altona DIAGNOSTICS

Instructions for Use

RealStar®
Influenza Screen & Type RT-PCR Kit 4.0

02/2021 EN

RealStar®

RealStar®

Influenza Screen & Type RT-PCR Kit 4.0

For use with

Mx 3005P™ QPCR System (Stratagene)

VERSANT® kPCR Molecular System AD (Siemens Healthcare)

ABI Prism® 7500 SDS (Applied Biosystems)

ABI Prism® 7500 Fast SDS (Applied Biosystems)

Rotor-Gene® 6000 (Corbett Research)

Rotor-Gene® Q5/6 plex Platform (QIAGEN)

CFX96™ Real-Time PCR Detection System (Bio-Rad)

CFX96™ Deep Well Real-Time PCR Detection System (Bio-Rad)

LightCycler® 480 Instrument II (Roche)

CE

IVD

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altona Diagnostics GmbH • Mörkenstr. 12 • D-22767 Hamburg

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Content

1. Intended Use

The RealStar® Influenza Screen & Type RT-PCR Kit 4.0 is an *in vitro* diagnostic test, based on real-time PCR technology, for the qualitative detection and differentiation of influenza A virus, influenza B virus and influenza A (H1N1)pdm09 virus specific RNA.

2. Kit Components

Lid Color	Component	Number of Vials	Volume [µl/Vial]
Blue	Master A	8	60
Purple	Master B	8	180
Green	Internal Control	1	1000
Red	Positive Control	1	250
White	Water (PCR grade)	1	500

3. Storage

- The RealStar® Influenza Screen & Type RT-PCR Kit 4.0 is shipped on dry ice. The components of the kit should arrive frozen. If one or more components are not frozen upon receipt, or if tubes have been compromised during shipment, contact altona Diagnostics GmbH for assistance.
- All components should be stored between -25 °C and -15 °C upon arrival.
- Repeated thawing and freezing of Master reagents (more than twice) should be avoided, as this might affect the performance of the assay. The reagents should be frozen in aliquots, if they are to be used intermittently.
- Storage between +2 °C and +8 °C should not exceed a period of two hours.
- Protect Master A and Master B from light.

4. Material and Devices required but not provided

- Appropriate real-time PCR instrument (see chapter 6.1 Real-Time PCR Instruments)
- Appropriate nucleic acid extraction system or kit (see chapter 8.1 Sample Preparation)
- Desktop centrifuge with a rotor for 2 ml reaction tubes
- Centrifuge with a rotor for microtiter plates, if using 96 well reaction plates
- Vortex mixer
- Appropriate 96 well reaction plates or reaction tubes with corresponding (optical) closing material
- Pipettes (adjustable)
- Pipette tips with filters (disposable)
- Appropriate swabs for sample collection
- Powder-free gloves (disposable)

NOTE

Please ensure that all instruments used have been installed, calibrated, checked and maintained according to the manufacturer´s instructions and recommendations.

NOTE

It is highly recommended to use the 72-well rotor with the appropriate 0.1 ml reaction tubes, if using the Rotor-Gene® 6000 (Corbett Research) or the Rotor-Gene® Q 5/6 plex (QIAGEN).

5. Background Information

Influenza, commonly referred to as the flu, is an infectious disease caused by RNA viruses of the family *Orthomyxoviridae* (influenza viruses). Influenza viruses are characterized by the continuous change of their major surface antigens hemagglutinin (H) and neuraminidase (N) (antigenic drift). They infect birds and mammals via aerosols. Human influenza A and influenza B viruses cause severe infections predominantly of the respiratory tract with fever and coughs as the most frequent symptoms. In more serious cases, influenza causes pneumonia, which can be fatal particularly for children and elderly people.

NOTE	
i	***Due to the relatively fast molecular evolution of RNA viruses, there is an inherent risk for any RT-PCR based test system that accumulation of mutations over time may lead to false negative results.***

6. Product Description

The RealStar® Influenza Screen & Type RT-PCR Kit 4.0 is an *in vitro* diagnostic test, based on real-time PCR technology, for the qualitative detection and differentiation of influenza A virus, influenza B virus and influenza A (H1N1)pdm09 virus (formerly designated as as influenza A virus $H1N1_{nv}$) specific RNA.

The assay includes a heterologous amplification system (Internal Control) to identify possible RT-PCR inhibition and to confirm the integrity of the reagents of the kit.

