

## Product Profile

# QuantiNova Multiplex RT-PCR Kits

For ultrafast, multiplex, real-time RT-PCR with in-process safety measures

The QuantiNova Multiplex RT-PCR Kit increases workflow efficiency by generating more results per sample using ultrafast and in-process controlled multiplex RT-qPCR. Our specialized master mix allows easy set-up of multiplex reactions and ensures results comparable to singleplex RT-qPCR. The kit distinguishes between small differences in template amount and accurately quantitates targets of widely differing abundance. Additionally, the QuantiNova Multiplex RT-PCR Kit enables analysis of RNA from a single cell using our simple protocol for direct amplification from cultured cells.

The QuantiNova® Multiplex RT-PCR Kit provides:

- True room temperature set-up and unsurpassed sensitivity with our unique, two-phase, hot-start mechanism
- Never lose track aliquoting again with our built-in, visual pipetting control, preventing pipetting errors
- Simultaneously detect up to 5 targets in the same reaction with no compromise in performance
- Reliably quantitate low- and high-abundance targets
- Added security of a built-in, internal control, for verification of successful reverse transcription and amplification

## Reliability like never before with integrated controls

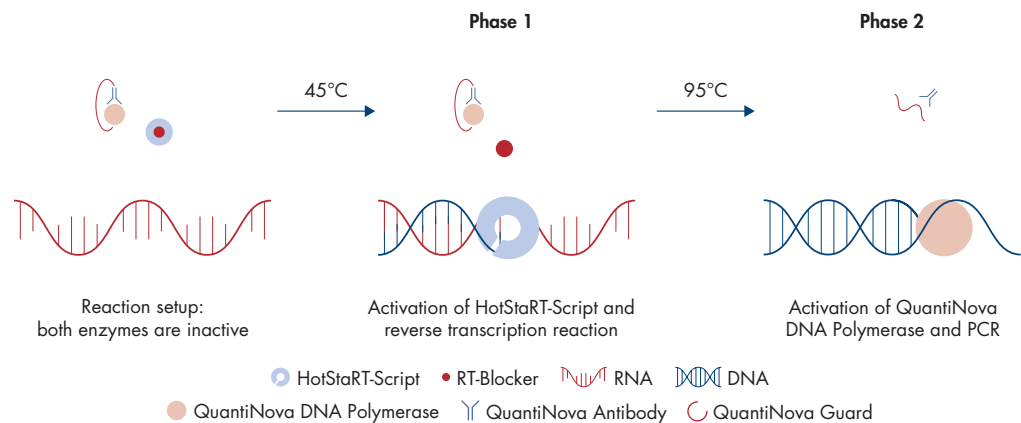
A combination of various integrated safety features removes variables and prevents artifacts. Easily verify master mix dispensing and template addition, preventing pipetting errors during reaction set-up, with our built-in, visual pipetting control. (Figure 1) Our optional QuantiNova internal control RNA can be used to monitor successful reverse transcription and amplification.



**Figure 1. Accurate reaction set-up indicated by the built-in pipetting control.** The master mix contains an inert blue dye, which when combined with the QuantiNova yellow template dilution buffer, turns the resulting solution green. This visual confirmation indicates that the reaction was set-up correctly.

## True room temperature set-up and unsurpassed sensitivity – Ultrafast!

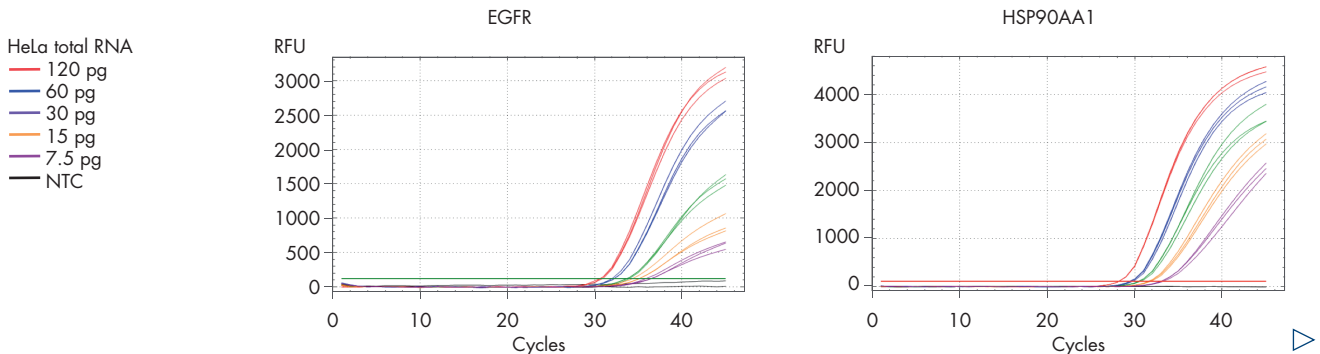
Count on highly sensitive analysis on any real-time cyclers with our unique, two-phase, hot-start mechanism (Figure 2) and at least 2 hours of room temperature stability – making the QuantiNova Multiplex RT-PCR kit ideally suited for automation. Our next-generation PCR buffer system gives you significantly reduced annealing and extension times, allowing multiplex RT-qPCR in less than one hour with our specially developed, ultrafast buffer containing the Q-Bond additive.

