

# QX700™ ddPCR™ Supermix for Probes

Catalog #	Description
12025352	QX700 ddPCR Supermix for Probes, 200 µL (2 x 100 µL vials), 200 x 5 µL reactions
12025428	QX700 ddPCR Supermix for Probes, 500 µL (5 x 100 µL vials), 500 x 5 µL reactions
12025522	QX700 ddPCR Supermix for Probes, 2,500 µL (2 x 1,250 µL vials), 2,500 x 5 µL reactions

For Research Use Only. Not for use in diagnostic procedures.

## Description

QX700 ddPCR Supermix for Probes is a 5x concentrated, ready-to-use reaction cocktail containing all components—except primers, probe(s), and template—required for probe-based Droplet Digital™ PCR (ddPCR). The mixture delivers maximum target specificity and fluorescence amplitude and minimum droplet variability to ensure precise target quantification.

The hot-start feature of the polymerase in the Supermix enables partitioning of sample into droplets while keeping the enzyme inactive at ambient conditions. The Supermix has been optimized to empower higher-order multiplexing when using commercially available probe-based assays (up to 7-plex) for detection of DNA targets.

## Storage and Stability

QX700 ddPCR Supermix for Probes is stable at –20°C through the expiration date printed on the label and does not freeze solid at this temperature.

## Quality Control

QX700 ddPCR Supermix for Probes is free of contaminating DNase. Stringent specifications are maintained to ensure lot-to-lot consistency.

## Recommendations for Optimal Results

The concentration of intact human genomic DNA should be ≤16.5 ng per 5 µL reaction. If using higher concentrations (16.5–82.5 ng per 5 µL reaction), digest DNA with a restriction endonuclease (see guidelines in the DNA Digestion section).

## Required Equipment, Software, and Consumables

- QX700 E Droplet Digital PCR System\* (catalog #17011036), QX700 S Droplet Digital PCR System\* (#17010638), or QX700 HT Droplet Digital PCR System\* (#17010628)
- Optimal supermix performance requires QX700 System Control Software v1.5, QX700 System Analysis Software v1.5, and QX700 Supermix Configurator v1.5
- RDG16 Cartridges, pack of 12 (#12025252)

\*For Research Use Only. Not for use in diagnostic procedures.

## Reaction Setup

1. Thaw all components to room temperature. Mix thoroughly by vortexing each tube to ensure homogeneity, as a concentration gradient may form during –20°C storage. Centrifuge briefly to collect contents at the bottom of the tubes.
2. Prepare samples at the desired concentration before setting up the reaction mix.
3. Prepare the reaction mix for the number of reactions needed according to the guidelines in Table 1. Assemble all required components except the sample and dispense equal aliquots into each reaction tube. As the final step, add the sample to each reaction tube.

**Table 1. Preparation of the reaction mix.**

Component	Volume per Reaction, µL	Final Concentration
5x QX700 ddPCR Supermix for Probes	1	1x
20x target primers/probe	0.25	900 nM/250 nM
Diluted restriction enzyme (see DNA Digestion section)	0.25	Variable
Sample	Variable	Up to 82.5 ng*
RNase-/DNase-free water	Variable	—
Total volume	5	—

\*Sample concentrations >16.5 ng per reaction and certain applications may require restriction digestion for optimal target detection. If digestion is not required, prepare the ddPCR reaction mix without the diluted restriction enzyme.

4. Mix the assembled reaction thoroughly by vortexing the tubes. Centrifuge briefly to ensure that all components are at the bottom of the reaction tubes.
5. Load 5 µL of each reaction mix into a sample chamber of the RDG16 Cartridge. Refer to the QX700 Droplet Digital PCR System Instrument Guide ([10000171493](#)) and RDG16 Instructions for Use ([10000171484](#)) for sample and plate setup instructions.



## DNA Digestion (Recommended)

DNA fragmentation by restriction digestion prior to droplet generation enables optimal accuracy by separating tandem gene copies, reducing sample viscosity, and improving template accessibility for input samples >16.5 ng per chamber. Choose a restriction endonuclease that does not cut either the target or reference amplicon and that is insensitive to methylation. Four-base cutters and high-fidelity enzymes are preferred.

Two strategies may be used to perform restriction digestion of DNA samples: digestion directly in the ddPCR reaction during setup or conventional digestion prior to ddPCR.