Real-time RT-PCR technology utilizes reverse-transcriptase (RT) reaction to convert RNA into complementary DNA (cDNA), polymerase chain reaction (PCR) for the amplification of specific target sequences and target specific probes for the detection of the amplified DNA. The probes are labeled with fluorescent reporter and quencher dyes.

Probes specific for influenza A RNA are labeled with the fluorophore FAM™, probes specific for influenza B RNA are labeled with the fluorophore Cy5 and probes specific for influenza A (H1N1)pdm09 RNA are labeled with the fluorophore ROX™. The probe specific for the Internal Control (IC) is labeled with the fluorophore JOE™.

Using probes linked to distinguishable dyes enables the parallel detection of influenza A, influenza B and influenza A (H1N1)pdm09 specific RNA, as well as the detection of the Internal Control in corresponding detector channels of the real-time PCR instrument.

The test consists of three processes in a single tube assay:

- Reverse transcription of target and Internal Control RNA to cDNA
- PCR amplification of target and Internal Control cDNA
- Simultaneous detection of PCR amplicons by fluorescent dye labeled probes

The RealStar® Influenza Screen & Type RT-PCR Kit 4.0 consists of:

- Master A
- Master B
- Internal Control
- Positive Control
- Water (PCR grade)

Master A and Master B contain all components (PCR buffer, reverse transcriptase, DNA polymerase, magnesium salt, primers and probes) to allow reverse transcription, PCR mediated amplification and detection of influenza A specific RNA, influenza B specific RNA, influenza A (H1N1)pdm09 specific RNA and the Internal Control in one reaction setup.

6.1 Real-Time PCR Instruments

The RealStar® Influenza Screen & Type RT-PCR Kit 4.0 was developed and validated to be used with the following real-time PCR instruments:

- Mx 3005P™ QPCR System (Stratagene)
- VERSANT® kPCR Molecular System AD (Siemens Healthcare)
- ABI Prism® 7500 SDS (Applied Biosystems)
- ABI Prism® 7500 Fast SDS (Applied Biosystems)
- Rotor-Gene® 6000 (Corbett Research)
- Rotor-Gene® Q5/6 plex Platform (QIAGEN)
- CFX96™ Real-Time PCR Detection System (Bio-Rad)
- CFX96™ Deep Well Real-Time PCR Detection System (Bio-Rad)
- LightCycler® 480 Instrument II (Roche)

7. Warnings and Precautions

Read the Instructions for Use carefully before using the product.

- Before first use check the product and its components for:
  - Integrity
  - Completeness with respect to number, type and filling (see chapter 2. Kit Components)
  - Correct labelling
  - Frozenness upon arrival
- Use of this product is limited to personnel specially instructed and trained in the techniques of real-time PCR and *in vitro* diagnostic procedures.
- Specimens should always be treated as infectious and/or biohazardous in accordance with safe laboratory procedures.

- Wear protective disposable powder-free gloves, a laboratory coat and eye protection when handling specimens.
- Avoid microbial and nuclease (DNase/RNase) contamination of the specimens and the components of the kit.
- Always use DNase/RNase-free disposable pipette tips with aerosol barriers.
- Always wear protective disposable powder-free gloves when handling kit components.
- Use separated and segregated working areas for (i) sample preparation, (ii) reaction setup and (iii) amplification/detection activities. The workflow in the laboratory should proceed in unidirectional manner. Always wear disposable gloves in each area and change them before entering a different area.
- Dedicate supplies and equipment to the separate working areas and do not move them from one area to another.
- Store positive and/or potentially positive material separated from all other components of the kit.
- Do not open the reaction tubes/plates post amplification, to avoid contamination with amplicons.
- Additional controls may be tested according to guidelines or requirements of local, state and/or federal regulations or accrediting organizations.
- Do not autoclave reaction tubes after the PCR, since this will not degrade the amplified nucleic acid and will bear the risk to contaminate the laboratory area.
- Do not use components of the kit that have passed their expiration date.
- Discard sample and assay waste according to your local safety regulations.

8. Procedure

8.1 Sample Preparation

Extracted RNA is the starting material for the RealStar® Influenza Screen & Type RT-PCR Kit 4.0.