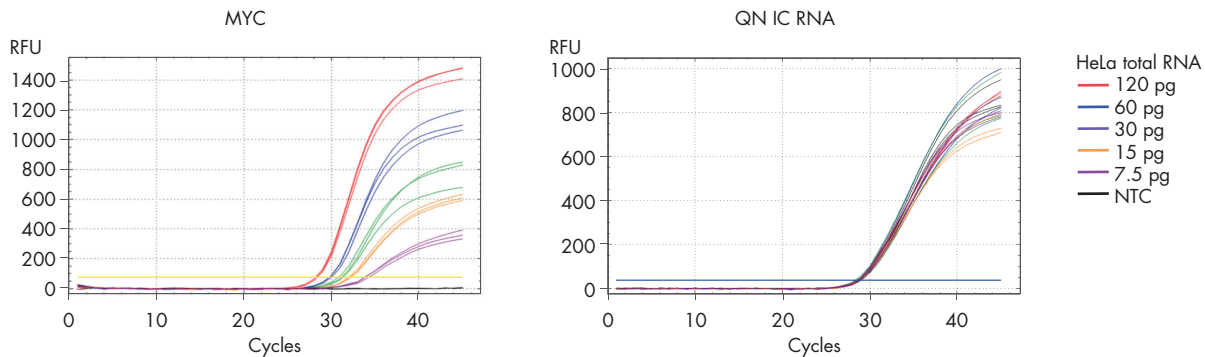


**Figure 2. Principle of the novel QuantiNova two-phase, hot-start mechanism.** At ambient temperature, the HotStaRTScript is inhibited by the RT-blocker and the QuantiNova DNA polymerase is kept inactive by QuantiNova Antibody and QuantiNova Guard. At 45°C, the RT is activated while the QuantiNova DNA polymerase remains inactive. At 95°C, the RT enzyme is denatured and the DNA polymerase is activated.

## Accurately quantitate low- and high-abundance targets in one reaction

Increase your efficiency and minimize handling errors by analyzing multiple targets in the same reaction. Accurate multiplex analysis relies on efficient amplification of all targets within the reaction without any competitive effects. Our unique PCR buffer includes a balanced combination of  $K^+$  and  $NH_4^+$  ions and our unique, synthetic Factor MP – promoting stable and efficient annealing of primers and probes to your templates. Always get high efficiency amplification of all targets in the reaction regardless of abundance (Figure 3).