### Digestion in ddPCR

- Dilute the restriction enzyme using the recommended diluent buffer according to the manufacturer's instructions and add 0.25 µL per 5 µL ddPCR reaction as outlined in Table 1
- Approximately 0.5–1.25 units of restriction enzyme per 5 µL ddPCR reaction are recommended
- The addition of restriction enzyme buffers with high salt can inhibit ddPCR and should be avoided
- HaeIII, MseI, AluI, HindIII, and CviQI have been observed to work well for digestions in ddPCR reactions

### Digestion Prior to ddPCR

- Use 5–10 enzyme units per µg of DNA and 10–20 enzyme units per µg of genomic DNA
- Incubate the reaction for 1 hr at the temperature recommended for the restriction enzyme
- Heat inactivation is not required, but can be considered if long-term storage is required; do not heat-inactivate above 65°C
- DNA purification is not necessary after restriction digestion
- Use a minimum 10-fold dilution of the digested DNA to reduce the salt content of the sample in the ddPCR reaction
- Store digested DNA at –20°C or below
- Prepare the ddPCR reaction mix, as outlined in Table 1, without the diluted restriction enzyme

## Thermal Cycling Conditions

Refer to the QX700 Droplet Digital PCR System Instrument Guide (10000171493) for setup instructions. Use appropriate thermal cycling conditions as specified in Table 2.

**Table 2. Thermal cycling conditions.**

Cycling Step	Temperature, °C	Time	Ramp Rate	Number of Cycles
Enzyme activation	95	600 sec		1
Denaturation	95	15 sec	1°C/sec	40
Annealing/extension*	55–60	60 sec		40

\*Annealing/extension temperature and time may require adjustments depending on assay design.

## Data Acquisition and Analysis

Refer to the QX700 Droplet Digital PCR System Instrument Guide (10000171493) for instructions. Use appropriate exposure times as specified in Table 3.

**Table 3. Recommended exposure times.**

Channel*	Color	Time, msec**
FAM	Blue	85
HEX	Teal	273
ROX	Green	365
ATTO 590	Yellow	337
Cy5	Red	51
Cy5.5	Infra-Red	470
ATTO-550	Purple	110

\* Activate channels as needed.

\*\* Exposure times can be optimized per assay design. If the fluorescence signal reaches ≥60,000 RFU, rescan the plate using a shorter exposure time.

Visit [bio-rad.com/QX700ddPCRProbes](https://www.bio-rad.com/QX700ddPCRProbes) for more information.

Bio-Rad, ddPCR, Droplet Digital, Droplet Digital PCR and QX700 are trademarks of Bio-Rad Laboratories, Inc. in certain jurisdictions. All trademarks used herein are the property of their respective owner. © 2026 Bio-Rad Laboratories, Inc.

Purchase of Digital PCR and/or Single-Cell NGS Sample Preparation products (the "Products") from Bio-Rad Laboratories is subject to Bio-Rad Laboratories, Inc. Standard Terms and Conditions of Sale, which can be accessed at <https://www.bio-rad.com/en-us/terms-conditions>. Unless we expressly state otherwise in additional Terms and Conditions, no rights are granted for you to distribute or resell the Products. Unless we expressly state otherwise in additional Terms and Conditions, no rights are granted for the development or commercialization of diagnostic assays for use with the Products without a license from Bio-Rad. It is the user's obligation to obtain a commercial license from Bio-Rad for (i) all commercial uses (not just diagnostic uses) and (ii) sale of assays for use on Bio-Rad's dPCR and ddSEQ instruments. The Products and/or their use are covered by U.S. and foreign patents and/or pending patent applications owned by or under license to Bio-Rad Laboratories, Inc. See <https://www.bio-rad.com/en-us/trademarks>



**Bio-Rad  
Laboratories, Inc.**

Life Science  
Group

Website [bio-rad.com](https://www.bio-rad.com) USA 1 800 424 6723 Australia 61 2 9914 2800 Austria 00 800 00 24 67 23 Belgium 00 800 00 24 67 23 Brazil 55 11 3065 7550 Canada 1 800 361 1808 China 86 21 6169 8500 Czech Republic 00 800 00 24 67 23 Denmark 00 800 00 24 67 23 Finland 00 800 00 24 67 23 France 00 800 00 24 67 23 Germany 00 800 00 24 67 23 Greece 30 210 7774396 Hong Kong 852 2789 3300 Hungary 00 800 00 24 67 23 India 91 124 4029300 Israel 000 800 00 24 67 23 Italy 00 800 00 24 67 23 Japan 81 3 6361 7000 Korea 82 080 007 7373 Luxembourg 00 800 00 24 67 23 Mexico 52 55 5488 7670 The Netherlands 00 800 00 24 67 23 New Zealand 64 9 415 2280 Norway 00 800 00 24 67 23 Poland 00 800 00 24 67 23 Portugal 00 800 00 24 67 23 Russian Federation 7 495 721 14 04 Singapore 65 6415-3170 South Africa 27 21 531 7504 Spain 00 800 00 24 67 23 Sweden 00 800 00 24 67 23 Switzerland 00 800 00 24 67 23 Taiwan 886 2 2578 7189 Thailand 662 651 8311 United Arab Emirates 971 4 818 7300 United Kingdom 00 800 00 24 67 23