The quality of the extracted RNA has a profound impact on the performance of the entire test system. It is recommended to ensure that the system used for nucleic acid extraction is compatible with real-time PCR technology. The following kits and systems are suitable for nucleic acid extraction:

- QIAamp® Viral RNA Mini Kit (QIAGEN)
- QIAsymphony® (QIAGEN)
- NucliSENS® easyMag® (bioMérieux)
- MagNA Pure 96 System (Roche)
- m2000sp (Abbott)
- Maxwell® 16 IVD Instrument (Promega)
- VERSANT® kPCR Molecular System SP (Siemens Healthcare)

Alternative nucleic acid extraction systems and kits might also be appropriate. The suitability of the nucleic acid extraction procedure for use with RealStar® Influenza Screen & Type RT-PCR Kit 4.0 has to be validated by the user.

If using a spin column-based sample preparation procedure including washing buffers containing ethanol, it is highly recommended to perform an additional centrifugation step for 10 min at approximately 17 000 x g (~ 13 000 rpm), using a new collection tube, prior to the elution of the nucleic acid.

CAUTION	
	***If your sample preparation system is using washing buffers containing ethanol, make sure to eliminate any traces of ethanol prior to elution of the nucleic acid. Ethanol is a strong inhibitor of real-time PCR.***

CAUTION	
	***The use of carrier RNA is crucial for extraction efficiency and stability of the extracted nucleic acid.***

For additional information and technical support regarding pre-treatment and sample preparation please contact our Technical Support (see chapter 14. Technical Assistance).

8.2 Master Mix Setup

All reagents and samples should be thawed completely, mixed (by pipetting or gentle vortexing) and centrifuged briefly before use.

The RealStar® Influenza Screen & Type RT-PCR Kit 4.0 contains a heterologous Internal Control (IC), which can either be used as a RT-PCR inhibition control or as a control of the sample preparation procedure (nucleic acid extraction) and as a RT-PCR inhibition control.

► If the IC is used as a RT-PCR inhibition control, but not as a control for the sample preparation procedure, set up the Master Mix according to the following pipetting scheme:

Number of Reactions (rxns)	1	12
Master A	5 µl	60 µl
Master B	15 µl	180 µl
Internal Control	1 µl	12 µl
Volume Master Mix	**21 µl**	**252 µl**

► If the IC is used as a control for the sample preparation procedure and as a RT-PCR inhibition control, add the IC during the nucleic acid extraction procedure.

► No matter which method/system is used for nucleic acid extraction, the IC **must not** be added directly to the specimen. The IC should always be added to the specimen/lysis buffer mixture. The volume of the IC which has to be added, always and only depends on the elution volume. It represents 10 % of the elution volume. For instance, if the nucleic acid is going to be eluted in 60 µl of elution buffer or water, 6 µl of IC per sample must be added into the specimen/lysis buffer mixture.

► If the IC was added during the sample preparation procedure, set up the Master Mix according to the following pipetting scheme:

Number of Reactions (rxns)	1	12
Master A	5 µl	60 µl
Master B	15 µl	180 µl
Volume Master Mix	**20 µl**	**240 µl**

CAUTION

If the IC (Internal Control) was added during the sample preparation procedure, at least the negative control must include the IC.

CAUTION

No matter which method/system is used for nucleic acid extraction, never add the IC directly to the specimen.

8.3 Reaction Setup

- ► Pipette 20 µl of the Master Mix into each required well of an appropriate optical 96-well reaction plate or an appropriate optical reaction tube.
- ► Add 10 µl of the sample (eluate from the nucleic acid extraction) or 10 µl of the controls (Positive or Negative Control).

Reaction Setup	
Master Mix	20 µl
Sample or Control	10 µl
Total Volume	**30 µl**

- ► Make sure that at least one Positive Control and at least one Negative Control is used per Master Mix and run.
- ► Thoroughly mix the samples and controls with the Master Mix by pipetting up and down.
- ► Close the 96-well reaction plate with appropriate lids or optical adhesive film and the reaction tubes with appropriate lids.
- ► Centrifuge the 96-well reaction plate in a centrifuge with a microtiter plate rotor for 30 seconds at approximately 1000 x g (~ 3000 rpm).

9. Programming the Real-Time PCR Instrument

For basic information regarding the setup and programming of the different real-time PCR instruments, please refer to the user manual of the respective instrument.

For detailed programming instructions regarding the use of the RealStar® Influenza Screen & Type RT-PCR Kit 4.0 on specific real-time PCR instruments please contact our Technical Support (see chapter 14. Technical Assistance).