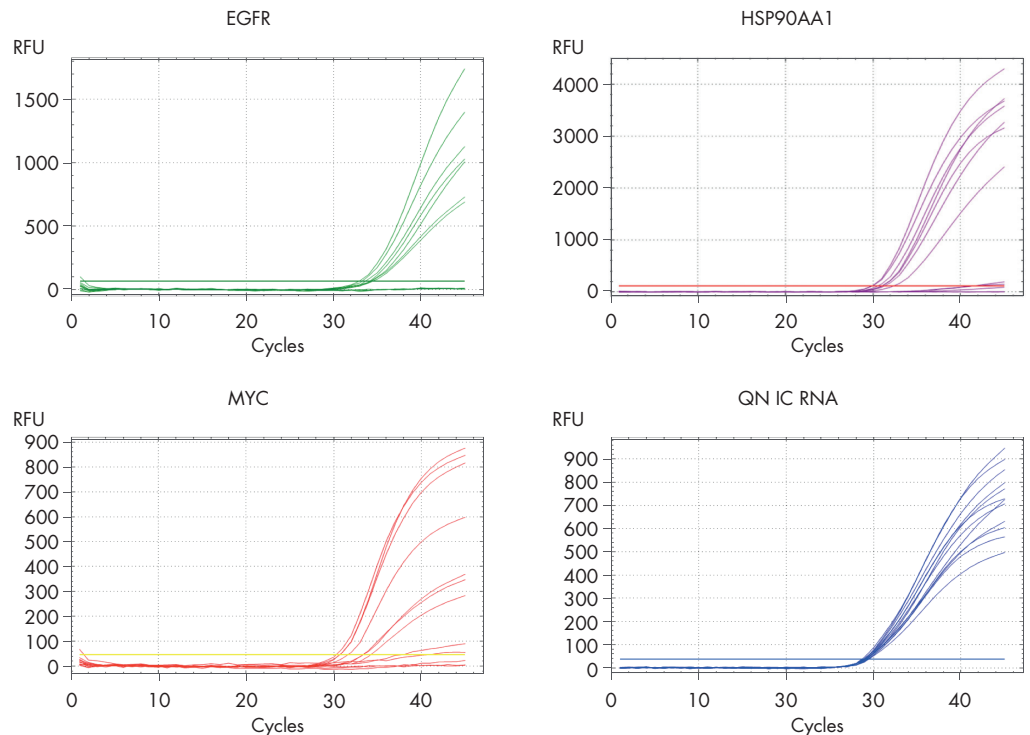




**Figure 3. Highly sensitive multiplex detection of targets with varying abundance.** Four-plex RT-PCR reactions detecting EGFR, MYC, HSP90AA1 and the QuantiNova IC RNA in 120, 60, 30, 15 and 7.5 pg of total RNA from HeLa cells, corresponding to the RNA amount from 8, 4, 2, 1 and 0.5 cells were performed in triplicate. The QuantiNova Multiplex RT-PCR Kit delivers accurate results for all 4 targets even from extremely low RNA amounts, despite varying abundance of the targets.

## Perform gene expression analysis directly from cells – Even from a single cell!

The QuantiNova Multiplex RT-PCR Kit includes a protocol for direct amplification from cultured cells. Reliably amplify from as little as a single cell! Get sensitive, reliable and direct analysis of gene expression.



**Figure 4. Multiplex gene expression analysis in single cells.** Four-plex detection of EGFR, HSP90AA1 and MYC and QuantiNova IC RNA was performed using the QuantiNova Multiplex RT-PCR Kit in 12 separate reactions containing 1 HeLa cell per reaction, obtained by limiting dilution. The expected number of positive replicates was calculated using Poisson’s equation and compared to the actual number of positive reactions determined. The calculated frequency of 63.2% (7–8 out of 12 reactions) positive replicates was highly concordant to the experimentally achieved, 7 positive reactions, demonstrating the capability for direct RT-PCR from single, cultured cells.

## Ordering Information

Product	Contents	Cat. no.
QuantiNova IC Probe Assay (200)	400 µl primer / probe mix (10x) for 200 reactions, detects internal control RNA; use with QuantiNova Probe PCR Kit or QuantiNova Probe RT-PCR Kit	205813
QuantiNova IC Probe Assay Red 650 (500)	For 500 reactions: 1000 µl IC Probe Assay Red (Cy5 analog label, available as an accessory only)	205824
QuantiNova Probe PCR Kit (100)	For 100 x 20 µl reactions: 1 ml 2x QuantiNova Probe PCR Master Mix, 250 µl QN ROX Reference Dye, 500 µl QuantiNova yellow template dilution buffer, 1.9 ml Water	208252
QuantiNova Probe RT-PCR Kit (100)	For 100 x 20 µl reactions: 1 ml QuantiNova Probe RT-PCR Master Mix, 20 µl QuantiNova Probe RT Mix, 20 µl internal control RNA, 500 µl yellow template dilution buffer, 250 µl ROX Reference Dye, 1.9 µl RNase-Free Water	208352
QuantiNova Multiplex PCR Kit (100)	Multiplex PCR Mastermix, 500µl yellow template dilution buffer, 250 µl ROX Reference Dye, 1.9 µl RNase-Free Water	208452
QuantiNova Multiplex RT-PCR Kit (100)	For 100 x 20 µl reactions: 0.5 ml 4x QuantiNova Multiplex RT-PCR Master Mix, 20 µl QuantiNova Multiplex RT-Mix, 20 µl QuantiNova IC RNA, 500 µl QuantiNova yellow template dilution buffer, 250 µl QN ROX Reference Dye, 1.9 ml RNase-Free Water	208552
QuantiNova Reverse Transcription Kit (10)	For 10 x 20 µl reactions: 20 µl 8x gDNA Removal Mix, 10 µl Reverse Transcription Enzyme, 40 µl Reverse Transcription Mix (containing RT primers), 20 µl internal control RNA, 1.9 ml RNase-Free Water	205410

For up-to-date licensing information and product-specific disclaimers, see the respective QIAGEN kit handbook or user manual. QIAGEN kit handbooks and user manuals are available at [www.qiagen.com](http://www.qiagen.com) or can be requested from QIAGEN Technical Services or your local distributor.

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