA Control Assay 3 Detection of internal control RNA target (in extra tube). Recommended for ABI® 7500, Quantstudio™, LightCycler® 480, Mx3005P®	CY5	RTGMIPCR3

General information

Content:

- Assay (primer + probe) for detection of pathogen (100 reactions)
- Positive Control
- Not included but available separately: Assay (primer + probe) for the detection of internal positive control (50 reactions)
- Not included: Amplification mix
 - Recommended amplification mix, depending on PCR-platform and template
 - TaqMan® Fast Advanced Master Mix (Thermo Fisher Scientific) for DNA target
 - TaqMan® Fast Virus 1-step Master Mix (Thermo Fisher Scientific) for RNA target
 - For LightCycler® 1.2/1.5/2.0: QuantiTect® Probe RT-PCR Kit (Qiagen) or LC™-FastStart DNA Master Kit Hybridisation Probes (Roche)

PCR-platforms:

- Applied Biosystems® 7500 instrument (Thermo Fisher Scientific)
- Quantstudio™ (Thermo Fisher Scientific)
- Mx3005P® QPCR System (Agilent)
- LightCycler® 480 (Roche)
- LightCycler® 1.2/1.5/2.0 (Roche) (only some assays)



BactoReal®, MycoReal®, ParoReal® and ViroReal® assays are optimized to run under the same thermal cycling conditions

Assays can be combined with assays for detection of an internal positive control in the same reaction

Assays are also available as kits (containing the amplification mix and an internal positive control assay)