9.1 Settings

► Define the following settings:

Settings	
Reaction Volume	30 µl
Ramp Rate	Default
Passive Reference	None

9.2 Fluorescence Detectors (Dyes)

► Define the fluorescence detectors (dyes):

Target	Detector Name	Reporter	Quencher
influenza A specific RNA	influenza A	FAM™	(None)
influenza B specific RNA	influenza B	Cy5	(None)
influenza A (H1N1)pdm09 specific RNA	influenza A (H1N1)pdm09	ROX™	(None)
Internal Control (IC)	IC	JOE™	(None)

9.3 Temperature Profile and Dye Acquisition

► Define the temperature profile and dye acquisition:

	Stage	Cycle Repeats	Acquisition	Temperature [°C]	Time [min:sec]
Reverse Transcription	Hold	1	-	55	20:00
Denaturation	Hold	1	-	95	02:00
Amplification	Cycling	45	-	95	00:15
			yes	55	00:45
			-	72	00:15

10. Data Analysis

For basic information regarding data analysis on specific real-time PCR instruments, please refer to the user manual of the respective instrument.

For detailed instructions regarding the analysis of the data generated with the RealStar® Influenza Screen & Type RT-PCR Kit 4.0 on different real-time PCR instruments please contact our Technical Support (see chapter 14. Technical Assistance).

10.1 Validity of Diagnostic Test Runs

10.1.1 Valid Diagnostic Test Run (qualitative)

A **qualitative** diagnostic test run is **valid**, if the following control conditions are met:

Control ID	Detection Channel			
	FAM™	Cy5	ROX™	JOE™
Positive Control [influenza A, influenza B and influenza A (H1N1)pdm09]	+	+	+	+/-*
Negative Control	-	-	-	+

* The presence or absence of a signal in the JOE™ channel is not relevant for the validity of the test run.

10.1.2 Invalid Diagnostic Test Run (qualitative)

A **qualitative** diagnostic test run is **invalid**, (i) if the run has not been completed or (ii) if any of the control conditions for a **valid** diagnostic test run are not met.

In case of an **invalid** diagnostic test run, repeat testing by using the remaining purified nucleic acids or start from the original samples again.

10.2 Interpretation of Results

10.2.1 Qualitative Analysis

Detection Channel				Result Interpretation
FAM™	Cy5	ROX™	JOE™	
+	+	+	+*	Influenza A, influenza B and influenza A (H1N1)pdm09 specific RNA detected.
+	-	-	+*	Influenza A specific RNA detected.
-	+	-	+*	Influenza B specific RNA detected.
-	-	+	+	Influenza A (H1N1)pdm09 specific RNA detected.[1]
+	-	+	+*	Influenza A (H1N1)pdm09 specific RNA detected.[1, 2]
-	-	-	+	Neither influenza A, nor influenza B nor influenza A (H1N1)pdm09 specific RNA detected. The sample does not contain detectable amounts of influenza A, influenza B and influenza A (H1N1)pdm09 specific RNA.
-	-	-	-	RT-PCR inhibition or reagent failure. Repeat testing from original sample or collect and test a new sample.

* Detection of the Internal Control in the JOE™ detection channel is not required for positive results either in the FAM™ detection channel, Cy5 detection channel or in the ROX™ detection channel. A high target RNA load in the sample can lead to reduced or absent Internal Control signal.

[1] Due to different sensitivity of the detection systems for the influenza A (FAM™) and the influenza A (H1N1)pdm09 (ROX™) target, in rare cases weak positive samples may show a signal in the ROX™ channel but not in the FAM™ channel.

[2] (H1N1)pdm09 strains belong to the influenza A virus group. Therefore, (H1N1)pdm09 positive samples generate a positive signal in the FAM™ and in the ROX™ channel.

11. Performance Evaluation

Performance evaluation of the RealStar® Influenza Screen & Type RT-PCR Kit 4.0 was done using quantified influenza A virus (H1N1)pdm09 RNA (strain A/NY/02/2009), influenza A virus H3N2 RNA (strain Wisconsin/67/05) and influenza B virus RNA (strain Florida/04/06).

11.1 Analytical Sensitivity

The analytical sensitivity of the RealStar® Influenza Screen & Type RT-PCR Kit 4.0 is defined as the concentration (copies/µl of the eluate) of influenza A (H1N1)pdm09 or influenza A or influenza B specific RNA molecules that can be detected with a positivity rate of 95%. The analytical sensitivity was determined by analysis of dilution series of quantified influenza A (H1N1)pdm09 RNA, influenza A RNA and influenza B RNA.

Table 1: RT-PCR results used for the calculation of the analytical sensitivity with respect to the detection of influenza A specific RNA

Input Conc. [copies/µl]	Number of Replicates	Number of Positives	Hit Rate [%]
31.622	24	24	100
10.000	24	24	100
3.162	24	23	96
1.000	24	18	75
0.316	24	12	50
0.100	24	2	8
0.032	24	1	4
0.010	24	0	0
0.003	24	0	0

Table 2: RT-PCR results used for the calculation of the analytical sensitivity with respect to the detection of influenza B specific RNA

Input Conc. [copies/µl]	Number of Replicates	Number of Positives	Hit Rate [%]
31.622	24	24	100
10.000	24	24	100
3.162	24	24	100
1.000	24	24	100
0.316	24	21	88
0.100	24	13	54
0.032	24	1	4
0.010	24	0	0
0.003	24	0	0

Table 3: RT-PCR results used for the calculation of the analytical sensitivity with respect to the detection of influenza A (H1N1)pdm09 specific RNA

Input Conc. [copies/µl]	Number of Replicates	Number of Positives	Hit Rate [%]
31.622	24	24	100
10.000	24	24	100
3.162	24	24	100
1.000	24	24	100
0.316	24	19	79
0.100	24	8	33
0.032	24	2	8
0.010	24	2	8
0.003	24	0	0

The analytical sensitivity of the RealStar® Influenza Screen & Type RT-PCR Kit 4.0 was determined by Probit analysis:

- For the detection of influenza A specific RNA, the analytical sensitivity is 2.88 copies/µl [95% confidence interval (CI): 1.70-6.55 copies/µl]
- For the detection of influenza B specific RNA, the analytical sensitivity is 0.39 copies/µl [95% confidence interval (CI): 0.26-0.81 copies/µl]
- For the detection of influenza A (H1N1)pdm09 virus specific RNA, the analytical sensitivity is 0.87 copies/µl [95% confidence interval (CI): 0.51-1.97 copies/µl]

11.2 Analytical Specificity

The analytical specificity of the RealStar® Influenza Screen & Type RT-PCR Kit 4.0 is ensured by the thorough selection of the oligonucleotides (primers and probes). The oligonucleotides were checked by sequence comparison analysis against publicly available sequences to ensure that all relevant influenza A, influenza B and influenza A (H1N1)pdm09 genotypes will be detected.

The analytical specificity of the RealStar® Influenza Screen & Type RT-PCR Kit 4.0 was evaluated by testing a panel of genomic RNA/DNA extracted from pathogens likely to be present in the same sample matrix or causing similar symptoms to influenza virus.

The RealStar® Influenza Screen & Type RT-PCR Kit 4.0 did not cross-react with any of the following pathogens:

- Enterovirus (Coxsackie)
- Human adenovirus
- Human metapneumovirus
- Human parainfluenza virus
- Human respiratory syncytial virus A
- Rhinovirus
- *Bordetella parapertussis*
- *Bordetella pertussis*
- *Chlamydophila pneumoniae*
- *Haemophilus influenzae*
- *Legionella pneumophila*
- *Moraxella catarrhalis*
- *Streptococcus pneumoniae*

11.3 Precision

Precision of the RealStar® Influenza Screen & Type RT-PCR Kit 4.0 was determined as intra-assay variability (variability within one experiment), inter-assay variability (variability between different experiments) and inter-lot variability (variability between different production lots). Total variability was calculated by combining the 3 analyses.

The variability data are expressed in terms of standard deviation and coefficient of variation based on threshold cycle (C_t) - values. At least **six** replicates per sample were analysed for intra-assay variability, inter-assay and inter-lot variability.

Table 4: Precision data for the detection of influenza A, influenza B and influenza A (H1N1) pdm09 specific RNA

Influenza A, influenza B and influenza A (H1N1)pdm09		Average Threshold Cycle (C_t)	Standard Deviation	Coefficient of Variation [%]
Intra-Assay Variability	influenza A	30.44	0.18	0.60
	influenza B	33.59	0.19	0.57
	influenza A (H1N1)pdm09	32.30	0.07	0.22
Inter-Assay Variability	influenza A	30.45	0.13	0.42
	influenza B	33.82	0.28	0.83
	influenza A (H1N1)pdm09	32.14	0.10	0.31
Inter-Lot Variability	influenza A	30.31	0.17	0.57
	influenza B	34.61	0.60	1.74
	influenza A (H1N1)pdm09	32.09	0.08	0.24
Total Variability	influenza A	30.35	0.18	0.59
	influenza B	34.27	0.70	2.04
	influenza A (H1N1)pdm09	32.13	0.09	0.28

Table 5: Precision data for the detection of the Internal Control

Internal Control	Average Threshold Cycle (C_t)	Standard Deviation	Coefficient of Variation [%]
Intra-Assay Variability	29.15	0.06	0.19
Inter-Assay Variability	29.09	0.08	0.28
Inter-Lot Variability	29.09	0.08	0.28
Total Variability	29.11	0.08	0.27

12. Limitations

- Strict compliance with the Instructions for Use is required for optimal results.
- Use of this product is limited to personnel specially instructed and trained in the techniques of real-time PCR and *in vitro* diagnostic procedures.
- Good laboratory practice is essential for proper performance of this assay. Extreme care should be taken to preserve the purity of the components of the kit and reaction setups. All reagents should be closely monitored for impurity and contamination. Any suspicious reagents should be discarded.
- Appropriate specimen collection, transport, storage and processing procedures are required for the optimal performance of this test.
- This assay must not be used on the specimen directly. Appropriate nucleic acid extraction methods have to be conducted prior to using this assay.
- The presence of RT-PCR inhibitors (e.g. heparin) may cause false negative or invalid results.
- Potential mutations within the target regions of the influenza A, influenza B and/or influenza A (H1N1)pdm09 genome covered by the primers and/or probes used in the kit may result in failure to detect the presence of the pathogens.
- As with any diagnostic test, results of the RealStar® Influenza Screen & Type RT-PCR Kit 4.0 need to be interpreted in consideration of all clinical and laboratory findings.

- Some rare swine influenza virus strains e.g. influenza A/Parana/720/2015 (H1N2v) and influenza A G4 EA H1N1, containing the same matrix gene target sequence as influenza A (H1N1)pdm09, will be typed as influenza A (H1N1)pdm09.

13. Quality Control

In accordance with the altona Diagnostics GmbH ISO EN 13485-certified Quality Management System, each lot of RealStar® Influenza Screen & Type RT-PCR Kit 4.0 is tested against predetermined specifications to ensure consistent product quality.

14. Technical Assistance

For customer support, please contact our Technical Support:

e-mail: **support@altona-diagnostics.com**

phone: **+49-(0)40-5480676-0**

15. Literature

Versalovic, James, Carroll, Karen C., Funke, Guido, Jorgensen, James H., Landry, Marie Louise and David W. Warnock (ed). Manual of Clinical Microbiology. 10th Edition. ASM Press, 2011.

Cohen, Jonathan, Powderly, William G, and Steven M Opal. Infectious Diseases, Third Edition. Mosby, 2010.

16. Trademarks and Disclaimers

RealStar® (altona Diagnostics); ATCC® (American Type Culture Collection); ABI Prism® (Applied Biosystems); NucliSENS®, easyMag® (bioMérieux); CFX96™ (Bio-Rad); SmartCycler® (Cepheid); JOE™ (Life Technologies); Maxwell® (Promega); MinElute®, QIAamp®, QIAsymphony®, Rotor-Gene® (QIAGEN); LightCycler® (Roche); VERSANT® (Siemens Healthcare); Mx 3005P™ (Stratagene); FAM™, ROX™ (Thermo Fisher Scientific).

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The RealStar® Influenza Screen & Type RT-PCR Kit 4.0 is a CE-marked diagnostic kit according to the European *in vitro* diagnostic directive 98/79/EC.

Product not licensed with Health Canada and not FDA cleared or approved.

Not available in all countries.

17. Explanation of Symbols

Symbol	Explanation
IVD	*In vitro* diagnostic medical device
LOT	Batch code
CAP	Cap color
REF	Catalogue number
CONT	Content
NUM	Number
COMP	Component
GTIN	Global trade item number
	Consult instructions for use
	Contains sufficient for “n” tests/reactions (rxns)
	Temperature limit
	Use-by date
	Manufacturer
	Caution
	Note
	Version

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always a drop ahead.

altona Diagnostics GmbH
Mörkenstr. 12
22767 Hamburg, Germany

phone +49 40 548 0676 0
fax +49 40 548 0676 10
e-mail info@altona-diagnostics.com

www.altona-diagnostics.com